

## Review Article

# Critical Appraisal of the University of Washington Quality of Life Tool in Head and Neck Cancer Patients

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## Abstract

**Background:** University of Washington quality of life tool has been developed to assess the quality of life of head and neck malignancy patients. The final version has 12 parameters managing to cover the functional, psychological and social domains. It is a widely accepted tool and has been validated by various studies. The aim of our study is to critically appraising the evidence available for assessing the reliability and validity of the University of Washington Quality of Life tool (UWQOL).

**Conclusion:** Latest version of University of Washington quality of life tool is a concise, valid and a reliable tool with cross cultural validity.

**Keywords:** Head and neck cancer; Anxiety; Depression; Psychological conditions

## Introduction

Head and neck cancers are one of the major causes of morbidity and mortality. Even after receiving the appropriate treatment it not only affects the patient physically but mentally and socially as well. To assess how this condition impacts the quality of life, many questionnaires were formulated but University of Washington Quality of Life measure was one of the earliest which was introduced, and is known to be the most used, clinically pertinent and simple QOL measure [1-3].

The final version consists of 12 parameters that broadly cover the functional, psychological and social domains. Each component is scored from 0 to 100, where zero is the lowest and 100 being the best. Then the UW-QOL combined score is calculated by averaging the score of all components [2].

### Is UWQOL scale an appropriate measure of the quality of life in head and neck cancer patients?

The constant modification of this tool to make it better along with widely available published research and studies proves it to be a validated tool that will be explained furthermore.

## Development of UWQOL

The very first version included 9 parameters of pain, appearance, activity, recreation, swallowing, chewing, speech, shoulder, and employment). The average of all these 9 components was taken to evaluate the final score. As in this version the global QOL was missing henceforth, it was modified by adding the global component to version 2 [4]. In the subsequent modification, 2 important functional components of taste and saliva were added. Further research indicated the lack of emotional component in the score hereafter the latest version 4 came in practice. It recognizes the importance of the psychological health of a patient and mood and anxiety was added thereby giving us 12 domains in total [2].

## Evidence for reliability and validity

The reliability of the tool depends on whether the results yielded are consistent on repeated attempts or not given other conditions that remain constant [5]. Internal consistency is one of the measures of reliability which can be statistically evaluated using Cronbach's alpha coefficient which ranges from 0.0 to 1.0 [6]. The score of more than 0.7 is considered to be acceptable and indicates that the tool in question is appropriately reliable [7].

A study done in India in a tertiary referral center revealed strong internal consistency of UWQOL with Cronbach's alpha of 0.7971 and 0.7839 for two languages (Hindi and Marathi) [8]. Another study done at the University of Washington suggested that 10 out of 12 domains noticed high internal consistency with Cronbach's alpha coefficient of 0.87. A couple of components which were dryness and employment showed poor correlation with a comparatively lower Cronbach's score of 0.78. Therefore, it was suggested to drop these two components thus increasing the reliability of the QOL tool [9].

Initially, validity was classified as the content, criterion and construct validity, but current views support construct validity as a comprehensive measure of all types of validity and is defined as the exactness with which a tool measure what it's meant to measure [10].

**Citation:** Shishodia S, Sharma S, dit Narayan U, Chandel S. Critical Appraisal of the University of Washington Quality of Life Tool in Head and Neck Cancer Patients. *J Otorhinolaryngol Head Neck Surg.* 2020;1(1):1003.

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**Publisher Name:** Medtext Publications LLC

**Manuscript compiled:** Aug 26<sup>th</sup>, 2020

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Validation of UWQOL in the Spanish population was done in 2010 which showed it to be culturally appropriate and a valid tool in Spain and Latin America. Construct validity was obtained by correlating UWQOL with the Karnofsky scale and a statistically significant correlation was noticed. Additionally, Cronbach's alpha value of 0.84 showed high internal consistency thereby further strengthening the evidence for UWQOL being an appropriate tool [11].

The UWQOL measure is a widely used tool with multiple translations and revalidation in Portuguese, Spanish, Hindi, and Chinese [8,11-13]. There by establishing its cross-cultural validity. Brazilian study did the psychometric validation by measuring internal consistency, test-retest reliability and construct validity concluding it to be an excellent tool to measure the life's quality in head and neck malignancy patients in Brazil [12].

A tool illustrates discriminant validity when the scores can discriminate between two groups that are distinguished usually by a clinical variable [14]. Discriminant validity of UWQOL was established by a study done in Taiwan which concluded that UWQOL can detect head and neck patients at different stages of malignancy. Also, it was able to differentiate laryngeal cancer patients from oral malignancies thus showing strong discriminant validity [13]. The reliability of UWQOL was also tested by evaluating test-retest reliability with a week interval which was found to be 0.88 and good internal consistency with Cronbach  $\alpha$  of 0.78 [13]. The acceptable value for test-retest reliability is considered to be 0.7 [15].

Another study in Brazil specifically evaluated the discriminant validity and compared the scores of head and neck cancer patients with normal healthy individuals showing significantly lower scores in head and neck cancer patients. As this was a hospital-based study, the main limitation was that a group of healthy individuals chosen were non-cancer patients who were attending the hospital for some other complaint which could act as a confounding factor.

A comparison of measurement tools with other available similar tools is an important part of validation. Rogers et al. [2] compared the UWQOL with other three validated tools for measuring head and neck cancer patient's quality of life which were medical outcomes short form 36 and the European organization for research and treatment of cancer. It established the UWQOL as economical, easy to use and a broad measurement tool. The relevance of this study is quite unclear as it used the earliest version of UWQOL done in 1998. A study was done in Taiwan also correlated different quality of life tools like functional living index-cancer, karnofsky scale, hospital anxiety and depression scale, symptom severity scale with UWQOL and found strong construct validity of UWQOL [12].

When responsiveness of UWQOL was compared with other QOL questionnaires, the karnofsky scale, and the sickness impact profile, it showed a better ability to detect the change [15].

Therefore, it is safe to interpret that UWQOL is a valid, reliable and responsive tool for assessing the quality of life in head and neck patients.

In head and neck cancer patients every treatment modality has its benefits and risks and by using the QOL tool, evaluation of outcomes important to the patient can be assessed and incorporated in the guidelines thus providing them the best care as per their concerns regarding the results. For example, surgery affects speech, swallowing and appearance and radiotherapy majorly affects swallowing and taste.

With the help of the UWQOL tool Saliva, swallowing and speech were found to be the most important factors for the patient followed by chewing and appearance [16]. Knowing the patient's opinion helps us in the modification of the guidelines accordingly as it will be taken into consideration "what is important for the patient" and thereby helping us to provide them the best possible treatment [17-19].

## Conclusion

UWQOL version 4 is a precise, simple and is broadly covering all the important concerns of head and neck patients including functional, psychological and social parameters. Also, it doesn't take input from clinicians at all, therefore, it is a complete reflection of patient wishes. It has been proved reliable and valid by widely available research discussed previously and has been modified four times to provide the latest concise version including mood and anxiety. It has been compared with other head and neck QOL assessment tools and is patient-friendly and simple to use. It has been interpreted in over 30 languages proving its global acceptance and cross-cultural validity.

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