

Translation and cross-cultural adaptation of an instrument designed for the assessment of quality of life in orthognatic patients

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Introduction: The Orthognathic Quality of Life Questionnaire (OQLQ) was developed in 2000 and validated in 2002, aiming at assessing the impact and the benefits of orthosurgical treatment on patients' quality of life.

Objective: Cross-culturally translate into Brazilian Portuguese and back-translate into English a quality of life instrument, assuring maintenance of its properties.

Methods: At first, equivalence of concepts and items was discussed by a group of specialists who scrutinized all questionnaire items. Additionally, four patients in need of orthosurgical treatment were interviewed by means of the focus group methodology. Relevance of the questionnaire items was assured prior to its translation which was carried out by two translators who worked independently. Both translations were tested in 20 patients and then consolidated. The consolidated questionnaire version was back-translated into English by two translators who worked independently, and the consolidated back-translation was assessed by the authors of the original questionnaire as well as by the researchers.

Results: The OQLQ was translated into Brazilian Portuguese. This translation was tested in a pilot study comprising 12 patients, aged between 16 and 34 years old.

Conclusion: The OQLQ Brazilian Portuguese translation proves to be an appropriate instrument to access the impact of dentofacial deformities on the quality of life of patients in the Brazilian public health system and who are in need of orthosurgical treatment.

Keywords : Quality of life. Oral surgery. Validation studies.

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INTRODUCTION

Health-related quality of life (HRQL) among patients with malocclusions and severe dentofacial deformities may be affected in various ways. They may experience functional limitations, emotional problems and social difficulties, even to the extent of considering life less satisfactory.^{1,2} In cases in which improper skeletal relationships cannot be compensated by means of using orthodontic therapy only, orthognathic surgery proves to be an alternative for treating dentofacial deformities, as it provides more stable correction and better esthetic results.³

Patients' request for orthodontic treatment is based on their complaints about appearance and other psychological and social factors.⁴ Patient's perception of their dentofacial deformity should be the main factor influencing their decision on whether or not to have orthosurgical treatment.³ The success of this type of treatment and the alterations in HRQL that it may produce depend on proper patient selection.⁵

The Orthognathic Quality of Life Questionnaire (OQLQ) was developed in the United Kingdom, in 2000, aiming to assess the success of orthosurgical treatment in terms of its effect on HRQL, from the patient's point of view.⁶ The OQLQ consists of 22 questions, divided into 4 domains: 8 questions regarding social aspects of deformity, 5 questions regarding facial esthetics, 5 questions regarding oral functions, and 4 questions regarding awareness of facial deformity. The answers are given using a 4-point rating scale in order to measure to what extent the condition described in each question bothers the patient (1= "bothers you a little"; 4 = "bothers you a lot"). In 2002, the validity and responsiveness of the questionnaire were demonstrated. To the validation process, the OQLQ was correlated to other HRQL impact assessment measures, and responsiveness was tested by means of comparing the scores that patients obtained on the OQLQ before and after treatment. The results proved the questionnaire to be useful both in clinical practice and in research projects.⁷ The OQLQ has already been adapted to other cultures^{8,9} and used in many countries to assess the impact of dentofacial deformities and the effects of orthosurgical treatment on quality of life in cross-sectional^{5,10} and longitudinal^{11,12} studies.

Many patients in need of orthosurgical treatment appeal for the public health system and for university

health services. However, since this treatment is expensive, complicated and lengthy, not everyone can be immediately assisted in the public health system and university facilities. As a result, priorities must be set, and the OQLQ has proved to be a useful instrument for healthcare professionals to establish those priorities.

The purpose of this article is to describe the process of adapting the OQLQ questionnaire into Brazilian Portuguese in order to make it suitable to be used in Brazilian public and university dental services.

METHODS

Ethical approval

This research was approved by the Institutional Review Board of Pedro Ernesto University Hospital at Rio de Janeiro State University (CEP/HUPE Registration: 2705/2010. CAAE: 0150.0.228.000-10). Patients who stated their acceptance in writing by means of an Informed Consent Form were the only ones allowed to participate in the research.

Adaptation of the questionnaire

Equivalence of concepts and items

Before starting the translation and back-translation processes, which intended to achieve semantic equivalence between the Brazilian version of the OQLQ and the original instrument; suitability of the conceptual model used to develop the questionnaire and relevance of the items of which it is comprised were evaluated within the context of Brazilian culture.¹³ These aspects were analyzed by a team of specialists (TS) consisted of two orthodontists, one postgraduate student in Orthodontics and a dentist with experience in developing and adapting quality of life instruments. Every item in the original English version was carefully read and discussed. Afterwards, four patients in need of orthosurgical treatment were interviewed at the UERJ Orthodontics Clinic. The interviews were videotaped so that they could be analyzed later. The goal was to identify the terms used by the patients themselves to describe how their dentofacial deformities interfered with their quality of life and, in particular, verify how the interviewees referred to the problems raised in the questionnaire and which were considered by the specialists involved in the previous phase as potentially difficult to explain in Portuguese. The videos were analyzed by the postgraduate student in Orthodontics, who also took into consider-

ation the patient's feelings, attitudes and motivation in relation to the problems discussed in the questionnaire.

Semantic equivalence

The OQLQ Brazilian adaptation process followed the guidelines proposed by Guillemin et al,¹⁴ Ruperto et al.¹⁵ and Tubert-Jeannin et al.¹⁶ which comprised six stages (Fig 1): (i) translation; (ii) preliminary testing of the translated questionnaires; (iii) consolidation of the questionnaire; (iv) back-translation; (v) review of the translations and back-translations; and (vi) development of a synthesized questionnaire.

Translation

The questionnaire was translated into Portuguese by two Brazilians who worked independently, whose mother tongue is Portuguese and who are proficient in English. The goals of the questionnaire were explained to both translators (T1 and T2), who were advised to use terms employed by the target population in daily

life, allowing the questionnaire to be easily understood by patients in the public health system.

Preliminary test of the translated questionnaires

A preliminary test of the questionnaire was carried out with 20 orthognathic patients recruited at the UERJ Orthodontics Clinic; 10 patients answered T1 questionnaire while the other 10 answered T2 questionnaire. The aim was to assess, from the interviewees' point of view, whether the questions on the questionnaire represented the impact of dentofacial deformities on their quality of life. In addition, the meaning of several words and expressions used in the questionnaire was questioned in order to determine whether or not they were being understood. Interviewees were also asked about the need for replacing any words or expressions.

Questionnaire consolidation

The specialists discussed both translations of the questionnaire based not only on the results obtained from the interviews, which were conducted with members of the target population during the preliminary test, but also from the analyses of the previously recorded videos. Afterwards, they determined how the questionnaire items would be written and how the intensity of patient's discomfort towards the problems included on the questionnaire would be assessed. Thereafter, three other patients with dentofacial deformities were interviewed and videotaped in order to test their comprehension of the statements and questions in the consolidated version. After those interviews, the consolidated version of the translations was finalized.

Back-translation

The OQLQ questionnaire was back-translated into English by two translators (B1 and B2) who worked independently. Although their native language is English, they are proficient in Portuguese. In contrast to the first translators, the back — translators were not told about the objectives and concepts involved in the questionnaire in order to avoid any bias. They discussed the discrepancies in their results and carried out the consolidated version of the back-translation.

Translations and back-translations review

The consolidated versions of the OQLQ translations and back-translations were sent to the authors of

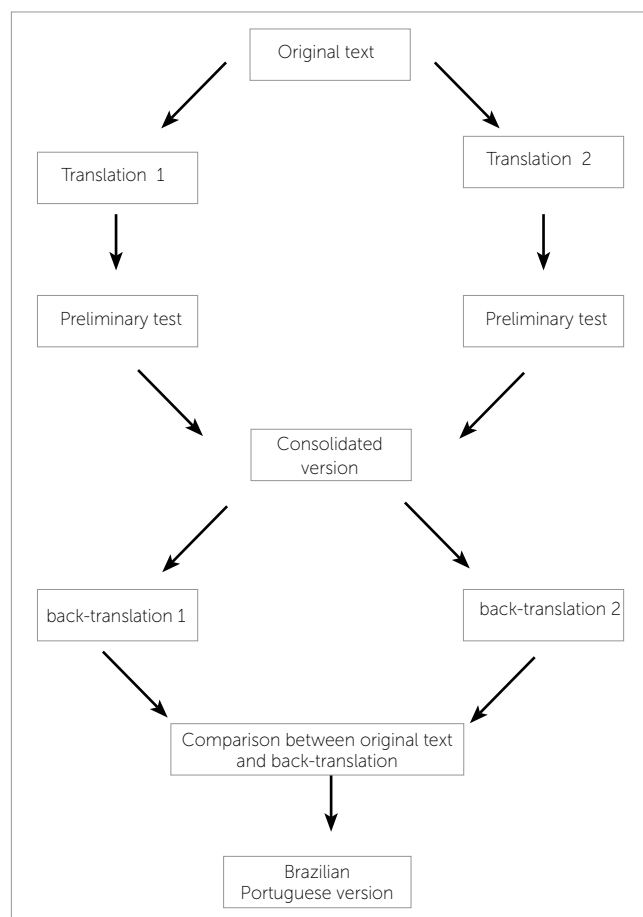


Figure 1 - Methodology used to achieve semantic equivalence in the process of translating the Orthognathic Quality of Life Questionnaire (OQLQ) into Portuguese.

the original questionnaire by e-mail for their evaluation. After receiving the results of this evaluation, the team of specialists (TS) met again to compare the original version of the OQLQ questionnaire with the back-translated version, taking into consideration the authors' opinions of the original questionnaire.

Developing the final questionnaire

Based on the results of the preceding phase, the specialists proposed a final version of the questionnaire which was written in Brazilian Portuguese and intended to be used in a pilot study, aiming at assessing other types of equivalence as well.

Pilot study

The pilot study was conducted at the clinic of the graduate program in Orthodontics at UERJ and involved 12 patients (9 male and 3 female) with an average age of 25 years. All patients involved in the research presented malocclusions with skeletal discrepancies. Two researchers involved in the project conducted the pilot test and were present during the application of the 12 questionnaires in order to ensure standardization of the method used to explain the questionnaire to the target public. Should patients have any doubts about the questions, the researchers were advised not to influence their answers. The purpose of this pilot study was to test all the phases of later studies aimed at evaluating the psychometric properties of the instrument.

RESULTS

Equivalence of concepts and items

When the team of specialists assessed the suitability of the conceptual model, as well as the relevance of the questionnaire items in the context of Brazilian culture, they highlighted some words that could have created doubts in the process of translation into Brazilian Portuguese, namely: "self-conscious" (Items 1 and 14), "jaw" (Item 6), "studying" (Items 8 and 9), "often stare at" (Items 12 and 13), "lack confidence" (Item 18), "get depressed" (Item 20), "staring at me" (Item 21) and "upset me" (Item 22).

Analysis of the recorded interviews carried out with the four patients, demonstrated that the words considered hard to translate were in fact well understood. The group responsible for the research project discussed the results of the analyses carried out by the team of special-

ists as well as the information obtained from the interviews, and concluded that it would be appropriate to keep all the items from the original questionnaire.

Semantic equivalence

Table 1 shows the items from the original English OQLQ questionnaire, the results derived from the translations and from consolidation of the questionnaire, as well as the results derived from the consolidated version back-translation.

Translation

Both translations proved to be similar, with little discrepancy related to specific terminology (Table 1).

Preliminary test of the translated questionnaires and consolidation of the questionnaire

Conducting the preliminary test corroborated the need for a better evaluation of the questions, such as the understanding of the words: "self-conscious", "staring at me" and "lack confidence".

Ten patients (five from T1 and five from T2), meaning 50% of the interviewees, did not report any doubts about the questions and were able to answer them without any assistance. As for the other 10 patients, eight of them (four from T1 and four from T2) reported doubts about the word "self-conscious" (Items 1 and 14); one patient (T1) did not know the meaning of "jaw"; three patients (T1) did not find the term "to stare" (Items 12 and 13) to be very clear; two patients (T2) reported doubts about the term "lack confidence" (Item 18); and three patients (T1) reported doubts about Item 22: "Comments about my appearance really upset me, even when I know that people are only joking".

Some patients suggested using words such as "evaluate" instead of "analyze" (Items 8 and 9 - T1); "notice" instead of "stare" (Items 12 and 13 - T1); "gaze" instead of "stare" (Items 12 and 13 - T1) "compare" instead of "gaze" (Items 12 and 13 - T2); "get to know" instead of "meet" (Item 16 - T2); "irritate, upset or not be good for", to replace "hurt" (Item 22 - T1); and "image" instead of "appearance" (Items 14, 17, 20 and 22 - T1).

Based on the results of the preliminary test and the interviews, the decisions made by the team of specialists about the form and content of the consolidated questionnaire originated the consolidated translated questionnaire, shown in Table 1.

Table 1 - The OQLQ translations into Brazilian Portuguese, their consolidated version and back-translation.

Item	OQLQ original	Translation 1	Translation 2	Consolidated version	Back-translation
Title	Orthognathic Quality of Life Questionnaire	Questionário Ortognático de Qualidade de Vida	Questionário de Qualidade de Vida em Cirurgia Ortognática	Questionário de Qualidade de Vida para Pacientes Orto-cirúrgicos	Questionnaire on the Quality of Life of Dental Surgery Patients
Instructions	Final condition-specific measure. Please read the following statements carefully. In order to find out how important each of the statements is to you. Please circle 1, 2, 3, 4 or N/A where: 1 means it bothers you a little 4 means it bothers you a lot 2/3 lie between these statements N/A means the statement does not apply to you or does not bother you	Por favor, leia cuidadosamente as frases a seguir. Para descobrir o quanto importante cada uma das frases são para você, circule 1, 2, 3, 4 ou N/A quando: 1 Significa que te incomoda um pouco 4 Significa que te incomoda muito 2 + 3 Fica entre os dois níveis acima N/A Significa que a frase não se aplica a você ou não te incomoda de forma alguma	Favor, ler as seguintes afirmativas cuidadosamente a fim de descobrir o quão importante cada uma das alternativas é para você, favor fazer um círculo em 1, 2, 3, 4 ou N/A, onde: 1 Significa que isto te incomoda um pouco 4 Significa que isto te incomoda muito 2 + 3 Estão entre estas duas afirmativas N/A Significa que a afirmativa não se aplica a você ou não te incomoda de forma alguma	Por favor, leia cuidadosamente as afirmativas a seguir. Para que saibamos o quanto cada uma das afirmativas é importante para você, por favor circule 1,2,3,4 ou N/A, onde: 1- Significa que isto te incomoda um pouco 4 - Significa que isto te incomoda muito 2 + 3 - Ficam entre te incomodar um pouco e te incomodar muito N/A - Significa que a afirmativa não se aplica a você ou isto não te incomoda de forma alguma	Please read the following statements carefully. Please show how much the circumstances described in the following statements bother you by circling 1, 2, 3, 4 or N/A where: 1 means they bother you slightly 4 means they bother you intensely 2/3 means you they bother you somewhere between slightly and intensely N/A means that the statement does not apply to you or that you are not bothered by them in any way
1	I am self-conscious about the appearance of my teeth	Eu tenho consciência do aspecto dos meus dentes	Tenho consciência da aparência dos meus dentes	Eu fico inseguro com a aparência dos meus dentes	I feel insecure as to the appearance of my teeth
2	I have problems biting	Tenho dificuldade em morder	Tenho problemas para morder	Eu tenho problemas para morder	I have trouble biting
3	I have problems chewing	Tenho problemas em mastigar	Tenho problemas para mastigar	Eu tenho problemas para mastigar	I have trouble chewing
4	There are some foods I avoid eating because the way my teeth meet makes it difficult	Evito alguns alimentos porque a maneira como meus dentes encaixam dificulta comê-los	Há alguns alimentos que evito comer porque, a maneira como meus dentes se encontram, torna isto difícil	Há alguns alimentos que evito comer porque a maneira como os meus dentes se encaixam, torna isso difícil	There are some kinds of food I avoid as they can be hard to eat due to the way my teeth fit together
5	I don't like eating in public places	Eu não gosto de comer em lugares públicos	Não gosto de comer em lugares públicos	Eu não gosto de comer em lugares públicos	I don't like eating in public
6	I get pains in my face or jaw	Tenho dores na minha face ou mandíbula	Tenho dores em meu rosto ou maxilar	Eu tenho dores na minha face ou no maxilar	I suffer from facial or jaw pain
7	I don't like seeing a side view of my face (profile)	Eu não gosto de ver minha face de lado (perfil)	Não gosto de ver a vista lateral do meu rosto (perfil)	Eu não gosto de ver o meu rosto de lado (perfil)	I don't like to see my face from the side (in profile)
8	I spend a lot of time studying my face in the mirror	Eu passo muito tempo analisando minha face no espelho	Passo muito tempo estudando o meu rosto no espelho	Eu passo muito tempo analisando o meu rosto no espelho	I spend a lot of time analyzing my face in the mirror
9	I spend a lot of time studying my teeth in the mirror	Eu passo muito tempo analisando meus dentes no espelho	Passo muito tempo estudando meus dentes no espelho	Eu passo muito tempo analisando os meus dentes no espelho	I spend a lot of time analyzing my teeth in the mirror
10	I dislike having my photograph taken	Eu não gosto de ser fotografado	Não gosto que tirem fotografia de mim	Eu não gosto que tirem fotografia de mim	I don't like having my picture taken
11	I dislike being seen on video	Eu não gosto de me ver em vídeo	Não gosto de ser visto em vídeo	Eu não gosto de ser visto em vídeo	I don't like being filmed
12	I often stare at other people's teeth	Eu frequentemente encaro os dentes das pessoas	Frequentemente fixo o olhar nos dentes de outras pessoas	Eu costumo olhar fixamente para os dentes das pessoas	I tend to stare at other people's teeth
13	I often stare at other people's faces	Eu costumo encarar as faces das pessoas	Frequentemente fixo o olhar no rosto de outras pessoas	Eu costumo olhar fixamente para os rostos de outras pessoas	I tend to stare at other people's faces
14	I am self-conscious about my facial appearance	Eu tenho consciência da aparência da minha face	Tenho consciência sobre minha aparência facial	Eu fico inseguro com a aparência do meu rosto	I feel insecure as to how my face looks
15	I try to cover my mouth when I meet people for the first time	Eu tento cobrir minha boca quando conheço pessoas pela primeira vez	Tento cobrir minha boca quando encontro pessoas pela primeira vez	Eu tento cobrir a minha boca quando encontro pessoas pela primeira vez	I try to cover my mouth whenever I meet someone for the first time
16	I worry about meeting people for the first time	Eu me preocupo em conhecer pessoas pela primeira vez	Eu me preocupo em encontrar pessoas pela primeira vez	Eu me preocupo em encontrar pessoas pela primeira vez	I worry about meeting people for the first time
17	I worry that people will make hurtful comments about my appearance	Eu me preocupo que pessoas podem fazer comentários maldosos sobre minha aparência facial	Eu me preocupo que as pessoas façam comentários ofensivos sobre minha aparência	Eu me preocupo que as pessoas irão fazer comentários que magoam sobre a minha aparência	I worry that people will make hurtful comments about my appearance
18	I lack confidence when I am out socially	Tenho pouca confiança quando saio socialmente	Sinto falta de confiança quando estou fora socialmente	Eu sinto falta de confiança quando eu saio socialmente	I feel I lack confidence when I go out socially
19	I do not like smiling when I meet people	Eu não gosto de sorrir quando conheço pessoas	Não gosto de sorrir quando me encontro com pessoas	Eu não gosto de sorrir quando me encontro com pessoas	I don't like to smile when I get together with people
20	I sometimes get depressed about my appearance	Eu às vezes fico deprimido por causa de minha aparência	Às vezes fico deprimido com a minha aparência	Eu às vezes fico deprimido por causa da minha aparência	I sometimes get depressed about my appearance
21	I sometimes think that people are staring at me	Eu às vezes acho que pessoas estão me encarando	Às vezes penso que as pessoas estão me olhando fixamente	Eu às vezes acho que as pessoas estão me encarando	I sometimes think people are staring at me
22	Comments about my appearance really upset me, even when I know people are only joking	Comentários sobre minha aparência me machucam mesmo quando sei que as pessoas estão apenas brincando	Comentários sobre a minha aparência realmente me aborrecem mesmo quando sei que as pessoas estão apenas brincando	Comentários sobre minha aparência me chateiam ou aborrecem mesmo quando sei que as pessoas estão apenas brincando	Comments on my appearance really anger or upset me, even when I know they are being said as a joke

Back-translation

The translators suggested a change in the first part of the wording of the questionnaire. However, the group responsible for the study claimed that this would result in a substantial change in comparison to the original questionnaire. The translators also found the expression “facial pains” to be very generic, given that in the Brazilian context more specific terms such as headache, pain behind the eyes, etc. would be used. In addition, they thought that the word “depressed” might be too strong a translation of “*deprimido*”, and suggested other words in English, such as “dejected” or “down”.

Translations and back-translations review

The consolidation of the back-translations was evaluated by the main author of the original study. She commented that in the wording of the questionnaire, the term “intensely” seemed extreme and exaggerated. The author also suggested replacing “as to” with “about” in Item 1, and commented that, in Item 22, the word “anger” was not equivalent to the original questionnaire, and that it would be appropriate to keep the idea of “upset”.

Developing the final questionnaire

A final version of the OQLQ questionnaire, written in Brazilian Portuguese was, thus, obtained to be tested in terms of its validity and reliability (Fig 2).

Pilot study

12 (100%) interviewees took part in the pilot study, 9 of which (75%) were male and 3 (25%) female, with age ranging from 16 to 34 years old, with an average age of 25. According to the Criteria of Brazilian Economic Classification, the study population belonged to social classes A (n=6; 49.99%) and B (n=6; 49.99%).

The pilot study corroborated the need for a subsequent evaluation study of the psychometric properties of the instrument. The average time for the interviews varied from 15 to 25 minutes.

DISCUSSION

A translated instrument must be able to achieve in the target culture the same effect it has in its original context. Lack of cross-cultural equivalence hinders the validity of the collected information, making it impossible to properly use the instrument to study the concept

Questionário de Qualidade de Vida para Pacientes Orto-cirúrgicos

Por favor, leia cuidadosamente as afirmativas a seguir. Para que saibamos o quanto cada uma das afirmativas é importante para você, por favor circule 1, 2, 3, 4 ou N/A, onde:

1 - Significa que isto te incomoda um pouco.
 4 - Significa que isto te incomoda muito.
 2 + 3 - Ficam entre te incomodar um pouco e te incomodar muito.
 N/A - Significa que a afirmativa não se aplica a você ou isto não te incomoda de forma alguma.

Não se aplica a mim Não me incomoda N/A	Me incomoda POUCO	1	2	3	Me incomoda MUITO 4
1. Eu fico inseguro com a aparência dos meus dentes.					
2. Eu tenho problemas para morder.					
3. Eu tenho problemas para mastigar.					
4. Há alguns alimentos que evito comer porque a maneira como os meus dentes se encaixam torna isso difícil.					
5. Eu não gosto de comer em lugares públicos.					
6. Eu tenho dores na minha face ou no maxilar.					
7. Eu não gosto de ver meu rosto de lado (perfil).					
8. Eu passo muito tempo analisando meu rosto no espelho.					
9. Eu passo muito tempo analisando meus dentes no espelho.					
10. Eu não gosto que tirem fotografia de mim.					
11. Eu não gosto de ser visto em vídeo.					
12. Eu costumo olhar fixamente para os dentes das pessoas.					
13. Eu costumo olhar fixamente para os rostos de outras pessoas.					
14. Eu fico inseguro com a aparência do meu rosto.					
15. Eu tento cobrir a minha boca quando encontro as pessoas pela primeira vez.					
16. Eu me preocupo em encontrar as pessoas pela primeira vez.					
17. Eu me preocupo que as pessoas irão fazer comentários que magoam sobre a minha aparência.					
18. Eu sinto falta de confiança quando eu saio socialmente.					
19. Eu não gosto de sorrir quando me encontro com pessoas.					
20. Eu às vezes fico deprimido por causa da minha aparência.					
21. Eu às vezes acho que as pessoas estão me encarando.					
22. Comentários sobre a minha aparência realmente me chateiam ou aborrecem, mesmo quando sei que as pessoas estão apenas brincando.					

Figure 2 - Consolidated version of the Orthognathic Quality of Life Questionnaire (OQLQ) in Brazilian Portuguese, for testing.

that it aims to study.¹⁷ In order to achieve the desired effect, we carried out a careful process of translation into Brazilian Portuguese and back-translation into English of the OQLQ questionnaire and, before having a final version of the instrument, the different versions of the

questionnaire in Portuguese were subjected to evaluation by specialists in the field as well as tests carried out by patients. In addition, the authors of the original questionnaire were consulted. This strategy allowed us to cross-check the specialists' opinions on how the items in the questionnaire were written against the perceptions of the population to which the instrument is actually intended to be applied, thus, enabling the identification of expressions that are more suitable for proper understanding of the questions in the instrument without altering the ideas and concepts underlying the questions in the original instrument.

In comparing the original version of the OQLQ questionnaire to the consolidated version of the back-translations, we were able to verify that they were similar and that the small differences found had arisen from changes considered necessary during the phase of assessing semantic equivalence, due to suggestions made by the specialists or the patients. Those changes were maintained since they were considered important for the clarity of the questionnaire translated into Portuguese.

We also found that it was necessary to change the format of the questionnaire, as had occurred in the study carried out by Bock et al,⁸ whereby the scale with the degrees of discomfort was added below each question so that patients would not have to go back to the text of the questionnaire before answering each question.

Given that the patients were at least 16 years old and demonstrated no difficulties during the interviews and the preliminary test, we decided to let patients complete the questionnaire themselves during the pilot study, as had been suggested by the authors of the original instrument in English.^{6,7} Nevertheless, we must emphasize that although patients were recruited at a clinic in the public health system, all of them belonged to the A and B socioeconomic classes, which may not reflect socioeconomic and educational levels of those patients in need for orthosurgical treatment who normally use public dental services.

Additionally, it is important to highlight the fact that there has been a recent publication of a research describing the psychometric properties of the OQLQ Brazilian version.⁹ That study involved a convenience sample comprised of 25 patients selected in the states of Santa Catarina and Rio Grande do Sul and pro-

vides information about the internal consistency and structural validity of the Brazilian questionnaire. That publication was discovered after the process of data collection and analysis had already been completed. Because of that, we contacted the author of the original questionnaire and she encouraged us to continue with the present study. The previously published study used an adaptation methodology which was different from the one used in the present study. In addition, it focused on the equivalence of measurement between the translated questionnaire and the original, without providing any details on how the translated questionnaire was obtained, taking into account: the number of translations and back-translations done, patient participation in the process of identifying the most suitable words for the Brazilian context, contributions made by the authors of the original instrument in English to the final version of the instrument, socioeconomic characteristics of the participants, among others. We, thus, believe that the present study can be considered original, since it offers to dentists and researchers a contribution that is different from the one provided by the aforementioned study. In addition, one must take into account the fact that Brazil is a country of continental dimensions with a broad cultural diversity, which means that questionnaires adapted, validated and reliable to be used with certain populations may not have the same effectiveness when used with other groups.¹⁸

The questionnaire produced in the present study was used with patients from a public hospital in Rio de Janeiro, in order to assess its reliability and validity. The results are being analyzed and will be presented in a future publication.

CONCLUSION

Despite being hard work and time-consuming, the process of achieving semantic equivalence in the cross-cultural adaptation of the OQLQ, used with populations that appeal for public health services in Brazil, was developed on a solid conceptual base and with a carefully defined methodology. Such process allowed us to produce a valuable instrument for assessing the quality of life of Brazilian orthognathic patients, aiming to compare the effects of dentofacial deformities and orthosurgical treatment on Brazilians and on people from other countries and cultures.

REFERENCES

1. Rusanen J, Lahti S, Tolvanen M, Pirttiniemi P. Quality of life in patients with severe malocclusion before treatment. *Eur J Orthod*. 2010;32(1):43-8.
2. Esperao PT, de Oliveira BH, de Oliveira Almeida MA, Kiyak HA, Miguel JA. Oral health-related quality of life in orthognathic surgery patients. *Am J Orthod Dentofacial Orthop*. 2010;137(6):790-5.
3. Bell R, Kiyak HA, Joondeph DR, McNeill RW, Wallen TR. Perceptions of facial profile and their influence on the decision to undergo orthognathic surgery. *Am J Orthod*. 1985;88(4):323-32.
4. de Oliveira CM, Sheiham A. Orthodontic treatment and its impact on oral health-related quality of life in Brazilian adolescents. *J Orthod*. 2004;31(1):20-7; discussion 15.
5. Al-Bitar ZB, Al-Omari IK, Al-Ahmad HT, El Maaytah MA, Cunningham SJ. A comparison of health-related quality of life between Jordanian and British orthognathic patients. *Eur J Orthod*. 2009;31(5):485-9.
6. Cunningham SJ, Garratt AM, Hunt NP. Development of a condition-specific quality of life measure for patients with dentofacial deformity: I. Reliability of the instrument. *Community Dent Oral Epidemiol*. 2000;28(3):195-201.
7. Cunningham SJ, Garratt AM, Hunt NP. Development of a condition-specific quality of life measure for patients with dentofacial deformity: II. Validity and responsiveness testing. *Community Dent Oral Epidemiol*. 2002;30(2):81-90.
8. Bock JJ, Odemar F, Fuhrmann RA. Assessment of quality of life in patients undergoing orthognathic surgery. *J Ofac Orthop*. 2009;70(5):407-19.
9. Bortoluzzi MC, Manfro R, Soares IC, Presta AA. Cross-cultural adaptation of the orthognathic quality of life questionnaire (OQLQ) in a Brazilian sample of patients with dentofacial deformities. *Med Oral Patol Oral Cir Bucal*. 2011;16(5):e694-9.
10. Lee CK, King NM, Lo EC, Cho SY. The relationship between a primary maxillary incisor with a talon cusp and the permanent successor: a study of 57 cases. *Int J Paediatr Dent*. 2007;17(3):178-85.
11. Choi WS, Lee S, McGrath C, Samman N. Change in quality of life after combined orthodontic-surgical treatment of dentofacial deformities. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod*. 2010;109(1):46-51.
12. Lee S, McGrath C, Samman N. Impact of orthognathic surgery on quality of life. *J Oral Maxillofac Surg*. 2008;66(6):1194-9.
13. Herdman M, Fox-Rushby J, Badia X. 'Equivalence' and the translation and adaptation of health-related quality of life questionnaires. *Qual Life Res*. 1997;6(3):237-47.
14. Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. *J Clin Epidemiol*. 1993;46(12):1417-32.
15. Ruperto N, Ravelli A, Pistorio A, Malattia C, Cavuto S, Gado-West L, et al. Cross-cultural adaptation and psychometric evaluation of the Childhood Health Assessment Questionnaire (CHAQ) and the Child Health Questionnaire (CHQ) in 32 countries. Review of the general methodology. *Clin Exp Rheumatol*. 2001;19(4 Suppl 23):S1-9.
16. Tubert-Jeannin S, Pegon-Machat E, Gremeau-Richard C, Lecuyer MM, Tsakos G. Validation of a French version of the Child-OIDP index. *Eur J Oral Sci*. 2005;113(5):355-62.
17. Reichenheim ME, Moraes CL, Hasselmann MH. Equivalência semântica da versão em português do instrumento "Abuse Assessment Screen (AAS)" usado no rastreamento da violência contra a mulher na gravidez. *Rev Saúde Pública*. 2000;34(6):610-6.
18. Oliveira BH, Nadanovsky P. Psychometric properties of the Brazilian version of the Oral Health Impact Profile-short form. *Community Dent Oral Epidemiol*. 2005;33(4):307-14.
19. Gava ECB, Miguel JAM, Araújo, AM, Oliveira BH. Psychometric properties of the Brazilian Version of the Orthognathic Quality of Life Questionnaire, *Journal of Oral and Maxillofacial Surgery*, 2013. No prelo.