Oxford Knee Score and SF-36: Translation & Reliability for Use with Total Knee Arthroscopy Patients in Thailand

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Evaluation of health-related quality of life is an established criterion for the evaluation of therapeutic outcome. Specifically, while there are a great number of different questionnaires, in English, for this purpose, there is a lack of comparable questionnaires in Thai. The objectives of the present study were two-fold: (1) to translate the original, English-language, 12-item Oxford (Oxford-12) outcome questionnaire and Short Form 36 (SF-36) general health questionnaire into a standard Thai version, and (2) to assess reliability of these two questionnaires and correlation between them among 100 patients having total knee replacement (TKR). Patients' mean age was 63 years and 86% were female.

Oxford-12 revealed that patients had mild problems in terms of function and pain with the average function and pain score of 15.0 and 8.8 compared to maximum possible score of 35 and 25 respectively. Oxford-12 was very reliable with Cronbach's alpha for function, pain and total score of 0.819, 0.874 and 0.918 respectively.

For 8 health domains of SF-36 including physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH), patients had the highest score (i.e., good health) for VT, followed by MH, but lowest for PF. This resulted in a higher score for mental component summary (MCS) than physical component summary (PCS). Cronbach's alpha for 8 health domains varied from 0.651 (VT) to 0.996 (RP).

Since a low score of Oxford-12 indicates a better state of health compared to high score for SF-36, negative correlation between them was expected. PF of SF-36 had the highest negative correlation with both Oxford function and pain with Pearson's correlation coefficient (r) of -0.69 and -0.72 respectively. PCS was correlated well with both Oxford function and pain with r of -0.73 and -0.76 respectively whereas correlation between MCS and Oxford function and pain were only -0.60 and -0.58 respectively.

Thai versions of Oxford-12 and SF-36 retain their original characteristics and are reliable for assessing the quality of life after TKR in Thai speaking patients.

Keywords: *Validation, Thai translation, TKA (Total Knee Arthroscopy), Reliability of translation, Oxford knee score, SF 36 (Short from 36 general health outcome), Quality of life questionnaire, General health questionnaire, Cronbach's alpha coefficient*

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Total knee arthroplasty (TKA) has several advantages, including consistent reproducible results, correction of mechanical alignment, addressing all three knee compartments, long-term (greater than 90%) survivorship (Mont, 2004), reliable and durable pain relief and improvement in function for patients (Paravizi, 2004). However, TKA has significant drawbacks, including post-operative pain that can endure for months, prolonged recovery periods with inferior outcomes sometimes, and decreased patient satisfaction (Mont, 2004). Measuring the outcome and addressing these significant post-operative drawbacks with Thai patients presents an obstacle; patients are hesitant to voice their satisfaction, and this may be attributed to

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the conservative and tolerant nature of Thais. It was identified that a properly developed and validated questionnaire is needed to measure post-operative outcome in Thai patients, as outcome questionnaires for use with TKA patients have much value and have been successfully translated and validated in Swedish (Dunbar, 2000) and Italian (Padua, 2003). The Oxford-12 questionnaire was chosen to provide a measure of outcome for TKA since it is short, practical, reliable, valid and sensitive to clinically important changes over time (Dawson, 1998). It is insufficient solely to translate a questionnaire into a foreign language, without validating the translated version (Dunbar, 2000). The objectives of the present study were (1) to translate the original, English-language, 12-item Oxford outcome questionnaire and SF-36 questionnaire into a standard Thai version and (2) to assess reliability and correlation between Oxford-12 and SF-36 scores in Thai TKA patients.

Material and Method

Patients

One hundred adult patients in whom OA was clinically diagnosed were deemed eligible and enrolled for the present study. Of these 100 patients, all but one patient had not undergone arthroplasty. OA was diagnosed in patients with radiographs, and assessed by the Kellgren et al (Kellgren, 1957) grading system for severity of arthritis. After the initial evaluation, surgical decisions were left to the patient and the treating physician.

TKA was considered for patients only after exhausting all non-surgical methods, including oral medications such as analgesics and anti-inflammatory agents, corticosteroids injection and physical therapy aimed at strengthening the knees.

Study Deign

Once the diagnosis of OA had been made and before the initiation of TKA, patients received both Oxford-12 and SF-36 questionnaires in random order at 3 months after TKA. The respondents were unaware of their previous responses. Administration of these questionnaires was undertaken by two trained nurses. On average, it took the patients 45 minutes and 52 minutes to complete the Oxford-12, and SF-36 respectively.

Translation

The Oxford 12 and SF-36 were translated from English to Thai following existing guidelines to preserve equivalence. This process involved (1) two translations of the questionnaire from English to Thai; (2) back translation from Thai to English; (3) comparison of the source and final versions; and (4) pre-testing of the Thai version on five patients after TKA. The Oxford 12 was independently translated into Thai and back translated by a professional translator in the United Kingdom.

Questionnaires

Disease Specific Questionnaires

Oxford 12 Item Knee Score (Oxford-12) (Dunbar, 2000)

The Oxford 12 is a questionnaire intended specifically for knee surgery alone with 12 questions asked specifically to the knee. Each question has a Likert-box response key from 1 to 5. A low score indicates a better state of health. These 12 items were classified into 2 main scales: function and pain. The function scale comprised 7 questions i.e., 2, 3, 6, 7, 10, 11 and 12 whereas pain scale comprised 5 questions i.e., 1, 4, 5, 8 and 9. Therefore, function score, pain score and total score were in the range of 1-35, 1-25 and 1-60 respectively. It is a short, simple and validated questionnaire to assess the outcome of total knee replacement, as judged by the patient (Dawson, 1997).

General Health Questionnaires

Medical Outcome Survey - Short Form 36 (SF-36) (Ware, 1992)

The SF-36 is a generic self-completed questionnaire intended for use in clinical practice and research, health policy evaluations, and general population surveys. SF-36 contains 36 questions (items) which measures 8 health concept (construct) and health transition (HT). The eight health concepts are physical functioning (PF), role physical (RP, role limitation due to physical problems), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE, role limitation due to emotional problems), and mental health (MH).

To reduce the number of statistical comparison, eight health profiles can be summarized into 2 major components i.e., Physical Component Summary (PCS) and Mental Component Summary (MCS). PCS comprises 5 scales i.e., PF, RP, BP, GH and VT whereas MCS comprises 5 scales i.e., GH, VT, SF, RE and MH. Since questions in SF-36 vary in number of possible answers and direction, standardization of scores is needed to derive at eight health dimensions. In the standard SF-36 scoring method, a score for each ques-

tion is first recorded. A multi-item raw scale score is then computed by simply summing all item scores in that scale. These raw scale scores are finally transformed to a 0-100 scale so that a higher score indicates a better state of health. PCS and MCS are the average of all scale scores in that dimension.

Statistical Consideration

Sample Size Estimation

A sample of 100 patients would be sufficient to test a moderate (r = 0.50) but statistically significant correlation between score from two different questionnaires at 2-sided type I of 0.01 and power of 85%.

Data Analysis

Descriptive statistics were used to summarize the demographic, clinical characteristics and items in the questionnaires.

To assess reliability of each questionnaire (Oxford-12, SF-36), corrected item-total correlation, Cronbach's alpha and Cronbach's alpha if item deleted were applied. Corrected item-total correlation is the Pearson correlation coefficient between score from one item and sum of scores from the remaining items in that scale. Cronbach's alpha coefficient is a measure of internal consistency i.e., extent to which different items in an instrument are measuring the same construct in each domain. It is based on the average correlation of items within a questionnaire. The value of Cronbach's alpha depends on both inter-item correlation and number of items. Cronbach's alpha coefficient of at least 0.7, as suggested by Nunnally, (Nunnally, 1978) was adopted as the minimum reliability coefficient for group comparison. Cronbach's alpha if item deleted shows how each item affects the reliability of the questionnaire.

To assess the correlation between Oxford-12 score and SF-36 score, Pearson's correlation was employed.

All statistical data analyses were performed using SPSS, Version 11.5 (SPSS: Chicago, IL)

Results

Subject Demography and Clinical Characteristics

Altogether, 100 patients agreed to participate in the present study from Jan to June 2004. Patient's age varied from 34 to 85 years with the mean of 63 years. About 86% of the patients enrolled were female and 84% of them lead a sedentary lifestyle. The Body Mass Index (BMI) of the study population was 25.3 $\pm$ 3.3 kg/m^2. Almost 73% of the patients had no prior experience with any form of knee surgery for either limb (left or right). An overwhelming 97% of the patients were administered with non-steroidal anti-inflammatory drugs (NSAIDs) prior to enrollment in this study. Detailed demographic and clinical characteristics of the study population will be made available upon request (Table 1).

Oxford-12

The descriptive statistics for each item in translated Oxford-12. Each item had a score of 1 to 5.

Table 2 revealed that mostly, the patients had little problem when performing tasks measured by the function domain. The mean score of each of the 7 items in the function domain was mostly between 1.55 and 2.05, with the exception of mean of 4.58 for item 7 (Could kneel down and get up afterwards). This resulted in the function score in the range of 7-27, with the mean of 14.93 (SD 3.38) which was much less than the maximum possible score of 35 (Table 3). Regarding the pain domain, most patients seemed to have mild pain with mean pain score in each of 5 items between 1.54 and 1.94. Out of the maximum possible total pain score of 25, our patients had the pain score of 5-20 with the average of 8.80 (SD 2.83).

The total Oxford-12 score for all patients in the study was 12-47 (compared to the maximum possible score of 60) with mean of 23.73 and SD of 6.05.

Regarding reliability of Oxford-12 total score, it had a very high internal consistency with Cronbach's alpha of 0.918 (Table 2). Most of the correlations between each item and sum of the remaining items (i.e., corrected item-total correlation) were high, except the correlation between item 7 ("Could kneel down and get up afterwards") and the other items (corrected item-total r = 0.040). This indicated no correlation between item 7 and other items. So eliminating item 7 from the questionnaire increased overall reliability of the questionnaire (Cronbach's alpha increases from 0.918 to 0.938). The other 11 items had higher corrected item-total correlation of 0.614-0.804. Thus, elimination of these 11 items from the questionnaire caused little change in the overall Cronbach's alpha coefficient.

When total Oxford-12 score was categorized into function score and pain score, it was found that both had high internal consistency with Cronbach's alpha of 0.819 and 0.874 respectively.

SF-36

Table 4 demonstrateds descriptive statistics for each item of SF-36 classified according to 8 health

Table 1. Characteristic of patients

Variable	N (100)	%
Age		
Mean (SD)	63 (10.4)	
Median (Min:Max)	64 (34:8)	
Gender		
Male	14	14.0
Female	86	86.0
Height		
Mean (SD)	160 (6.1)	
Median (Min:Max)	160 (142:179)	
Weight		
Mean (SD)	65 (9.53)	
Median (Min:Max)	63 (49:103)	
BMI		
Mean (SD)	25.3 (3.2)	
Median (Min:Max)	25.2 (18:37)	
Knee with problem		
Right	26	26.0
Left	22	22.0
Right and left	52	52.0
Treated right and left with problem		
Replace 1 knee	17	17.0
Replace 2 knee	11	11.0
Plan to replace 2 knee	1	1.0
Plan to second phase Sx	11	11.0
Refuse Sx	11	11.0
None replaced	1	1.0
Activity		
Light	13	13.0
Sit still	84	84.0
No movement	3	3.0
Problem with Endocrine, metabolism		
Yes	4	4.0
No	96	96.0
Problem with GI		
Yes	1	1.0
No	99	99.0
Problem with cardiovascular		
Yes	11	11.0
No	89	89.0
Problem with obese		
Yes	2	2.0
No	98	98.0
Problem with air way		
Yes	2	2.0
No	98	98.0
NSAID: past 6 month		
Yes	97	97.0
No	3	3.0
Steroids: past 6 month		
Yes	2	2.0
No	98	98.0

Table 1. Characteristic of patients (continued)

Variable	N (100)	%
Analgesic: past 6 month		
Yes	7	7.0
No	93	93.0
Antibiotic: past 6 month		
Yes	4	4.0
No	96	96.0

Table 2. Oxford-12: item internal consistency

	Item	Mean	SD	Corrected item total correlation	Alpha if item removed
Function	2. Trouble with washing, drying yourself	1.55	0.59	0.668	0.911
	3. Trouble with getting in/out of a car	1.79	0.57	0.692	0.911
	6. Limping when walking	1.61	0.62	0.756	0.908
	7. Could kneel down and get up afterwards	4.58	0.73	0.040	0.938
	10. Sense of knee instability	1.61	0.65	0.759	0.907
	11. Doing household shopping alone	1.74	0.73	0.745	0.907
	12. Could walk down one flight of stairs	2.05	0.93	0.740	0.909
Pain	1. Usual level of knee pain	1.94	0.68	0.614	0.913
	4. Walking time before severe knee pain	1.54	0.83	0.743	0.908
	5. Pain on standing up from a chair	1.65	0.63	0.788	0.906
	8. Pain in bed at night	1.89	0.68	0.804	0.905
	9. Interference with usual work due to knee pain	1.78	0.63	0.794	0.906

Total score (12 items): Cronbach's alpha = 0.918
Function score (7 items): Cronbach's alpha = 0.819
Pain score (5 items): Cronbach's alpha = 0.874

Table 3. Oxford-12: scale-level descriptive statistics

Oxford-12	Mean	SD	(Min, Max)
Function score (1-35)	14.93	3.38	(7, 27)
Pain score (1-25)	8.80	2.83	(5, 20)
Total score (1-60)	23.73	6.05	(12, 47)

domains i.e., physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH).

From items 3a to 3j of physical functioning (PF), roughly 34%, 40% and 25% of patients had no, little and a lot of physical limitation due to a knee problem. In general, physical functioning items that require a vigorous activity resulted in more patients with a lot of limitations compared to items requiring moderate and low activity.

For 4 items in role physical (RP), about 70% of patients had a problem with role physical.

Regarding bodily pain (BP), most of the patients had less than mild bodily pain (91%) and less than a little bit pain interference (87%).

For the general health (GH) dimension, 20%, 59% and 20% of the patients reported that their general

state of health was very good, good and fair respectively. These answers were in concordance with answers from items 11a to 11d.

For vitality (VT), as high as 96% of patients felt energetic at least a good bit of a time and only 2, 4% felt worn out or tired at least a good bit of the time.

Regarding social function (SF), 98% of the patients had the extent of interference of physical health, emotional problem with social activities of less than moderate. For time of interference, 46% reported no time interference, whereas 40% and 10% had a little time and some time interference respectively.

For role emotion (RE), about 51% of the patients had to cut down time spent on work due to emotional problems, accomplished less than usual and did not do work as carefully as usual.

For mental health, 65% and 86% of the patients felt calm and happy at least most of the time respectively. Only less than 5% felt very nervous, so down and blue for at least a good bit of the time.

Table 4 displayed descriptive statistics for scale score (0-100) of each of 8 domains of SF-36.

A higher score indicates a better state of health. Mental health had the highest means score of 85, followed by vitality and social function (80), bodily pain (70), general health (61), physical function (54), role emotion (49), and role physical (31). The physical component score (PCS) and mental component score (MCS) had the average of 59 (SD 18) and 71 (SD 14) respectively.

Table 5 also shows correlation between each of 8 health scales and PCS, MCS. It reveals that five scales in physical functioning correlated most highly with PCS. Correlation between five scales for mental health and MCS was between 0.53 and 0.83.

For the eight health scales of SF-36, internal consistency reliability coefficient estimated by Cronbach's alpha ranged from 0.651 to 0.996. The reliability coefficients of the two summary measures (PCS, MCS) were 0.709 and 0.511 respectively.

Table 6 demonstrats correlation between the eight health scales of SF-36. Most of the correlations were poor (less than 0.5) indicating that each scale was measuring a distinct health concept.

Table 4. SF-36 scale score: descriptive statistics (n = 100)

Scale	Pearson's correlation		No. of items	Mean	SD	(Min, Max)	Cronbach's alpha
	PCS	MCS					
PF	0.869 *	0.617 *	10	54.44	23.69	(10, 100)	0.895
RP	0.865 *	0.647 *	4	30.50	46.00	(0, 100)	0.996
BP	0.713 *	0.586 *	2	69.95	15.72	(21, 100)	0.715
GH	0.604 *	0.532 *	5	61.08	16.45	(25, 97)	0.731
VT	0.541 *	0.596 *	4	80.25	11.06	(30, 100)	0.651
SF	0.513 *	0.669 *	2	80.00	17.41	(12.5, 100)	0.763
RE	0.569 *	0.825 *	3	49.33	48.89	(0, 100)	0.972
MH	0.476 *	0.568 *	5	84.56	11.14	(36, 100)	0.677
PCS	1	-		59.24	17.51	(21.2, 98.4)	0.709
MCS	0.787 *	-		71.05	14.73	(27.3, 99.4)	0.511

*$p < 0.001$

Table 5. SF-36 scale score: inter-scale Pearson's correlation matrix

	PF	RP	BP	GH	VT	SF	RE	MH
PF	1							
RP	0.653	1						
BP	0.586	0.444	1					
GH	0.515	0.280	0.415	1				
VT	0.422	0.243	0.506	0.436	1			
SF	0.458	0.320	0.581	0.304	0.469	1		
RE	0.417	0.657	0.330	0.158	0.179	0.335	1	
MH	0.356	0.238	0.407	0.437	0.782	0.478	0.134	1

Table 6. Oxford-12 and SF-36 scale score: Pearson's correlation

	Oxford		
SF-36	Function	Pain	Total
Physical functioning (PF)	-0.694*	-0.723*	-0.726*
Role physical (RP)	-0.535*	-0.554*	-0.558*
Bodily pain (BP)	-0.673*	-0.722*	-0.714*
General health (GH)	-0.457*	-0.479*	-0.479*
Vitality (VT)	-0.446*	-0.454*	-0.461*
Social functioning (SF)	-0.472*	-0.462*	-0.480*
Role emotional (RE)	-0.378*	-0.366*	-0.382*
Mental health (MH)	-0.422*	-0.367*	-0.408*
Physical component summary (PCS)	-0.732*	-0.764*	-0.766*
Mental component summary (MCS)	-0.595*	-0.583*	-0.605*

* $p < 0.001$

Correlation between Oxford-12 score and SF-36 score

Table 6 reveals the correlation between Oxford-12 score and SF-36 scale score. Since low Oxford score shows a better health state whereas high SF-36 score shows a better health, a negative correlation coefficient is expected between them.

Physical functioning (PF) had the highest negative correlation with Oxford function, pain and total score (Pearson's correlation = -0.694, -0.723 and -0.726 respectively). Another SF-36 dimension, with moderately high correlation with Oxford was bodily pain (BP) with correlation between BP and Oxford function, pain and total score of -0.673, -0.722, -0.714 respectively. In terms of summary score, physical component summary (PCS) had a high negative correlation with Oxford function, pain and total score with r of -0.732, -0.764 and -0.766 respectively.

All five scales in mental component summary (i.e., GH, VT, SF, RE, MH) had a very low correlation with Oxford score with correlation ranging from -0.366 to -0.480. This resulted in a low negative correlation between MCS and Oxford score of only about -0.6.

Discussion

When assessing the health status of patients after orthopaedic surgery, such as knee arthroplasty, general health and disease-specific questionnaires are gaining in popularity because of their precision in detecting subtle differences (Robertson, 1998). While English speaking patients have been benefiting from the use of such questionnaires since 1997, Thai speaking patients lacks a similar instrument for assessing their quality of life after TKA. Henceforth, the impetus for the present study was to equip the Thai population with a comparable instrument.

In this regard, the aim to translate and assess reliability of the Oxford 12 for use in Thai speaking patients, was reassuring and reinforced by the following arguments: (1) a least burdensome questionnaire for the patient, to be administered by a trained nurse, instead of self-administered postal surveys using extensive questionnaires that have associated high patient burden, (2) Translation, validation and adaptation of the Oxford-12 into Swedish and Italian for use by their local population. Such considerations were important in the choice of the Oxford-12, a standardized TKA specific quality of life questionnaire.

These represent strong argument in support of the choice of the Oxford-12 - that is, the simplicity, comprehensiveness and cross-cultural adaptability of the instrument.

Similar to the results of 2 previous studies (Dunbar, 2000) (Padua, 2003) on the validation of the Oxford-12 in Swedish and Italian speaking patients, results from this study also demonstrated highly acceptable reliability in Thai patients with TKA. However, one of the 12 items, item 7 of the Oxford-12-Thai (Table 2, had a very low correlation with other items (corrected item-total r = 0.040).

The reasons for this very low corrected item-total correlation for item 7 are unclear. This low value could have arisen from an inherent inappropriateness of using the Oxford-12-Thai in assessing patients having a TKA. However, this is unlikely to be the reason, as the translation and validation studies of the Oxford-12 among Swedish and Italian speaking patients having a TKA did not report such findings. One possible postulation is that it is highly possible that

there is a strong cultural influence on the impact of item 7, although it is not possible to quantify this contribution. The translated item, item 7: could kneel down and get up afterwards, was poorly translated Research into translation of original English versions of questionnaires are often asked to comment on the issue of cross-cultural adaptability, a problem that relates to the development, translation, or utilization of questionnaires in languages other than English. Jones' commentary that "the purpose of translation is not to produce a literal conversion of the questionnaire but to convey the spirit of the questionnaire items into different languages and cultures" best elucidates the beliefs of this team as well. There is more and more evidence, including the present study, that careful translation and back translation of quality of life questionnaires can produce non-English language versions that appear to behave in a very similar manner to their originals.

Comparison of SF-36 scale score and Oxford score revealed that physical component score (PCS) of SF-36 had a high correlation with Oxford function and pain with r of -0.732 and -0.764 respectively whereas correlation between mental component score (MCS) and Oxford was lower with r of -0.6. That is, even though SF-36 was not developed specifically for TKA patients, it can also be administered in Thai TKA patients

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การศึกษาความน่าเชื่อถือของแบบสอบถามประเมินคุณภาพชีวิต Oxford Knee Score และ SF-36

กีรติ เจริญชลวานิช, บุญชนะ พงษ์เจริญ

การประเมินคุณภาพชีวิตเกี่ยวกับสุขภาพ เป็นหนึ่งในเงื่อนไขที่ถูกกำหนดขึ้นเพื่อประเมินผลทางอายุรเวท (การบำบัดโรค) ซึ่งในขณะที่มีแบบสอบถามภาษาอังกฤษสำหรับวัตถุประสงค์นี้มากมายหลายหลาก แต่กลับขาดแคลนแบบสอบถามเทียบเคียงเป็นภาษาไทยวัตถุประสงค์ของการศึกษาครั้งนี้จึงมี 2 นัย กล่าวคือ(1) เพื่อแปลต้นฉบับภาษาอังกฤษของแบบสอบถามติดตามผล “12-Item Oxford” (Oxford-12) และแบบสอบถามสุขภาพทั่วไป “Short Form 36” (SF-36) ให้เป็นบทแปลภาษาไทยมาตรฐาน สำหรับนัยที่ (2) เพื่อประเมินความน่าเชื่อถือของแบบสอบถามดังกล่าว อีกทั้งเพื่อประมาณค่าความสัมพันธ์ระหว่างแบบสอบถามสองชุดนี้ ในผู้ป่วยที่ได้รับการผ่าตัดเปลี่ยนเข่า (Knee Replacement: TKR) 100 ราย ที่มีอายุเฉลี่ย 63 ปี และ ร้อยละ86 เป็นผู้หญิง

จากแบบสอบถาม Oxford-12

พบว่าผู้ป่วยมีปัญหาเล็กน้อยเกี่ยวกับประสิทธิภาพในการทำงานและความเจ็บปวด โดยมีค่าเฉลี่ยของประสิทธิภาพในการทำงานและความเจ็บปวดอยู่ที่ 15.0 และ 8.8 จากคะแนนสูงสุด 35 และ 25 ตามลำดับ แบบสอบถาม Oxford-12 มีความน่าเชื่อถือมากดังจะเห็นได้จากค่า Cronbach’s alpha ของประสิทธิภาพ ในการใช้งานความเจ็บปวด และคะแนนรวม อยู่ที่ 0.819, 0.874 และ 0.918 ตามลำดับ

สำหรับ 8 หมวดสุขภาพในแบบสอบถาม SF-36 ซึ่งประกอบด้วย การทำงานทางกายภาพ (physical functioning: PF) ลักษณะหลักทางกายภาพ (role physical: RP) ความเจ็บปวดทางร่างกาย (body pain: BP) สุขภาพทั่วไป (general health: GH), พละกำลัง (vitality: VT) การทำงานทางสังคม (social functioning: SF) ลักษณะหลักทางอารมณ์ (role emotional: RE) และสุขภาพจิต (mental health: MH) ผู้ป่วยได้รับคะแนนสูงสุดสำหรับพละกำลัง (VT) ตามด้วยสุขภาพจิต (MH) แต่คะแนนต่ำสุดสำหรับการทำงาน ทางกายภาพ (PF) ดังนั้นจึงส่งผลให้คะแนนรวมของส่วนประกอบทางด้านจิตใจ (Mental Component Summary: MCS) สูงกว่าคะแนนรวมของส่วนประกอบทางด้านกายภาพ (Physical Component Summary: PCS) ค่า Cronbach’s alpha ของ 8 หมวดสุขภาพผันแปรตั้งแต่ 0.651 (VT) ถึง 0.996 (RP)

เนื่องจากคะแนนที่ต่ำของแบบสอบถาม Oxford-12 บ่งชี้ถึงสภาวะทางสุขภาพที่ดี เมื่อเปรียบเทียบกับคะแนนที่สูงของแบบสอบถาม SF-36 ดังนั้น จึงคาดว่าแบบสอบถามทั้งสองมีความสัมพันธ์เชิงลบ PF ของแบบสอบถาม SF-36 มีความสัมพันธ์เชิงลบมากที่สุดกับทั้งประสิทธิภาพในการทำงานและความเจ็บปวด ของแบบสอบถาม Oxford โดยมีค่าสัมประสิทธิ์สัมพันธ์ (r) เท่ากับ –0.69 และ –0.72 ตามลำดับ PCS สัมพันธ์ดีกับทั้งประสิทธิภาพในการทำงานและความเจ็บปวดของแบบสอบถาม Oxford ซึ่งมีค่า r เท่ากับ –0.73 และ –0.76 ตามลำดับ ในขณะที่ความสัมพันธ์ระหว่าง MCS กับประสิทธิภาพในการทำงานและความเจ็บปวด ของแบบสอบถาม Oxford มีค่าเท่ากับ –0.60 และ –0.58 ตามลำดับเท่านั้น

บทแปลภาษาไทยของแบบสอบถาม Oxford-12 และ SF-36 สงวนไว้ซึ่งลักษณะเฉพาะของต้นฉบับและเชื่อถือได้ ในการประเมินคุณภาพชีวิตของผู้ป่วยที่พูดภาษาไทยหลังจากผ่าตัดเปลี่ยนเข่า