Validation in French of the SWAL-QOL scale in patients with oropharyngeal dysphagia

Validation de la version française du SWAL-QOL spécifique aux troubles de la déglutition

E. Khaldouna, V. Woisardb, É. Verina,∗

a Service de physiologie digestive urinaire respiratoire et sportive, Rouen University Hospital, 76031 Rouen, France
b Service de chirurgie cervicofaciale, hôpital Larrey, Toulouse University Hospital, Toulouse, France
c EA 3830, Research group on ventilatory handicap (GRHV), Rouen University, Rouen, France

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Summary A quality-of-life (QOL) questionnaire specifically designed for patients with oropharyngeal dysphagia (SWAL-QOL) has been elaborated and validated by Colleen McHorney. The aim of the present study was to validate the French translation of the SWAL-QOL in 73 patients with either post-stroke or post-surgical oropharyngeal dysphagia. The French version was considered understandable and acceptable by the study patients, who completed the questionnaire in approximately 20 minutes. However, 32 patients needed help in filling out the questionnaire—mostly in reading the questions and writing the answers. Completion was excellent, although seven patients missed one item. Analysis of convergent validity of the French version showed good correlation between items and the corresponding scale. Validity convergence was excellent for all the different items, with a correlation between each item and its own scale that was always greater than 0.40. Internal coherence was also excellent, with Cronbach’s alpha coefficient greater than 0.7. Patients with oropharyngeal dysphagia have a poor QOL, as reflected by their very low scores. The lowest scores were related to the impact of swallowing disorders on the QOL (47 ± 30) and on mental health (51 ± 31). This study also demonstrated the linguistic and psychometric validity of the French version of the SWAL-QOL questionnaire.

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Résumé Un questionnaire de qualité de vie spécifique aux troubles de la déglutition a été élaboré et validé par Colleen McHorney. Le but de cette étude a été de valider la traduction en français de ce questionnaire chez des patients présentant une altération de la déglutition secondaire à un accident vasculaire cérébral ou un cancer des voies aériennes supérieures. Soixante-treize patients ont été inclus dans cette étude. La version française du SWAL-QOL a été jugée compréhensible et acceptable par les patients qui l’ont testée, et ils ont complété le questionnaire en à peu près 20 minutes. Trente-deux patients ont eu besoin d’aide pour le remplir, surtout pour lire les questions et écrire les réponses. Le remplissage était...
Introduction

Impaired swallowing, or oropharyngeal dysphagia, affects 10–35% of the general population [1]. Frequent episodes of laryngeal penetration or bronchial aspiration greatly alter the quality of life (QOL) of affected patients because the inability to control swallowing is a handicap in occupational, social and affective relationships, leading to loss of independence. Management of patients with oropharyngeal dysphagia has changed greatly over the past few years with the development of multidisciplinary teams to manage these patients. To date, the only methods available for evaluating therapeutic efficacy are symptom scores or swallowing evaluation by endoscopy [2] or videofluoroscopy [3]. Unfortunately, these tools are only useful for evaluating the severity of swallowing disorders, but not the consequences for QOL which are, in fact, the major goal of rehabilitation strategies.

A QOL questionnaire specifically designed for patients with oropharyngeal dysphagia (SWAL-QOL) has been elaborated and validated by Colleen McHorney [4,5]. This instrument has proved useful for measuring the functional impact of swallowing disorders and to assess the effects of different interventions or treatment. The specificity of the questionnaire has already previously been elaborated and evaluated. The aim of the present study was to validate the French translation of the SWAL-QOL. Due to the high prevalence of oropharyngeal dysphagia following stroke and head-and-neck surgery [6], our population comprised post-stroke dysphagia patients and those with oropharyngeal dysphagia due to surgery for head or neck cancer.

Patients and methods

Study population

The present study involved two centers, and was conducted from 2006 to 2007 in 73 patients with swallowing disorders of at least six months’ duration. All of the patients completed the SWAL-QOL after a clinical visit for swallowing evaluation or rehabilitation. The cohort included 46 men and 27 women, mean age 63.5 ± 16 years (range 20–90 years). Mean duration of swallowing disorders was six years (range 0.5–12 years). Causes of the swallowing disorders are presented in Table 1.

Questionnaire

The original SWAL-QOL scale had 44 items exploring different aspects of the patient’s QOL (Appendix A). These items are grouped into 10 lifestyle scales: burden of eating difficulty; eating duration; eating desire; food selection; communication; fear; mental health; social impact; fatigue; and sleep. There is also a symptom-frequency scale in which each item is scored from 1 to 5 (1 for poorest, 5 for best QOL). For each scale, a separate score out of 100% was calculated, with each item having the same importance. There was no global score of QOL.

Statistical validation

Results are expressed as means plus or minus standard deviation (S.D.) Validity convergence was confirmed if a correlation was observed between each item and its scale (Pearson’s correlation coefficient greater than 0.40) [7]. Scales were considered to have internal coherence if Cronbach’s alpha coefficient was greater than 0.70 [8]. To assess the validity of the questionnaire, we compared the results in two distinct populations (non-parametric Mann–Whitney test): patients with post-stroke dysphagia; and patients with post-head-and-neck surgery dysphagia.

Results

The French version of the SWAL-QOL was considered understandable and acceptable by the study patients, who completed the questionnaire in approximately 20 ± 7 minutes (mean ± S.D.). However, 32 (43%) patients required help to fill out the questionnaire, mainly in reading the questions and writing the answers. Completion was excellent, although seven patients missed one item. Analysis
Validation of the French SWAL-QOL

Table 1  Etiology of oropharyngeal dysphagia in the study population (N=73 patients).

<table>
<thead>
<tr>
<th>Etiology</th>
<th>N</th>
</tr>
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<tbody>
<tr>
<td>Amyotrophic lateral sclerosis, peripheral neuropathy</td>
<td>18</td>
</tr>
<tr>
<td>Head or neck surgery for oropharyngeal cancer</td>
<td>32</td>
</tr>
<tr>
<td>Stroke</td>
<td>15</td>
</tr>
<tr>
<td>Surgery other than for cancer</td>
<td>4</td>
</tr>
<tr>
<td>Myopathy</td>
<td>2</td>
</tr>
<tr>
<td>Psychological</td>
<td>2</td>
</tr>
</tbody>
</table>

of convergent validity of the French version showed good correlation between each item and its corresponding scale. In fact, validity convergence was excellent for all of the different items, with good correlation (always greater than 0.40) between each item and its own scale (Table 2). Evaluation of discriminate validity showed that all items correlated better with their own scale than with the other scales. Internal coherence was also excellent, with a Cronbach’s alpha coefficient always greater than 0.7 (Table 2).

Our results demonstrate that patients with oropharyngeal dysphagia have a poor QOL, as reflected by their very low scores (Fig. 1). The lowest scores were related to the impact of swallowing disorders on the QOL (47 ± 30%) and on mental health (51 ± 31%). Paradoxically, fear and the possible respiratory consequences of bronchial penetration scored the highest (72.5 ± 28.5%). We also evaluated the difference between the QOL of patients with post-stroke dysphagia and those with oropharyngeal dysphagia due to head-and-neck surgery for cancer. It is interesting to note that the symptom scales did not differ significantly between the two populations (69 ± 17% vs 56 ± 39%), whereas differences were observed in eating loss, eating duration, eating desire and fear of complications (Fig. 2). There were no differences among the other scales.

Figure 1  Results of the swallowing quality-of-life scales in all study cohorts. All of the symbols represent means with standard errors (bars) of the mean.

Table 2  Pearson’s coefficient and Cronbach’s alpha coefficient for the different lifestyle scales.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Pearson’s coefficient (range)</th>
<th>Cronbach’s alpha coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burden impact</td>
<td>0.67–0.93</td>
<td>0.94</td>
</tr>
<tr>
<td>Food selection</td>
<td>0.73–0.94</td>
<td>0.96</td>
</tr>
<tr>
<td>Eating loss</td>
<td>0.82–0.96</td>
<td>0.97</td>
</tr>
<tr>
<td>Eating duration</td>
<td>0.78–0.94</td>
<td>0.81</td>
</tr>
<tr>
<td>Eating desire</td>
<td>0.67–0.77</td>
<td>0.97</td>
</tr>
<tr>
<td>Fear</td>
<td>0.60–0.85</td>
<td>0.85</td>
</tr>
<tr>
<td>Sleep</td>
<td>0.68–0.90</td>
<td>0.87</td>
</tr>
<tr>
<td>Fatigue</td>
<td>0.73–0.74</td>
<td>0.74</td>
</tr>
<tr>
<td>Communication</td>
<td>0.93–0.94</td>
<td>0.95</td>
</tr>
<tr>
<td>Mental health</td>
<td>0.68–0.92</td>
<td>0.93</td>
</tr>
<tr>
<td>Social impact</td>
<td>0.68–0.90</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Discussion

This study intended to linguistically and culturally evaluate the French version of the SWAL-QOL questionnaire, and to evaluate its psychometric properties. The linguistic evaluation was performed in 10 patients, and the psychometric evaluation in 73 patients participating in a multicenter longitudinal study. These sample populations were representative of the general population with swallowing disorders, as shown by the predominance of male gender, and the distribution of causes of swallowing disorders—mostly due to head-and-neck surgery or stroke.

The questionnaire was well accepted by patients, as reflected by the very low rate of missing data (≤1 item). This can be attributed to easy comprehension and the relatively limited number of items (N=44), which was answered in a short time (about 20 minutes). The linguistic validation scale required only a few modifications from the original American English version. Overall, the grouping of items into scales was pertinent. Items displayed a predominating correlation with their own individual scale, underscoring the optimal quality of the instrument. In addition, the internal coherence was satisfactory for all scales, reflecting the absence of redundancy between items.

The aim of the present study was only to validate the translation from American English to French, as its construction and validation had already been done. The SWAL-QOL outcomes tool was constructed for use in clinical research for patients with oropharyngeal dysphagia [4]. The first step of its elaboration included data analysis from a preliminary test of the SWAL-QOL for reliability of the impact of its burden, data quality, item variability, item convergence validity and internal consistency. The item-reduction techniques outlined reduced the SWAL-QOL from 185 to 93 items. The SWAL-QOL preliminary test afforded an opportunity to select items for the ongoing validation study that optimally met psychometric criteria for high data quality, normal item distribution and robust evidence of item convergence validity. Advances in the measurement of physiological swallowing parameters have been clinician-driven, as has the development of interventional techniques to modify swallowing pathophysiology. However, with 93 items, the SWAL-QOL was still too long for practical routine use in clinical research and practice. A psychometric technique permitted the 93-item instrument to be reduced to two patient-centered outcomes.
tools: SWAL-QOL, a 44-item tool that assesses 10 QOL concepts; SWAL-CARE, a 15-item tool that assesses quality of care and patient satisfaction [5].

Subsequently, validation of the association between a dysphagia-specific QOL (SWAL-QOL) questionnaire and four measures of bolus flow was done [9]. In that study, 386 patients with oropharyngeal dysphagia completed a videofluoroscopic examination of their swallowing structure and physiology. Measures of bolus flow patterns for each swallow were analyzed from the videofluoroscopic recordings and correlated with the SWAL-QOL scale scores, which were found to be moderately related to the four measures of bolus flow. The observed, modest correlations suggested that QOL measures and clinician-driven bolus flow measures provide distinct, yet complementary, information on oropharyngeal dysphagia.

A global score, calculated by adding up the item scores or taking the average score of the four scales, was not validated in the American study, but has been proposed and used in a recent study evaluating the results with swallowing disorders [10]. Created on the model of the 'voice handicap index' (VHI), the questionnaire (the dysphagia handicap index [DHI]) is composed of 30 statements on deglutition-related aspects in daily life (5-point rating scale). It is subdivided into three fields of 10 items each—physical (symptoms related to swallowing), functional (nutritional and respiratory consequences) and emotional (psychosocial consequences)—and produces a global score with three specific scales. A global QOL score would facilitate comparisons, but would not allow explanatory analysis of changes in QOL. It is complementary to the SWAL-QOL. In fact, the DHI has items in common with the SWAL-QOL, such as symptoms related to swallowing, although the SWAL-QOL is more precise in exploring the swallowing handicap and its complications.

Swallowing dysfunction is common and disabling after acute stroke, and should be routinely assessed, as it is persistent in many patients and complications frequently arise. The clinical and videofluoroscopic features on presentation that are important predictors of subsequent swallowing
Validation of the French SWAL-QOL

abnormalities and complications include the videofluoroscopic evidence of delayed oral transit, delayed or absent swallow reflex and laryngeal penetration [11]. On the other hand, patients previously treated for head-and-neck cancer often have persistent dysphagia and/or aspiration because of abnormal morphology and mobility of the oral, oropharyngeal and laryngeal structures [12]. Therefore, it could be supposed that these two distinct patient cohorts could present different profiles of impaired QOL. In our study, we demonstrated that post-stroke dysphagia patients have an impaired eating duration scale, and that post-head-and-neck surgery patients have an impaired eating desire and fear of swallowing complications (Fig. 2). These results indicate that these translated QOL instruments are useful in routine practice for comparing patients and populations.

The present study assessed the linguistic and psychometric validity of the French version of the SWAL-QOL questionnaire. It is now clear that this specific evaluation tool can be used to evaluate rehabilitation strategies for swallowing disorders and to improve patients’ QOL.

Appendix A. Supplementary data


References