ORIGINAL ARTICLE

Cross-Cultural Adaptation and Validation of the University of Washington Quality of Life Questionnaire (UW-QOL) in Its Thai Version: A Pilot Study

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Background: Despite advancements in medical treatments for head and neck cancer, patient survival rates have remained unchanged. Consequently, the present research aimed to investigate an alternative aspect of disease treatment, patient quality of life. Currently, there is a paucity of validated questionnaires available in Thailand. Prior to conducting quality research in this domain, it is essential to establish a validated and reliable quality of life questionnaire in Thai.

Material and Methods: Specialists in head and neck cancer translated the Fourth Edition of the University of Washington Quality of Life (UW-QOL) Questionnaire from English to Thai, which was subsequently reviewed by three experts in the field to ensure its consistency. These experts evaluated the clarity of each question and its adherence to practical definitions. Subsequently, the translated version underwent backward translation to English, ensuring the content remained precise. The test-retest reliability method was employed, with the questionnaire re-administered to the same group seven days after their initial response.

Results: The Thai adaptation of the UW-QOL Questionnaire for head and neck cancer patients encompassed diverse dimensions of quality of life. This included emotional well-being, stress levels, physical health, and the overall quality of life of the patient. The Thai translated version of this questionnaire maintained its accuracy.

Conclusion: Upon examination of the Thai version of the UW-QOL Questionnaire, the present study demonstrated both precision and accuracy. Moreover, it establishes a robust foundation for subsequent research endeavors.

Keywords: Quality of life; Health-related quality of life; Questionnaires; Head and neck cancer; UW-QOL Questionnaire in Thai version

Received 10 February 2025 | Revised 9 April 2025 | Accepted 22 April 2025

J Med Assoc Thai 2025;108(5):393-9

Website: http://www.jmatonline.com

In the recent years, there has been a significant rise in the incidence of head and neck cancer cases in Thailand. Despite advancements in medical treatments for this condition, including enhancements in surgical instruments and techniques, radiation therapy, and the development of novel chemotherapy formulations or targeted therapies, patient survival rates have remained static[1].

Consequently, the focus has shifted towards exploring alternative aspects of disease management, such as the quality of life of patients. This approach aims to assist head and neck specialists in selecting the most appropriate treatment for individual patients when clinical outcomes are comparable, prioritizing treatments with minimal complications[2,3]. However, there is currently a scarcity of validated questionnaires available in Thailand. Before conducting rigorous research in this domain, it is imperative to establish a validated and reliable quality of life questionnaire in Thai. Therefore, the authors had chosen the most recent version of the University of Washington Quality of Life (UW-QOL) Questionnaire, fourth edition, which is widely recognized[4,5] and utilized, for translation into Thai.

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How to cite this article:

Jirathitiwong T, Samuckkeethum W. Cross-Cultural Adaptation and Validation of the University of Washington Quality of Life Questionnaire (UW-QOL) in Its Thai Version: A Pilot Study. J Med Assoc Thai 2025;108: 393-9.

DOI: 10.35755/jmedassocthai.2025.5.393-399-02757

Material and Methods

Content validity

Two teams of specialists in head and neck translated the Fourth edition of the UW-QOL Questionnaire from English to Thai. Subsequently, two versions of the Thai questionnaire were reviewed by three experts, then they got the preliminary

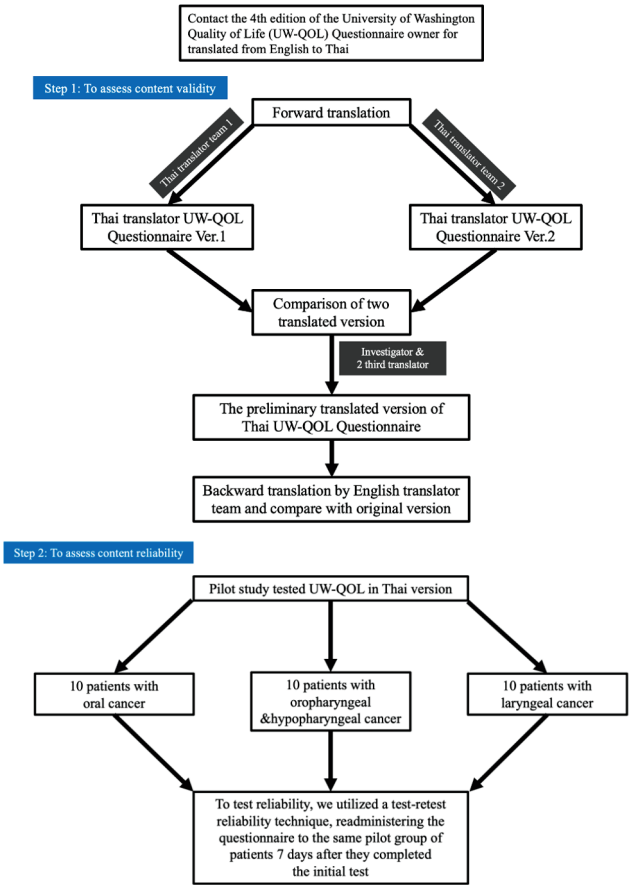

Figure 1. The research methodology employed for conducting content validity and reliability assessments.

translated version of Thai UW-QOL Questionnaire. The English translator team did a backward translation and ensured its consistency with the original version. These experts evaluated the clarity of each question and its adherence to practical definitions. The assessment criteria for questions were set on a four-tier scale:

1=The question is not in line with the practical definition.

2=The question marginally aligns with the practical definition.

3=The question largely aligns but might benefit from minor revisions.

4=The question aligns perfectly with the practical definition.

The researcher then tallied questions with ratings of 3 or 4, indicating their consistency with the content. The content validity index (CVI) was then derived using a specific formula.

$$\text{I-CVI} = \frac{n}{N}$$

n=number of experts who believed the question aligns with the practical definition.

N=total count of experts consulted.

The content validity index for an item (I-CVI) threshold should be at least 0.90.

The head and neck cancer specialists subsequently conducted a back-translation of the Fourth edition of the UW-QOL Questionnaire from Thai to English, ensuring the preservation of content accuracy as illustrated in Figure 1.

Content reliability

To assess content reliability, the authors employed the Thai version of the UW-QOL Questionnaire. The present pilot study engaged with head and neck cancer patients from the Otolaryngology Department at King Chulalongkorn Memorial Hospital, Thai Red Cross Society. These patients, in stages 1 to 4 regarding tumor size, had completed the treatment and were under follow-up for at least three months[6] between December 2022 and October 2023. The authors chose 30 participants, stratified as 10 patients diagnosed with oral cancer, 10 patients with cancer of the

oropharynx and hypopharynx, and 10 patients with cancer of the larynx.

To assess reliability, the authors employed the test-retest reliability method, re-administering the questionnaire to the same group seven days after their initial response and computed using Cronbach's alpha coefficient method as illustrated in Figure 1.

Data collection and outcome measure

For data collection and outcome measurement, the initial data underwent a thorough review for completeness. The primary factors of interest in the study included age, gender, comorbidities, relevant history such as drinking and smoking habits, diagnosis, treatment start and end dates, as well as patient satisfaction and quality of life post-treatment using the Thai version of the UW-QOL Questionnaire.

To ensure the accuracy and preciseness and content validity of the Thai translation of the UW-QOL Questionnaire for head and neck cancer patients, it is imperative that the UW-QOL tool closely aligned with the desired objectives. This means that questions should be consistent with both the practical and the theoretical definitions of the items. To achieve this, the drafted tool was forwarded to three experts familiar with the concept for their review. They assessed the questions for accuracy and consistency with practical definitions and then scored them based on several calculation methods such as 1) Index of item-objective congruence (IOC), 2) Content validity index (CVI), 3) Content validity index for scale (S-CVI), and 4) Average congruency percentage (ACP).

For the determination of the reliability of the present study measuring instruments, the test-retest reliability technique was used on the original sample group. The second data collection occurred one to two weeks after the initial one, and the intraclass correlation coefficient (ICC) was then calculated to ascertain reliability.

Statistical analysis

All statistical analyses were conducted using IBM SPSS Statistics, version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics were presented as mean ± standard deviation (SD) for continuous variables, and as frequencies and percentages for categorical variables. Comparisons among the three groups were performed using one-way analysis of variance (ANOVA) for continuous variables and the chi-square test for categorical variables, as appropriate.

The test-retest reliability of the first section of the UW-QOL questionnaire was evaluated using mean differences and 95% confidence intervals (CI) obtained from paired t-tests. Furthermore, reliability was quantified using ICC with corresponding 95% CI. A p-value of less than 0.05 was considered statistically significant.

Ethics approval

The present study received approval from the Chula IRB Ethical Committee and was assigned IRB No. 0626/65. Additionally, it received a Certificate of Expedited Review Approval (COA No. 1746/2022).

Results

Content validity

The UW-QOL Questionnaire, Fourth edition, was translated from English to Thai by head and neck cancer specialists. To ensure consistency and accuracy with the original English version, the translated Thai version was then reviewed by three other head and neck cancer experts. These specialists evaluated each question for its congruence with practical definitions. Remarkably, all the experts provided consistent opinions for all items, resulting in an I-CVI value of 1.0. However, two items received inconsistent scores from the experts, resulting in an I-CVI of 0.67 for these items. The researchers subsequently addressed and revised these discrepancies to ensure their accuracy.

To assess the content validity of the entire translated document, the S-CVI method was employed by averaging the I-CVI values. The researchers established a quality criterion at S-CVI=0.96. The findings demonstrated that the Thai-translated version maintained high precision to the original English content.

Lastly, as a rigorous validation step, head and neck cancer specialists re-translated the Thai version of the UW-QOL Questionnaire, Fourth edition, back into English. This step ensured the accuracy and consistency of the translation by comparing the re-translated English version with the original English content.

Content reliability

In evaluating content reliability, the present pilot study group was segmented as 10 patients with oral cavity cancer, 10 with oropharyngeal and hypopharyngeal cancers, and 10 with laryngeal cancer. All attended a follow-up three months or more post-treatment at the Department of Otolaryngology,

Table 1. Demographic data

	Carcinoma of oral cavity group	Carcinoma of oropharynx & hypopharynx group	Carcinoma of larynx group	p-value
Participant; n	10	10	10	
Age (years); mean±SD	60±9.84	53.9±9.26	62.3±8.14	0.122
Sex; n (%)				1
Female	3 (30)	3 (30)	3 (30)	
Male	7 (70)	7 (70)	7 (70)	
Underlying diseases; n (%)	3 (30)	4 (40)	6 (60)	0.387
Smoking; n (%)	5 (50)	3 (30)	4 (40)	0.659
Alcohol consumption; n (%)	4 (40)	4 (40)	3 (30)	0.866
Staging of cancer; n (%)				0.306
1	1 (10)	0 (0)	2 (20)	
2	0 (0)	3 (30)	3 (30)	
3	4 (40)	2 (20)	3 (30)	
4	5 (50)	5 (50)	2 (20)	
Treatment modalities; n (%)				0.019*
Surgery alone	1 (10)	0 (0)	0 (0)	
Surgery & CCRT/RT	9 (90)	3 (30)	6 (60)	
CCRT/RT alone	0 (0)	7 (70)	4 (40)	

SD=standard deviation; CCRT=concurrent chemoradiation therapy; RT=radiation therapy

King Chulalongkorn Memorial Hospital. The demographic and clinical characteristics of each group are presented in Table 1, revealing consistent traits across groups.

Each group comprised head and neck cancer patients with a male-to-female ratio of 2:1. The age distribution was concentrated between 50 and 60 years in all groups. Notably, over 50% of volunteers across the board were diagnosed with advanced-stage cancer. However, the treatment modalities for each group significantly varied. This disparity stemmed from the fact that, as per the National Comprehensive Cancer Network (NCCN) treatment guidelines, different cancers had different reactions to chemotherapy and radiation therapy, influencing treatment choices.

For instance:

- Oral cavity cancer, known for its aggressive nature, primarily necessitates surgical intervention for oncological control.
- Pharyngeal cancer, despite its difficult-to-access surgical site, fortunately responds well to chemotherapy and radiation.
- Laryngeal cancer involves considerations related to speech and swallowing, influencing treatment decisions. The majority underwent combined surgical and post-operative chemoradiation therapy.

Thus, while many demographic characteristics were consistent, treatment modalities notably differed among the groups. Patients were evaluated using the revised Thai version of the UW-QOL Questionnaire on their follow-up date. They were then re-tested within seven days. The questionnaire is divided into three sections.

Table 2. Test and retest reliability in the first section of UW-QOL questionnaire

	Mean difference (95% CI)	p-value	Reliability ICC (95% CI)
Pain	2.5 (1.84 to –1.26)	0.184	0.925 (0.844 to 0.964)
Appearance	0.83 (2.54 to –4.36)	0.745	0.894 (0.777 to 0.950)
Daily activities	0.83 (0.83 to –0.87)	0.326	0.984 (0.966 to 0.992)
Recreation	0.83 (1.89 to –3.03)	0.662	0.957 (0.910 to 0.980)
Swallowing	–5.67 (2.38 to –10.54)	0.024*	0.945 (0.873 to 0.975)
Chewing	–0.83 (1.46 to –3.82)	0.573	0.981 (0.959 to 0.991)
Speech	–1 (2.35 to –5.81)	0.674	0.946 (0.887 to 0.974)
Shoulder	0.33 (2.17 to –4.1)	0.879	0.922 (0.836 to 0.963)
Taste	–1.33 (1.33 to –4.06)	0.326	0.988 (0.976 to 0.994)
Saliva	1.33 (1.33 to –1.39)	0.326	0.983 (0.965 to 0.992)
Mood	–1.67 (2.92 to –7.64)	0.573	0.847 (0.678 to 0.927)
Anxiety	0	1	1.000 (1.000 to 1.000)

ICC=intraclass correlation coefficient; CI=confidence interval

Table 2 presents the first section of the questionnaire, which encompassed questions about symptoms and psychological conditions influencing the patient's quality of life. The authors observed a significant difference in responses regarding swallowing function when patients answered the questionnaire twice (p=0.024, –5.67 (95% CI 2.38

Table 3. Test and retest reliability in the second section of UW-QOL questionnaire about the impactful symptoms in the past week

	Test	Retest	p-value
Pain	13.3%	6.7%	0.389
Appearance	0.0%	0.0%	1
Daily activities	0.0%	0.0%	1
Recreation	0.0%	0.0%	1
Swallowing	66.7%	56.7%	0.426
Chewing	20.0%	23.3%	0.754
Speech	20.0%	23.3%	0.754
Shoulder	6.7%	3.3%	0.554
Taste	26.7%	33.3%	0.573
Saliva	20.0%	16.7%	0.739
Mood	0.0%	0.0%	1
Anxiety	6.7%	3.3%	0.554

to –10.54). However, for other symptoms and psychological conditions, participants' responses were almost identical to their initial answers. These responses were then employed to compute test-retest reliability in the same pilot group of patients seven days after the initial test. The reliability of the questionnaire tool was further evaluated using the Cronbach alpha's coefficient method. The emotional component exhibited a reliability of 0.879, while other items showed a reliability of greater than 0.9.

Table 3 presents the second section of the questionnaire. Participants were asked to select the three symptoms that most significantly affected their daily lives. These choices were based on symptoms commonly reported by head and neck cancer patients in the original University of Washington survey. Results revealed that poor swallowing function was the primary concern for respondents, significantly impacting their daily activities. Taste alterations came in second, followed by issues with chewing, speech, reduced saliva production, and pain and anxiety.

Table 4 presents the third section of the questionnaire, focusing on quality-of-life questions. This section had three items that addressed the mental state of patients before their cancer diagnosis and the extent to which their post-cancer physical condition affected their quality of life. The responses from volunteers showed a consistent pattern across questions. The calculated ICC for reliability exceeded 0.9 for all items.

Discussion

Recently, the incidence of head and neck cancer has risen significantly[1]. Alongside this, the care provided to these patients has seen marked advancements in management strategies that facilitate better prediction of disease prognosis and foster the development of improved treatments to head and neck cancer patients[2,3,7]. Contrary to expectations, the survival rate has not risen in parallel. Djan & Penington[4] suggest that a patient's quality of life hinges on several factors, including basic personal attributes, health status, pain, appearance, daily activities, recreational pursuits, and specific functional issues like swallowing, speech, anxiety, shoulder mobility, taste perception, saliva production, chewing, and the patient's overall state of well-being.

The UW-QOL Questionnaire stands out due to its comprehensive and concise content, encompassing all relevant aspects for patient assessment and is utilized globally[8,9]. The present research aimed to introduce a Thai version of this tool, aiming to significantly benefit expanding number of head and neck cancer patients in Thailand.

Specialists in head and neck oncology conducted the translation of the UW-QOL Questionnaire into Thai, ensuring content consistency. The present research meticulous approach yielded a high reliability index (S-CVI=0.96). This exceptional outcome is attributable to the translators' expertise, which ensured the comprehensibility of the Thai version.

In the present pilot study, patients with tumor stages ranging from 1 to 4, who had completed their treatments at least three months prior, were recruited. These participants were administered the questionnaire and subsequently reassessed using the same instrument seven days later to evaluate

Table 4. Test and retest reliability in the third section of UW-QOL questionnaire about general question

Questions	Reliability: ICC (95% CI)
Compared to the month before you developed cancer, how would you rate your health-related quality of life?	0.938 (0.871 to 0.970)
In general, would you say your health-related quality of life during the past 7 days has been:	0.928 (0.823 to 0.968)
Overall quality of life includes not only physical and mental health, but also many other factors, such as family, friends, spirituality, or personal leisure activities that are important to your enjoyment of life. Considering everything in your life that contributes to your personal well-being, rate your overall quality of life during the past 7 days.	0.953 (0.902 to 0.977)

reliability. As illustrated in Table 1, the demographics of the patients across the groups were comparable. However, treatment modalities varied significantly among groups due to differences in tumor sites and the varied responses of different cancers, as outlined by the NCCN treatment guidelines, which directly influence treatment decisions. For instance, the aggressive nature of oral cancer necessitates surgery as the primary treatment, whereas the limitations of surgical field exposure and post-surgical morbidity in pharyngeal cancer led to a preference for chemotherapy and radiation. Laryngeal cancer presents additional challenges, requiring consideration of voice and swallowing functions when determining treatment modalities. Consequently, distinct treatment demographics emerged across the groups. Segmenting the pilot group into three distinct categories not only validates the questionnaire's broad applicability but also confirms its comprehensive nature, encompassing all common head and neck cancer locations.

In evaluating the reliability of the questionnaire, the initial section, which addresses symptoms and mental conditions affecting patients' quality of life, revealed a noteworthy finding. Specifically, only the swallowing function demonstrated a significant difference when patients responded at two separate times, possibly due to varied interpretations or misunderstandings. In the subsequent segment, participants identified the three symptoms that most significantly impacted their lives, selecting from a list of commonly experienced symptoms. As anticipated, impaired swallowing was identified as the most debilitating, followed closely by altered taste. Issues with chewing, speaking, reduced saliva production, pain, and anxiety were less prominent. These findings underscore the importance of the head and neck region, which is the primary site facilitating swallowing function. Any therapeutic intervention, whether surgical, radiative, or chemotherapeutic, can adversely affect this critical function, thereby impacting patients' quality of life. The third section of the questionnaire, comprising three questions about quality of life, examined patients' mental state prior to cancer and the transformative effects of post-treatment physical conditions. Notably, responses were consistent across the board. This uniformity reinforces the clarity and precision of the Thai version of the UW-QOL Questionnaire, ensuring consistent outcomes even upon repeated administrations, as has been observed with other translated versions in various languages[8,9].

Conclusion

Upon examination of the Thai version of the UW-QOL Questionnaire, the present pilot study group determined that the instrument demonstrated both precision and accuracy. This assessment tool can be utilized to evaluate quality of life, address challenges, and inform more effective treatment strategies for head and neck cancer patients in Thailand. Moreover, it establishes a robust foundation for subsequent research endeavors.

What is already known about this topic?

This Thai version of the UW-QOL Questionnaire demonstrates comparable precision and accuracy to the original instrument.

What does this study add?

Thai clinicians and researchers seeking to assess patient quality of life may employ this questionnaire with a high degree of confidence.

Acknowledgement

The authors would like to express their gratitude and appreciation to Assoc. Prof. Napadon Tangjaturonrasme, the head of Head and Neck Department, whose guidance, support, and encouragement were invaluable throughout this study. The authors also want to thank the Department of Otolaryngology, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand for the reliable source of support.

Conflicts of interest

The authors declare no conflict of interest.

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