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CONTENTS

Original Article

Validation of the University of Washington quality of life questionnaires for head and neck cancer patients in India

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Abstract

Quality of life (QOL) is a multidimensional construct capturing the subjective wellbeing of patients in physical, emotional, functional and social domains. Available work on post treatment QOL have only been made in western literature and less in Indian literature. **AIMS:** To translate the UWQOL into both Hindi and Marathi and psychometrically validate the translation in HandN cancer patients in Indian population. **SETTINGS AND DESIGN:** A prospective study was done at the Tata Memorial Hospital for patients who were treated for H and N cancers. **MATERIALS AND METHODS:** 147 patients were enrolled from January to April 2005. The study was carried out in two phases. Patients were given translated versions of the UWQOL and EORTC QOL questionnaires preoperatively, 15 days postoperatively and then three months postoperatively. **RESULTS:** Both the Hindi and Marathi translations had strong internal consistency (Cronbach's alpha=0.7971 and 0.7839). UWQOL composite scores correlated well with the global questions on overall QOL in both the Hindi (r=0.69) and Marathi (r=0.66) translations and also with Tstage. QOL scores were worse three months postoperatively than preoperatively and for patients undergoing surgery that violated the mucosa. A strong correlations was observed (r>0.50) between all similar domains on the UWQOL and EORTC HandN35 except the saliva item on the Marathi translation, where r<0.50, but Pvalues were significant. **CONCLUSIONS:** The Marathi and Hindi versions of the UWQOL appear to be valid and reliable instruments for assessing the QOL in Indian population and will be a vital tool for achieving greater insight into the short and the long term QOL.

Key words: Head and neck cancer, quality of life, questionnaires, validity

Introduction

Increasing attention has been given in recent years to the importance of quality of life (QOL) in assessing outcomes of patients treated for head and neck (H and N) cancers. QOL is a multidimensional construct capturing the subjective wellbeing of patients in physical, emotional, functional and social domains. Although therapeutic options may provide similar survival rates, QOL outcomes between treatment modalities may vary significantly. It is therefore ideal for pre-therapy discussions to include consideration of optimal post-therapy QOL outcomes.

Although substantial efforts have been made in the western literature to document posttherapy QOL, less has been documented in the Indian literature, despite the prevalence of H and N cancer in the Indian population.[1-5] A variety of scales have been developed, with the most widely used and accepted scales being the European Organization for Research and Treatment of Cancer's Quality of Life Questionnaire (EORTCH and N35), the Functional Assessment of Cancer Therapy (FACT H and N) scale and the University of

Washington Quality of Life questionnaire (UWQOL).

An instrument suitable for routine clinical use should be brief and impose minimal patient burden. The EORTC QOL questionnaire is the most widely used instrument and has been validated in various languages. We were the first to validate the same in Hindi and Marathi[6] the two vernacular languages most widely spoken by our patients. Our findings did suggest that this instrument was suitable in our patient population; however these scales are lengthy, complex and time consuming consisting of 35 (H and N specific) and 30 (Global) questions, respectively. The UWQOL is brief, consisting of 12 questions and is commonly used by many centers globally. The aim of this project was to translate the UWQOL into both Hindi and Marathi and psychometrically validate the translation in head and neck cancer patients in India and compare the same with the previously validated EORTC questionnaire.

Materials and Methods

This study was carried out in two phases. We performed a linguistic and cultural translation of the UWQOL from English to the Indian languages in Phase 1 and then prospectively validated the translated scales at Tata Memorial Hospital (Parel, India) in Phase 2.

Translation process

The translation process began with a forward translation of the original US English questionnaire into both Hindi and Marathi [Figures 1-2]. Two native Hindi and Marathi speakers with bicultural expertise (US and Indian) were used for each forward translation. After translation, a bilingual coordinator performed a review of each of the translations and, along with the translators, reached an iterative consensus. The consensus version of both the Hindi and Marathi translations were sent to new translators who performed a back translation from each of the Indian languages to English. The coordinator finally amalgamated the two English back translations into a final questionnaire that was then compared to the original English version to ensure concordance with not only the translation but also nuances in meaning.

Psychometric validation of the translated questionnaires

Study Population. We enrolled patients from the Tata Memorial Hospital who had received treatment for cancers of the head and neck. The Tata Memorial Hospital is a tertiary cancer site with the largest volume of H and N cancer in India. All participants were adult patients with thyroid and H and N squamous cell carcinoma who were presenting for preoperative

Figure 1 (Hindi translation)

कृपया सब प्रश्नों का सही उत्तर बॉक्स में टिक करके दें।

यह प्रश्नावली आपके स्वास्थ्य और क्वालिटी ऑफ लाइफ के बारे में है। हम जानना चाहते हैं कि पिछले सात दिन में आपकी दक्षिता कैसी रही।

1. दर्द
मुझे बिल्कुल भी दर्द नहीं है।
हल्का सा दर्द है पर दवाई की जरूरत नहीं है।
मुझे थोड़ा दर्द है - नियमित दवाई की जरूरत है (जैसीज का अन्य दर्द निवारक)
मुझे बहुत तेज दर्द है जो सिर्फ नारकोटिक से कंट्रोल में आता है।
मुझे बहुत तेज दर्द है जो किसी नारकोटिक से कंट्रोल में नहीं आता है।

2. रूप
मेरे बाहरी रूप में कोई बदलाव नहीं है।
मेरे बाहरी रूप का बदलाव बहुत ही आंशिक है।
मुझे अपना बाहरी रूप का बदलाव परेशान करता है पर मैं ध्यान रखता हूँ।
मुझे अपना रूप खटिका लगता है और इसलिए मैं अपना काम काज सीमित रूप से करता हूँ।
मैं अपने बाहरी रूप के कारण लोगों के सामने नहीं रह सकता।

3. एक्टिविटी/कार्यशीलता
मैं उतना ही एक्टिव हूँ जितना पहले था।
कभी ऐसा होता है जब मैं पहले जैसे एक्टिव नहीं होता, पर ऐसा कम होता है।
मैं अक्सर थक जाता हूँ और अपनी कार्यशैली को कम करता हूँ पर फिर भी मैं बाहर जाता हूँ।
मैं बाहर नहीं जाता क्योंकि मुझमें ताकत नहीं है।
मैं अक्सर लेटता हूँ या कुर्सी पर बैठता हूँ और घर के बाहर नहीं जाता।

4. गतिशीलता
घर या बाहर मुझे मनोरंजन के हर क्षण में मजा आता है।
कुछ चीजें ऐसी हैं जो मैं कर नहीं सकता पर फिर भी बाहर जाकर जीवन में मजा लेता हूँ।
अक्सर मैं चाहता हूँ कि मैं अधिक बाहर जा सकूँ पर मैं जा नहीं पाता।
मेरे हर काम में मुझे अनेक बाधा आती है जो मैं अक्सर घर में रहकर टीवी देखता हूँ।
मैं कुछ भी ऐसा नहीं कर पाता जिसमें मुझे मजा आये।

5. निगलना
मैं पहले जैसे निगल सकता हूँ।
मैं कुछ तरल खाना नहीं खा पाता।
मैं सिर्फ तरल खाने के पदार्थ निगल सकता हूँ।
मैं बिलकुल निगल नहीं सकता क्योंकि वो गला तरल खाना है और मैं चोक हो जाता हूँ।

6. खाना
मैं पहले जैसे खा सकता हूँ।
मैं सीमित तरीके खाना खा सकता हूँ पर हर तरह का खाना नहीं खा सकता।
मैं लिक्विड तरीके खाना भी नहीं खा सकता हूँ।

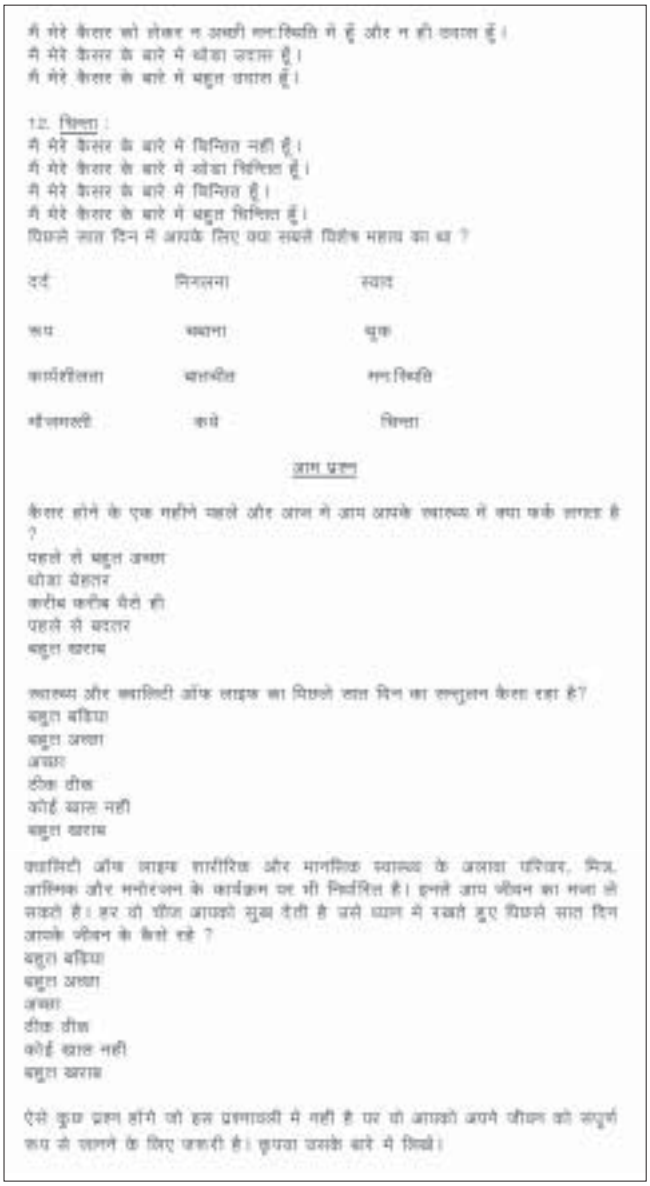
7. बोलचाल
मेरी बोलचाल पहले की तरह है।
मुझे कुछ शब्द कहने में तकलीफ होती है पर लोग मुझे फोन पर समझ लेते हैं।
सिर्फ मेरे परिवार और मित्र मेरी बातचीत समझते हैं।
मुझे कोई भी बिलकुल नहीं समझ पाता।

8. क्षमता
मुझे अपने काम में कोई तकलीफ नहीं है।
मेरा क्षमता थोड़ा कम है पर इससे मेरे काम काज या क्षमता में कोई फर्क नहीं पड़ा है।
काम में दर्द या कमजोरी के कारण मुझे अपना काम बदलना पड़ा है।
मैं काम की तकलीफ के कारण कोई काम नहीं कर पाता।

9. स्वाद
मुझे खाने का स्वाद नार्मल आता है।
ज्यादातर खाने की चीजों का स्वाद नार्मल आता है।
मैं कुछ चीजें का स्वाद पता हूँ।
मुझे खाने का स्वाद नहीं पता चलता।

10. थूक
मेरे थूक का गाढ़ापन नार्मल है।
मेरे मुँह में कम थूक है पर वो नार्मल है।
मेरे मुँह में बहुत कम थूक है।
मेरा मुँह एकदम सूखा है।

11. मनःस्थिति
मेरी मनःस्थिति एकदम ठीक है मेरे कैंसर से प्रभावित होता है।
मेरी मनःस्थिति सामान्यतः अच्छी रहती है और कभी कभार मेरे कैंसर से प्रभावित होता है।



मैं मेरे कैंसर को लेकर न अच्छी मन:स्थिति में हूँ और न ही उदास हूँ।
मैं मेरे कैंसर के बारे में थोड़ा उदास हूँ।
मैं मेरे कैंसर के बारे में बहुत उदास हूँ।

12. चिंता :
मैं मेरे कैंसर के बारे में चिन्तित नहीं हूँ।
मैं मेरे कैंसर के बारे में थोड़ा चिंन्तित हूँ।
मैं मेरे कैंसर के बारे में चिन्तित हूँ।
मैं मेरे कैंसर के बारे में बहुत चिन्तित हूँ।
पिछले सात दिन में आपके लिए क्या सबसे विशेष महत्व का था ?

दर्द	निगलना	स्वाद
रूप	भाषण	थूक
कार्यशीलता	खानपीत	मन:स्थिति
सैंचालनशक्ति	कार्य	चिंता

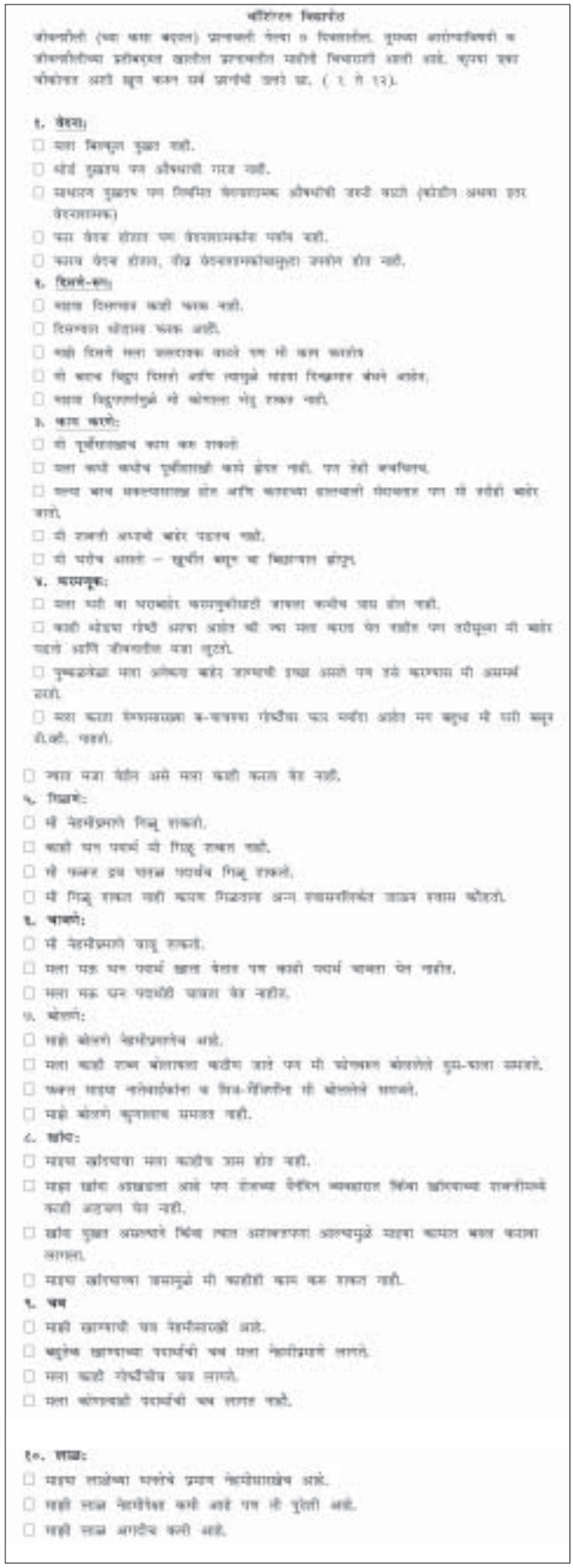
आम प्रश्न

कैंसर होने के एक महीने पहले और आज से आप आपके स्वास्थ्य में क्या फर्क लगता है ?
पहले से बहुत अच्छा
थोड़ा बेहतर
करीब करीब वैसे ही
पहले से बदतर
बहुत खराब

स्वास्थ्य और क्वालिटी ऑफ लाइफ का पिछले सात दिन का सन्तुलन कैसा रहा है?
बहुत बढ़िया
बहुत अच्छा
अच्छा
ठीक ठीक
कोई खास नहीं
बहुत खराब

क्वालिटी ऑफ लाइफ शारीरिक और मानसिक स्वास्थ्य के अलावा परिवार, मित्र, आत्मिक और मनोरंजन के कार्यक्रम पर भी निर्भरित है। इनसे आप जीवन का मजा ले सकते हैं। हर दो चीज आपको सुख देती है उसे ध्यान में रखते हुए पिछले सात दिन आपके जीवन के कैसे रहे ?
बहुत बढ़िया
बहुत अच्छा
अच्छा
ठीक ठीक
कोई खास नहीं
बहुत खराब

ऐसे कुछ प्रश्न होंगे जो इस प्रश्नावली में नहीं है पर जो आपको अपने जीवन को संपूर्ण रूप से पहचानने के लिए जरूरी है। कृपया उसके बारे में लिखें।



चाचणीपत्र विद्यार्थ्यांसाठी

जीवनशैली (म्हणजे काय बदलणे) प्रश्नावली पेपर ० दिवसांसाठी. तुमच्या आरोग्यविषयी व जीवनशैलीच्या प्रतिबिंबाचा खालील प्रश्नावलीत यादीची विचारणी असणी आहे. तुमचा उत्तर चौकोनात असणी खूण करून सर्व प्रश्नांची उत्तरे द्या. (१ ते १२).

१. वेदना:
☐ माझा बिलकुल दुखत नाही.
☐ थोडं दुखतंय पण औषधाची गरज नाही.
☐ साधारण दुखतंय पण नियमित वेदनाशामक औषधांची जरूरी पडते (कोडीन असणा इतर वेदनाशामक)
☐ फार वेदक होतात पण वेदनाशामकांचा परिणाम नाही.
☐ फारच वेदक होतात, तीव्र वेदनाशामकांचासुद्धा उपयोग होत नाही.
२. दिसणे-रूप:
☐ माझ्या दिसण्यावर काही फरक नाही.
☐ दिसण्यावर थोडासा फरक आहे.
☐ माझे दिसणे मला आत्मविश्वास वाटले पण मी काम करतोय
☐ मी बाहेर खिन्न दिसतो आणि त्यामुळे माझ्या दिसण्याकडे बोलले जातेय.
☐ माझ्या विद्रूपतेमुळे मी घोगलता येतु शकत नाही.
३. काम करणे:
☐ मी पूर्णवेळ/अर्धवेळ काम करू शकतो
☐ माझा कामचे कार्यक्षेत्र पूर्वीसारखे करणे होत नाही. पण तेही करण्याचा.
☐ माझ्या आजच्या सकल्पनांमुळे होत असणे आजच्या डॉक्टरांनी सोयीकरत पण मी सर्वांसी बाहेर जातो.
☐ मी रजेसारी अपघाचे बाहेर पडलच पाहो.
☐ मी घरीच असतो – खूपच थकून या विश्रांतसा झोपतू.
४. कामयुक्त:
☐ माझा पत्नी या घरामधील कामयुक्तीसाठी जोडला कार्यक्षेत्र खाय होत नाही.
☐ काही मोठ्या गोष्टी आपण आहेत की त्या मला करता येत नाहीत पण दरीमुळा मी बाहेर पडतो आणि जीवनातील मजा लुटतो.
☐ पुष्कळदेखा मला ओळख बाहेर जाण्याची इच्छा असते पण इने करण्याचा मी असमर्थ असतो.
☐ मला फक्त वेगवेगळ्या ४-चारवेळा गोष्टींचा पाय मर्यादा आहेत मग बहुच मी घरी असून थी.ओ. पडतो.

☐ त्यात मजा येतेत असे मला काही कमत येत नाही.
५. खिजगे:
☐ मी नेहमीप्रमाणे खिजू शकतो.
☐ काही थन पदार्थ मी खिजू शकत नाही.
☐ मी फक्त द्रव पदार्थ पदार्थच खिजू शकतो.
☐ मी खिजू शकत नाही कारण खिजताना अन्न शस्त्रमार्गातील जाळून त्रास होतोतो.
६. चावणे:
☐ मी नेहमीप्रमाणे चावू शकतो.
☐ मला फक्त थन पदार्थ खात येतात पण काही पदार्थ चावता येत नाहीत.
☐ मला फक्त घन पदार्थांची चावता येत नाहीत.
७. बोलणे:
☐ माझे बोलणे नेहमीप्रमाणेच आहे.
☐ मला काही शब्द बोलायला कठीण जाते पण मी बोलकाम बोलतोते सुस-थाना समजते.
☐ फक्त माझ्या नातेवाईकांना व मित्र-मैत्रिणींना ही बोलतेले समजते.
☐ माझे बोलणे खूपसाच समजत नाही.
८. खोप:
☐ माझा खोपाचा मला काहीच त्रास होत नाही.
☐ माझा खोपा अशक्तता आहे पण दोनच्या पेक्षित व्यवसायात किंवा खोपाच्या दाखलीमध्ये काही अडचण येत नाही.
☐ खोप दुखत असल्याने किंवा त्यात अशक्तपणा आल्यामुळे माझा चामता बरा करावा लागला.
☐ माझा खोपाचा त्रासामुळे मी काहीही काम करू शकत नाही.
९. चव
☐ माझी खाण्याची चव नेहमीसारखी आहे.
☐ अलीकडे खाण्याच्या पदार्थांची चव मला नेहमीप्रमाणे लागते.
☐ मला काही गोष्टींचीच चव लागते.
☐ मला कोणत्याही पदार्थांची चव लागत नाही.

१०. लाळ:
☐ माझा लाळेच्या प्रमाणे नेहमीसारखेच आहे.
☐ माझी लाळ नेहमीपेक्षा कमी आहे पण ती पुरेशी आहे.
☐ माझी लाळ अगदीच कमी आहे.

Figure 1: Hindi translation

evaluation. Subjects were required to speak and read Hindi or Marathi. Patients were recruited between January and April 2005.

Data Collection. Enrollees (n=147) were given a packet of self-administered questionnaires during a routine preoperative consultation. The packet included translated versions of the UWQOL and EORTC H and N35. Patients were asked to complete this packet preoperatively, 15 days postoperatively and then three months postoperatively. An additional cohort of patients (n=35) were asked to return a second UW-QOL within 710 days, which was returned by mail, in order to evaluate the test-retest reliability of the scale. This interval was chosen because enough time had elapsed to prevent patients from remembering their

Figure 2: Marathi translation

responses to the first administration of the scale, but not enough time to allow clinically meaningful change to have occurred in the interim. Patients did not receive remuneration. The medical records of these patients were abstracted to obtain data on demographics, cancer site, stage and treatment.

Scoring of UWQOL and EORTC H and N35

Each item (question) on the UWQOL (version 4) is scored from 0 to 100. A higher score is indicative of better quality of life. A 'composite' score is obtained by calculating the mean of the 12 items. There are also 3 'global' questions which are analyzed separately.

Individual items on the EORTC H and N35 module were also scored from 0 to 100. A higher score on functional scale indicates higher QOL while a higher score on symptom scale indicates worst QOL.

Data analysis

Reliability was established by measuring both internal consistency (Cronbach's alpha) and test-retest reliability (intraclass correlation coefficient). Internal consistency is considered good if alpha approximates 0.70 but does not exceed 0.90, because values over 0.90 imply the presence of redundant items.[7] Test-retest reliability was measured with the intraclass correlation coefficient (ICC), which is more rigorous than Pearson's correlation coefficient r because it considers not just the strength of the correlation but also systematic variations.[8]

The 'validity' of a scale depends on whether the scale truly measures what it purports to measure. Three forms of validity—content, criterion and construct—are typically sought. Content validity has been ensured by the translation process, as the authors have made sure that the translated scale touches on issues relevant to an Indian H and N population. Criterion validity asks whether the scale compares favorably to a gold standard, but this is typically less relevant in quality of life research since there is no "gold standard" measure of QOL. Construct validity therefore receives the bulk of attention. One popular method for establishing construct validity is to compare the scale's scores against other variables ('concurrent validity'). For example, one might theorize that scores should be worse in patients with advanced stage disease. In this study, we evaluated the relationship of UWQOL composite scores with: Tstage, global UWQOL scores and relevant EORTC H and NQ35 subscales.

Finally, we evaluated the transition scores (difference between preoperative and postoperative) scores, theorizing that patients with operations involving the mucosa (as opposed to neck and thyroid procedures) experience the greatest diminishments in QOL. We also calculated sought to evaluate the magnitude of transition scores, to evaluate the sensitivity of the translated scales to clinically important change.[9] All statistical analyses were performed using with Stata for Windows (Version 8.2, College Station, Texas, USA).

Results

The UWQOL was successfully translated into both Hindi and Marathi [Figures 1, 2]. Of the 147 patients who participated in the validation phase, 86 completed the Hindi version and 61 completed the Marathi version. The mean age of participants was 50.5, with the majority of patients being male (74.5%). Other baseline characteristics of our cohort are summarized in Table 1. We note that a greater percentage of patients completing the Hindi questionnaires were male and had tumors of the oral tongue and pyriform sinus.

Table 1: Patient characteristics (validity phase)

Variable	Marathi n=61	Hindi n=86
Age		
<50	28	42
50¬60	14	32
61¬70	15	9
>70	4	3
Gender		
Male	39	70
Female	22	16
T Stage		
1	7	10
2	20	31
3	16	26
4	16	16
Unknown	2	0
Site		
Squamous cell		
Buccal mucosa	18	18
Alveolar ridge	15	13
Oral tongue	8	21
Pyriform sinus	3	10
Glottis	2	2
Supraglottis	2	2
Retromolar trigone	1	5
Soft palate	1	1
Lip	0	1
Other	3	3
Thyroid	6	8
Salivary gland	2	2

Both the Hindi and Marathi translations had strong internal consistency (Cronbach's alpha = 0.7971 and 0.7839, respectively, using data collected before surgery). Test-retest reliability was also excellent (ICC = 0.9069 for Marathi; 0.8964 for Hindi); the raw data are shown in Figure 3.

There was also strong evidence of construct validity. UWQOL composite scores correlated very well with the global question on overall QOL in both the Hindi (r = 0.69) and Marathi (r = 0.66) translations. There was strong relationship between the composite and global scores, with better composite scores associated with better global scores, as expected [Figures 4, 5]. UW-QOL composite scores also correlated with T-stage, with patients with early stage disease having better composite scores both preoperatively and postoperatively [Figures 6-9]. As expected, QOL scores are worse three months

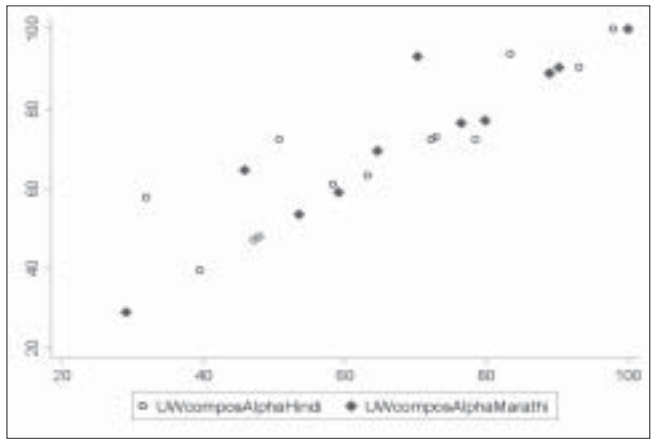


Figure 3: Test-retest data for both Marathi and Hindi patients. Composite scores from the first administration of the UW-QOL are plotted along the y-axis; composite scores from the second administration are plotted along the x-axis. Scores along the y=x line would suggest perfect correlation

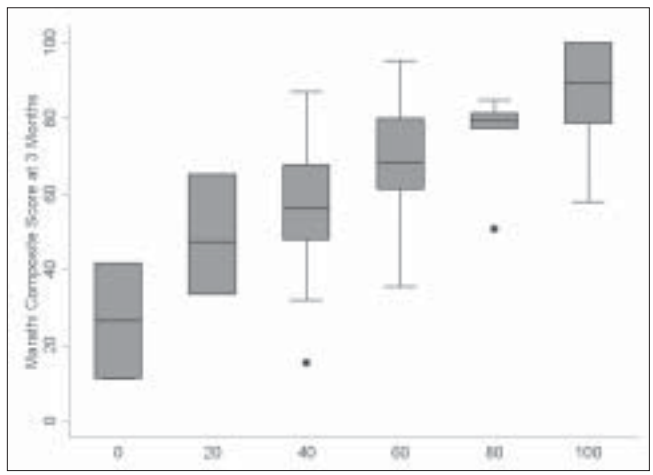


Figure 4: Graphic representation of the association 3 months after surgery between the Marathi composite score and the global question on overall QOL (r=0.6630, *P*<0.0000)

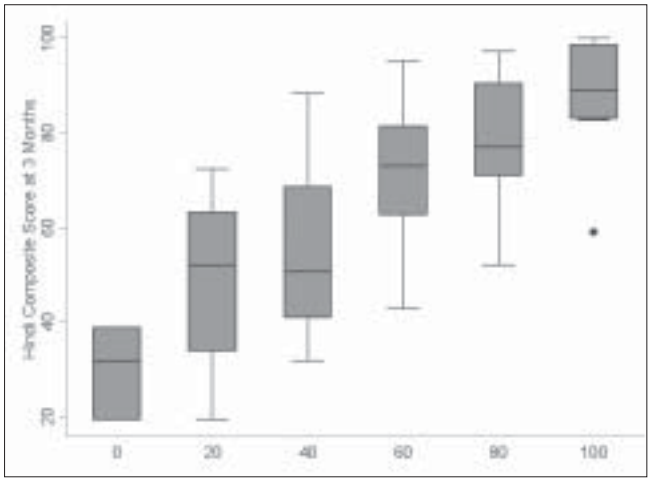


Figure 5: Graphic representation of the association 3 months after surgery between the Hindi composite score and the global question on overall QOL (r=0.6921, *P*<0.0000)

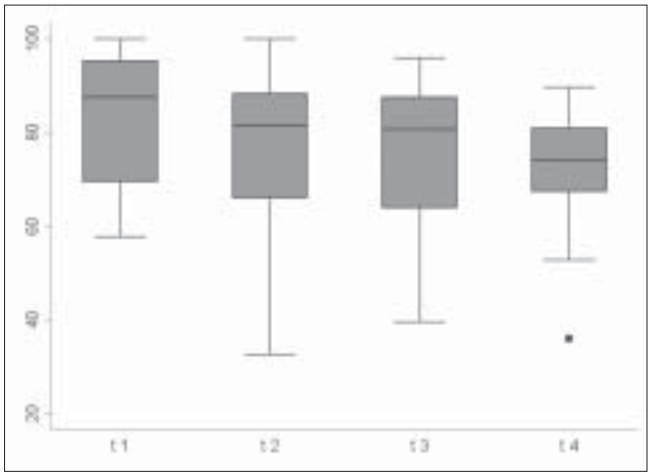


Figure 6: Graphic representation of the association between the Marathi composite score at baseline before surgery and T stage (Prob > |t| = 0.1026)

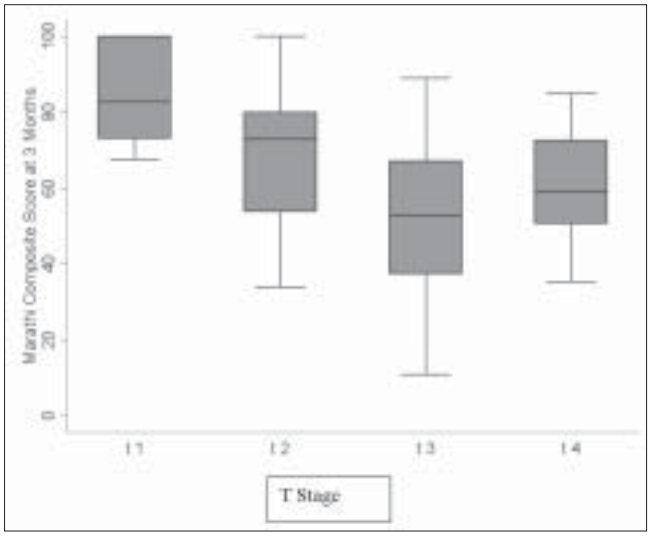


Figure 7: Graphic representation of the association between the Marathi composite score 3 months after surgery and T stage (Prob > |t| = 0.0024)

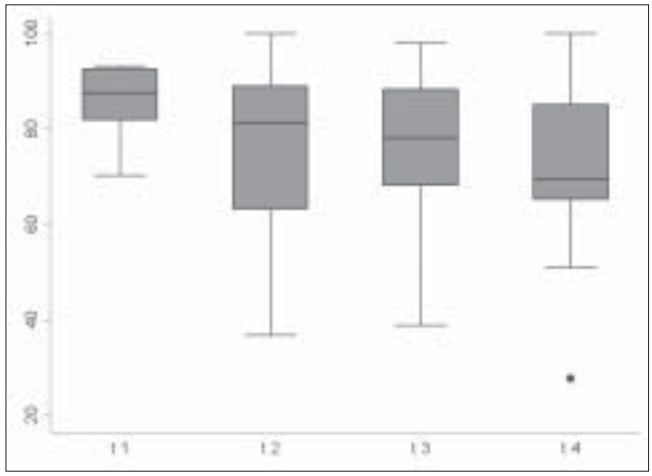


Figure 8: Graphic representation of the association between the Hindi composite score at baseline before surgery and T stage (Prob > |t| = 0.0393)

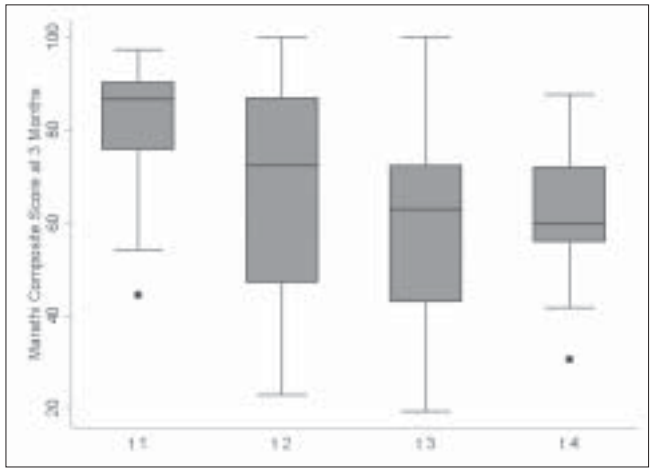


Figure 9: Graphic representation of the association between the Hindi composite score 3 months after surgery and T stage (Prob > |t| = 0.0063)

after surgery than preoperatively, since the recovery time for surgical patients usually requires one year.[10]

Because no composite score from the EORTC H and N35 is calculated, only comparisons between relevant domains between the UWQOL and the H and N35 are relevant [Table 2]. In general, strong correlations were observed ($r > 0.50$) between all similar domains, including pain, swallowing, speech and saliva items on the UWQOL. The only exception was with the saliva item on the Marathi translation, where $r < 0.50$, but *P* values were still statistically significant.

Both translated versions were also sensitive to clinically important change, such as an operation in the head and neck region. The effect size of the change score was 0.68 in the Marathi population and 0.70 with the Hindi population. For reference, an effect size of 0.5

Table 2: Correlations between item specific University of Washington quality of life scores and EORTC HNQ35 subscales 3 months after surgery.

	EORTC subscales				
UWQOL Item	**Pain**	**Swallowing**	**Speech**	**Sticky**	**Dry mouth**
Pain	-0.6400				
	P<0.0001				
Swallowing		-0.7094			
		P<0.0001			
Speech			-0.6768		
			P<0.0001		
Saliva				-0.2434	-0.4112
				P<0.05	*P*<0.001
	Marathi data				
	EORTC subscales				
UWQOL	**Pain**	**Swallowing**	**Speech**	**Sticky**	**Dry mouth**
Item				Saliva	
Pain	0.6172				
	P<0.0001				
Swallowing		0.7294			
		P<0.0001			
Speech			0.5832		
			P<0.0001		
Saliva				0.5086	0.5470
				P<0.0001	*P*<0.0001
Hindi data					

is considered representative of moderate change and an effect size of 0.8 is considered large.[11] By excluding thyroid and salivary tumors (since the UWQOL is aimed at patients with squamous carcinoma of the H and N), the effect sizes are even larger (0.81 and 0.73, for Marathi and Hindi patients, respectively). We also found that greater decrements were observed for patients undergoing surgery that violated the mucosa, as expected [Table 3].

Discussion

Disease specific health status scales not only an important tool that help to monitor an individual patient's health status after treatment, but also are useful to elucidate important differences in QOL for within and between diverse populations. In this study, we have successfully translated the UWQOL into Hindi and Marathi and have separately validated these scales in Indian head and neck patients.

Table 3: Effect size of change in composite scores (difference between scores before surgery and 3 months after surgery), by type of surgery

Type of surgery	Marathi	Hindi
All patients	0.68	0.70
Violation of mucosa	0.87	0.76
No violation	0.31	0.36

The resulting scales maintain the brevity of the original UWQOL scale. The design of the scale enabled easy administration and resulted in little burden on our patients. We are also encouraged by the scale's performance, since it not only appears to appropriately measure QOL in our patient population, but also seems to be sensitive to clinically meaningful change.

Limitations

We have tested the translated scales on patients seen exclusively at the Tata Memorial Hospital in Parel, India. Although we do not anticipate that responses from patients in the rest of India would vary systematically from ours, we do note that generalizing the rest of the Indian population requires further study. It is also important to note the small sample size used in the test-retest phase of the validation. Finally, it is also important to recognize that more data are required in order to achieve greater understanding of benchmark values for H and N patients.

Conclusions

Nonetheless, the Marathi and Hindi versions of the UWQOL appear to be valid and reliable instruments. Because of its brevity and ease of administration, we believe it can be rapidly implemented into general routine clinical practice to monitor a patient's H and N cancerspecific QOL and will be a vital tool for achieving greater insight into the short and long term QOL of our individual and collective patients. Furthermore, emerging translations of this scale into Brazilian, Portuguese,[12] Swahili, Spanish and several Asian languages will facilitate greater understanding of how QOL differs in developing countries around the world.

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