

Reliability of a Thai Version of the International Prostate Symptom Score (IPSS) for the Thai Population

Kullanan Nontakaew MD*,
Wachira Kochakarn MD*, Kittinut Kijvika MD*,
Wit Viseshsindh MD*, Chatchawan Silpakit MD**

* Division of Urology, Department of Surgery, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

** Department of Psychology, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand

Objective: To develop and test the reliability of a Thai version of the International Prostate Symptom Score (IPSS-Th).

Material and Method: A Thai version of the International Prostate Symptom Score (IPSS-Th) was developed after conducting many steps. The original English version of the International Prostate Symptom Score (IPSS) was translated into Thai by three urologists working independently. After having compared the original English version with various translations, the final Thai version was obtained. Fifty Thai males possessing a good understanding of both English and Thai were asked to complete the Thai version of the IPSS. Two weeks later, they were asked to complete the English version of the IPSS. Internal consistency was assessed using Cronbach's alpha. Next, 118 Thai males were tested using the Thai version of the IPSS and retested after two weeks. As such, the reliability of the Thai version of the IPSS was evaluated using the test-retest method.

Results: For the Thai IPSS version, Cronbach's alpha was 0.77 and the English version of the IPSS was 0.88. The test-retest reliability was 0.96.

Conclusion: The Thai version of the IPSS was found to be reliable and should be a useful tool for patient assessment, follow-up, and research in the population of Thai-speaking patients.

Keywords: IPSS, Thai version, Prostate symptom score

J Med Assoc Thai 2014; 97 (6): 615-20

Full text. e-Journal: <http://www.jmatonline.com>

Lower urinary tract symptoms (LUTS) caused by benign prostatic hyperplasia (BPH) are common in older men⁽¹⁾, with age-specific prevalence rates of 50 to 85% among men older than 50 years of age⁽²⁾. In men who have LUTS, it is important to carefully analyze symptoms in order to evaluate and provide treatment that will improve the quality of lives.

The International Prostatic Symptom Score (IPSS) developed by the World Health Organization (WHO) has been widely used in assessing LUTS in many countries in both community-based and in clinical-base studies. The IPSS contains seven items that measure LUTS with an item measuring overall impact on quality of life. Each of the seven items has a response scale with five choices, ranging from 0 (absence of symptom) to 5 (symptom always present). Symptoms are considered mild (scores ranging from 0-7), moderate (scores ranging from 8-19) and severe

(scores ranging from 20-35)⁽³⁻⁵⁾. The IPSS is easy to administer, simple to understand, and brief in length. Respondents can complete it in only 10 minutes⁽⁴⁾. Furthermore, the IPSS has been translated into several languages^(3,6-10).

In Thailand, there is evidence to suggest that BPH-related LUTS are common in older men and these results are similar to the findings in other countries⁽¹¹⁾. The aim of the present study is to develop a Thai version of the IPSS, referred to as the IPSS-Th. The present study also evaluates the reliability of the IPSS-Th.

Material and Method

Development and validation of the IPSS-Th

The original English version of the International Prostatic Symptom Score (IPSS) questionnaire was translated into the Thai language by three urologists, working independently. Thai is the first language of each of these three translators. After having compared the original English version with various translations during the course of several meetings, the final Thai version was developed and completed.

Correspondence to:

Nontakaew K, Division of Surgery, Chumphon Khet Udomsak Hospital, Chumphon 86000, Thailand.

Phone: 084-922-0440, Fax: 077-503-672

E-mail: toop012@hotmail.com

Phase 1

Fifty Thai males who possess a good understanding of both English and Thai, and had no current or past history of urinary tract disorders or diseases that could have affected their urinary tract function, were asked to complete the Thai version of the IPSS questionnaire (IPSS-Th). Two weeks later, they were asked to complete the English version of the IPSS. The internal consistency of the IPSS-Th was assessed using Cronbach's alpha coefficient⁽¹²⁾. An internal consistency finding indicates that the items performed well enough together so as to provide a composite score⁽¹³⁾. For each item in the questionnaire, the pairwise agreement between sessions was measured using the Kappa statistic.

Phase 2 (test and retest)

Test and retest reproducibility are defined as the consistency of a response to a question administered at different times when the disease condition remains essentially unchanged or stable⁽¹³⁾.

One hundred eighteen people, some with lower urinary tract symptoms, were asked to complete the IPSS-Th questionnaire. Two weeks later, all 118 respondents were retested with the IPSS-Th once more. Reliability was assessed using the intraclass correlation coefficient (ICC), which was derived from ANOVA. The ICC values varied from 1 (perfectly reliable) to 0 (totally unreliable)⁽¹⁴⁾.

Results

In the present study, 168 males were divided into two groups (50 males in Phase 1 and 118 males in Phase 2). Phase 1 participants consisted of people who possessed a good understanding of both English and Thai, had no current or past history of urinary tract disorders or diseases that could have affected their urinary tract function, and average 31 years of age. Phase 2 participants consisted of 118 males with average age of 55 years. The socio-demographic characteristics of both groups are shown in Table 1.

Table 1. Sociodemographic characteristics

Variable	Phase 1 (control)	Phase 2
Number (n)	50	118
Age (mean ± SD)	31.82±6.86	55.19±11.19
Religion (%)		
Buddhism	48 (96.00)	117 (99.20)
Christ	1 (2.00)	0 (0)
Muslim	1 (2.00)	1 (0.80)
Education (%)		
Under primary	-	1 (0.85)
Primary	-	13 (11.02)
High school	-	56 (47.46)
Bachelor's degree	31 (62.00)	42 (35.59)
More than bachelor's degree	19 (38.00)	6 (5.08)
Occupation (%)		
Government officer	33 (66.00)	45 (38.14)
Company officer	9 (18.00)	4 (3.39)
Own business	-	25 (21.19)
Retired	-	24 (20.34)
Unemploy	-	3 (2.54)
Other	8 (16.00)	17 (14.41)
Income (mean ± SD)	29,019.00±15,359.68	22,381.00±11,520.31
Underlying (%)		
Diabetes mellitus (DM)	0 (0)	9 (7.63)
Hypertension (HT)	2 (4.00)	16 (13.56)
Heart disease	1 (2.00)	7 (5.93)
Benign prostatic hyperplasia (BPH)	0 (0)	9 (7.63)
Other	4 (8.00)	15 (12.71)

Phase 1

The majority (66%) of the respondents in Phase 1 were government officers (doctors). The prostate symptoms score, classified according to each item, is shown in Table 2. For each questionnaire item, the pairwise agreement between the Thai version of the IPSS and the English version of the IPSS were measured using the Kappa statistic. The results were shown in Table 2. Excellent agreement was found for the following items: incomplete emptying, nocturia, and quality of life (Kappa over 0.75) according to Fleiss's criteria⁽¹⁵⁾. Frequency, urgency, and weak stream were found to be in good agreement (Kappa between 0.40-0.75), whereas intermittency and hesitancy (Kappa below 0.40) were found to be in poor agreement.

The Cronbach's alpha measure of internal consistency was found to be acceptable, with values over 0.7, for all items, with the exception of frequency, urgency, and nocturia in the English version of the

IPSS, in which case those items were found to be good⁽¹⁶⁾.

Table 3 showed the results for the Cronbach's alpha measure of internal consistency for all the items. The Cronbach's alpha of the Thai version of the IPSS is 0.77 and the Cronbach's alpha for the English version of the IPSS is 0.88. Table 4 showed the canonical correlations between the items for the Thai version of the IPSS.

Phase 2 (test and retest)

In Phase 2, the occupations of the respondents were classified as government officers/doctors (38.1%), business owners (21.2%), and retired (20.3%). The prostate symptoms score, classified according to each item, were shown in Table 2. For the IPSS-Th, no difference between the individual items was found on the test scores and the retest scores. The Cronbach's alpha measure of internal consistency for all the items was good as show in Table 3. The

Table 2. Prostatic symptoms and agreement between version (Kappa statistic) of responder in phase 1 and mean score of Thai versions in phase 2

Variable	Phase 1 (control)			Phase 2	
	Kappa	Thai version (mean score ± SD)	English version (mean score ± SD)	Thai version (first) (mean score ± SD)	Thai version (second) (mean score ± SD)
Incomplete emptying	0.786	0.46±0.84	0.40±0.83	0.77±0.91	0.77±0.87
Frequency	0.647	0.78±0.86	0.66±0.82	0.83±0.92	0.77±0.86
Intermittency	0.390	0.24±0.74	0.30±0.74	0.53±0.85	0.53±0.82
Urgency	0.484	0.14±0.40	0.20±0.57	0.60±0.96	0.65±0.95
Weak stream	0.624	0.42±0.86	0.32±0.84	0.98±1.13	1.17±1.31
Hesitancy	0.346	0.26±0.49	0.26±0.53	0.62±0.97	0.61±0.96
Nocturia	0.845	0.46±0.54	0.48±0.58	1.30±1.05	1.26±1.02
Quality of life	0.827	0.66±1.02	0.64±0.90	1.92±1.62	1.83±1.54

Table 3. The cronbach's alpha measure of internal consistency in phase 1 and phase 2

Variable	Phase 1		Phase 2	
	Thai version Cronbach's alpha if item deleted	English version Cronbach's alpha if item deleted	Thai version Cronbach's alpha if item deleted	English version Cronbach's alpha if item deleted
Incomplete emptying	0.720	0.762	0.837	0.837
Frequency	0.788	0.819	0.832	0.832
Intermittency	0.722	0.773	0.829	0.829
Urgency	0.776	0.808	0.836	0.836
Weak stream	0.719	0.760	0.836	0.836
Hesitancy	0.749	0.782	0.84	0.84
Nocturia	0.785	0.825	0.826	0.826
Quality of life	0.733	0.779	0.832	0.832

Table 4. Discriminatory validity between item (Thai version)

Item	Incomplete emptying	Frequency	Intermittency	Urgency	Weak stream	Hesitancy	Nocturia	Quality of life
Incomplete emptying	-	0.199	0.638	0.167	0.690	0.357	0.288	0.377
Frequency	0.199	-	0.179	0.032	0.154	0.333	0.090	0.329
Intermittency	0.638	0.179	-	0.225	0.605	0.500	0.125	0.458
Urgency	0.167	0.032	0.225	-	0.297	0.226	0.259	0.265
Weak stream	0.690	0.154	0.605	0.297	-	0.368	0.102	0.491
Hesitancy	0.357	0.333	0.500	0.226	0.368	-	0.079	0.509
Nocturia	0.288	0.090	0.125	0.259	0.102	0.079	-	0.141
Quality of life	0.377	0.329	0.458	0.265	0.491	0.509	0.141	-

test-retest reliability of the IPSS-Th was assessed using the intraclass correlation coefficient (ICC), with a value of 0.96.

Discussion

The Thai version of the IPSS (IPSS-Th) seemed to be reasonably reliable for use with a population of Thai-speaking patients.

The present study consisted of two components, i.e., the translation of the questionnaire followed by reliability testing. When our medical staff translated the IPSS questionnaire into Thai version, the individual translators disagreed about how well these questions would be understood by Thai-speaking respondents and the suggested ways to modify those questions. However, in the final version of the IPSS-Th, the changes of the content appeared to be suitable and well-understood before the Thai version of the questionnaire was distributed to the small pilot study.

About Phase 1

Fifty Thai males, who were asked to complete both the Thai version and the English version of the IPSS questionnaire, possessed a good understanding of both English and Thai. Most of these respondents were government officers (doctors). However, bias could not be ruled out because it would have been possible for these respondents to recall each item over the 2-weeks interval when they took the Thai version of the questionnaire and when they took the English version. As shown in Table 2, the agreement in the responses to each item in both the English version and the Thai version of the questionnaire indicated that the language differences between two versions had no apparent effect on the responses. Furthermore, all of the Phase 1 respondents had no current or past history

of urinary tract disorders or diseases that could have affected their urinary tract function.

The internal consistency of each item was found to be acceptable and good as shown in Table 3. We believe that all of these items should also be retained in practice.

The canonical correlations between items were 0.032 to 0.640 (Table 4). This should still indicate the reasonable discriminatory ability (validity) of the questionnaire. This was because most of the items in the Thai questionnaire were expected to be correlated with one another to some extent.

About Phase 2

In Phase 2, the males who completed the Thai version of IPSS questionnaire (IPSS-Th) were older than the respondents in Phase 1. The respondents in Phase 2 included older patients who had LUTS that were caused by BPH. This pilot study showed no differences between the IPSS-TH test and retest scores as shown in Table 2.

The internal consistency of all the items were found to be good, indicating each item could be retained in practice. The test-retest reliability was nearly perfectly reliable; the values of ICC varied from 1 (perfectly reliable) to 0 (totally unreliable). It means that the Thai-version of the IPSS could be a useful tool for assessing LUTS in a population of Thai-speaking patients.

Conclusion

In the present study, a Thai version of the IPSS questionnaire was developed. The IPSS-Th is a reliable instrument for patients with LUTS caused by BPH. The Thai version of the IPSS (IPSS-Th) should be a useful tool for patient assessment, follow-up, and research in a population of Thai-speaking patients.

Potential conflicts of interest

None.

References

1. Barry MJ. Epidemiology and natural history of benign prostatic hyperplasia. *Urol Clin North Am* 1990; 17: 495-507.
2. Guess HA, Arrighi HM, Metter EJ, Fozard JL. Cumulative prevalence of prostatism matches the autopsy prevalence of benign prostatic hyperplasia. *Prostate* 1990; 17: 241-6.
3. Badia X, Garcia-Losa M, Dal-Re R, Carballido J, Serra M. Validation of a harmonized Spanish version of the IPSS: evidence of equivalence with the original American scale. *International Prostate Symptom Score. Urology* 1998; 52: 614-20.
4. Barry MJ, Fowler FJ Jr, O'Leary MP, Bruskewitz RC, Holtgrewe HL, Mebust WK, et al. The American Urological Association symptom index for benign prostatic hyperplasia. The Measurement Committee of the American Urological Association. *J Urol* 1992; 148: 1549-57.
5. McConnell JD, Barry MJ, Bruskewitz RC, Bueschen AJ, Denton SE, Holtgrewe HL, et al. Benign prostatic hyperplasia: diagnosis and treatment. Clinical practice guideline, Number 8. AHCPR Publication No. 94-0582. Rockville, MD: Agency for Health Care Policy and Research, Public Health Service, US Department of Health and Human Services; February 1994.
6. Badia X, Garcia-Losa M, Dal-Re R. Ten-language translation and harmonization of the International Prostate Symptom Score: developing a methodology for multinational clinical trials. *Eur Urol* 1997; 31: 129-40.
7. Quek KF, Low WY, Razack AH, Loh CS. Reliability and validity of the International Prostate Symptom Score in a Malaysian population. *BJU Int* 2001; 88: 21-5.
8. Quek KF, Chua CB, Razack AH, Low WY, Loh CS. Construction of the Mandarin version of the International Prostate Symptom Score inventory in assessing lower urinary tract symptoms in a Malaysian population. *Int J Urol* 2005; 12: 39-45.
9. Hammad FT, Kaya MA. Development and validation of an Arabic version of the International Prostate Symptom Score. *BJU Int* 2010; 105: 1434-8.
10. Sagnier PP, Richard F, Botto H, Teillac P, Dreyfus JP, Boyle P. Adaptation and validation in the French language of the International Score of Symptoms of Benign Prostatic Hypertrophy. *Prog Urol* 1994; 4: 532-8.
11. Tantiwong A, Nuanyong C, Vanprapar N, Swasdipala P, Chittaphai S. Benign prostatic hyperplasia in elderly Thai men in an urban community: the prevalence, natural history and health related behavior. *J Med Assoc Thai* 2002; 85: 356-60.
12. Cronbach LJ. Coefficient alpha and the internal structure of test. *Psychometrika* 1951; 16: 297-334.
13. Cheah PY, Liong ML, Yuen KH, Lee S, Yang JR, Teh CL, et al. Reliability and validity of the National Institutes of Health: Chronic Prostatitis Symptom Index in a Malaysian population. *World J Urol* 2006; 24: 79-87.
14. Deyo RA, Diehr P, Patrick DL. Reproducibility and responsiveness of health status measures. Statistics and strategies for evaluation. *Control Clin Trials* 1991; 12 (4 Suppl): 142S-58S.
15. Fleiss JL. Statistical methods for rates and proportion. 2nd ed. New York: John Wiley & Sons; 1981.
16. George D, Mallery P. SPSS for Windows step by step: a simple guide and reference. 11.0 update. 4th ed. Boston: Allyn & Bacon; 2003.

การศึกษาการแปลและทดสอบแบบสอบถาม IPSS ที่มีความน่าเชื่อถือในแง่คุณภาพในประชากรไทย

กุลนันทน์ นนทแก้ว, วชิร คชการ, กิตติณัฐ กิจวิทย์, วิทย์ วิเศษสินธุ์, ชัชวาลย์ ศิลปกิจ

วัตถุประสงค์: เพื่อแปลแบบประเมิน IPSS เป็นภาษาไทยและศึกษาความน่าเชื่อถือของแบบประเมิน

วัสดุและวิธีการ: คณะผู้วิจัยได้แปลผลแบบประเมิน IPSS เป็นภาษาไทยและแก้ไขจนได้แบบสอบถามที่เกิดความเข้าใจตรงกัน จากนั้นคณะผู้วิจัยได้นำแบบสอบถามไปทดสอบกับกลุ่มตัวอย่าง โดยแบ่งเป็น 2 ขั้นตอนย่อย คือ กลุ่มแรก ทำการทดสอบในอาสาสมัคร 50 ราย ซึ่งมีความรู้ความเข้าใจทั้งในภาษาอังกฤษและภาษาไทยเป็นอย่างดี โดยในลำดับแรกให้อาสาสมัครทำแบบทดสอบฉบับภาษาไทย และหลังจากนั้น 2 สัปดาห์ ให้อาสาสมัครทำแบบทดสอบภาษาอังกฤษซึ่งเป็นต้นฉบับ วัดความสอดคล้องภายในด้วยค่า Cronbach's alpha coefficient และวัดความน่าเชื่อถือโดยใช้สถิติ Kappa agreement กลุ่มที่สอง ทำการทดสอบในอาสาสมัคร 118 ราย ที่มีความเข้าใจในภาษาไทยเป็นอย่างดี โดยให้อาสาสมัครทำแบบทดสอบภาษาไทยสองครั้งห่างกันสองสัปดาห์ วัดความน่าเชื่อถือโดยวิธี interclass correlation coefficient (ICC)

ผลการศึกษา: ในอาสาสมัครกลุ่มแรกพบว่า แบบสอบถามฉบับภาษาไทยที่จัดทำขึ้นมีความสอดคล้องเป็นอย่างดีกับแบบสอบถามภาษาอังกฤษซึ่งเป็นต้นฉบับ ค่าความสอดคล้องภายในของแบบสอบถามภาษาไทยเท่ากับ 0.77 (ภาษาอังกฤษ 0.88) และมีความน่าเชื่อถือเมื่อนำแบบทดสอบที่ได้มาทดสอบในอาสาสมัครกลุ่มที่สองพบว่า ความน่าเชื่อถือเท่ากับ 0.96

สรุป: แบบทดสอบ IPSS ฉบับภาษาไทยที่พัฒนาขึ้นเป็นเครื่องมือที่มีความน่าเชื่อถือและสอดคล้องกัน ซึ่งสามารถนำมาใช้ในการประเมินผู้ป่วยที่มีอาการผิดปกติของระบบทางเดินปัสสาวะตอนล่างเนื่องจากต่อมลูกหมากโต
