

BRAZILIAN VERSION OF A QUESTIONNAIRE ASSESSING ADOLESCENTS' EXPERIENCES IN ORTHODONTIC TREATMENT

TRADUÇÃO E ADAPTAÇÃO TRANSCULTURAL DE UM QUESTIONÁRIO PARA AVALIAÇÃO DAS PERCEPÇÕES DE ADOLESCENTES SOBRE O TRATAMENTO ORTODÔNTICO

Tatiana Ettore do Valle de Sousa Freitas¹, Marina Bernardes Grillo de Brito², José Augusto Mendes Miguel²**Resumo**

Os instrumentos de qualidade de vida relacionada à saúde bucal estão sendo usados com crescente frequência em pesquisas. No entanto, esses instrumentos não estão disponíveis em todos os países ou idiomas. A disponibilidade de versões multilínguas de instrumentos, válidas para várias culturas, é importante para a pesquisa epidemiológica. O objetivo deste estudo foi o de traduzir e realizar a adaptação transcultural do questionário desenvolvido por Feldmann em 2007, relativo às percepções de pacientes adolescentes sobre o tratamento ortodôntico, para a língua portuguesa. Inicialmente, a equivalência de conceitos e itens foi discutida por um grupo de especialistas que examinou os itens do questionário. Foram entrevistados quatro adolescentes utilizando a metodologia de grupo focal. O instrumento foi então submetido às seguintes etapas: duas traduções para o português por tradutores independentes, pré-teste dos questionários em 6 pacientes, tradução reversa, revisão por comitê e finalmente um estudo piloto com a versão final. Nessa etapa, foram entrevistados 20 adolescentes com idade entre 12 e 17 anos, de ambos os gêneros, avaliados na Clínica de Ortodontia da Faculdade de Odontologia da Universidade Estadual do Rio de Janeiro. O questionário foi aplicado a dois grupos: adolescentes não tratados e adolescentes em tratamento ortodôntico. A partir dessas avaliações, foi produzida a versão brasileira do questionário de Feldmann, com aplicação e formato apropriados à população alvo. A tradução e adaptação transcultural do questionário para o português foi realizada assegurando sua equivalência semântica e conceitual com o instrumento original e a versão final obteve consistência em estudo piloto.

Palavras-chave: Questionário. Ortodontia. Adolescente. Comparação transcultural

Abstract

Quality of life instruments related to oral health are used with increasing frequency in research. However, these instruments are not available in all countries or languages. The availability of multilingual versions of instruments, valid for different cultures, is important for epidemiological research. This study served to translate and cross-culturally adapt the questionnaire developed by Feldmann in 2007 concerning the perceptions of adolescent patients about orthodontic treatment, into English. Initially, the equivalence of concepts and items was discussed by a group of experts who examined the items in the questionnaire. Four adolescents were interviewed with use of a focus group. The instrument was then subjected to the following steps: two translations into Brazilian Portuguese by independent translators, pre-testing of the questionnaires in 6 patients, back translation, review by a committee and finally a pilot study with the final version. In this stage, 20 adolescents aged between 12 and 17 years of both genders were interviewed and evaluated at the Orthodontics Clinic of the School of Dentistry of the State University of Rio de Janeiro. The questionnaire was applied to two groups: untreated adolescents and adolescents undergoing orthodontic treatment. Based on these evaluations, the Brazilian version of the Feldmann questionnaire was produced, with application and format appropriate for the target population. The translation and cross-cultural adaptation of the questionnaire into Brazilian Portuguese was performed ensuring its semantic and conceptual equivalence with the original instrument, and the final version was consistent in a pilot study.

Keywords: Surveys and questionnaires. Orthodontics. Adolescents. Cross-cultural comparison.

1. Orthodontic Clinic, Naval Dental Center, (Odontoclínica Central da Marinha), Brazilian Navy, Rio de Janeiro, Brazil

2. Orthodontic Department, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brazil.

How to cite this article

Freitas TEVS, de Brito MBG, Miguel JAM. Brazilian version of a questionnaire assessing adolescents' experiences in orthodontic treatment. *Nav Dent J*. 2020; 47(2): 5-17.

Received: 12/07/2020
Accepted: 01/09/2020

INTRODUCTION

The motivation for patients to seek orthodontic treatment may vary according to clinical and functional factors, including a wide variety of psychosocial issues. It is essential that dentists understand patients' expectations, as they can influence the entire clinical course of the treatment. The professional's full understanding of the motivations and expectations of the patient regarding orthodontic treatment leads to successful planning, constitutes an important psychological factor, and determines the evaluation of the quality of treatment, their cooperation throughout the therapy, and their satisfaction with the result (1,2). The lack of clear understanding about the duration of treatment, possible pain and discomfort, as well as difficulties in speech and hygiene can make the treatment more challenging (3-5).

Adolescence is a phase often associated with increased self-awareness, confusion about identity and acceptance by others and concerns about the recognition of adults and peers (6). This increased focus on peers can help or hinder adolescent success with orthodontic interventions. If the adolescent has significant concerns about the appearance of their teeth and has friends who are undergoing or have undergone orthodontic treatment, they can serve as models, resulting in increased cooperation with the treatment regimen.

Therefore, it is essential to use reliable instruments to assess these expectations before the start of orthodontic therapy as well as their evolution during the course of treatment. Among the few instruments developed to assess the expectation of adolescents regarding orthodontic treatment is the questionnaire developed by Feldmann (7) and collaborators, in 2007, but it was prepared in English, and its adaptation is necessary to enable its use in the context of the Brazilian Portuguese language.

The translation and cross-cultural adaptation of instruments is an internationally recognized method in several areas (8-12). Translation consists in obtaining a semantically equivalent version with the original instrument, while cross-cultural adaptation is necessary to use the instrument in a population that is culturally distinct from the original.

This study served to develop a Brazilian Portuguese version of the Questionnaire Assessing Experiences of Adolescents in Orthodontic Treatment developed by Feldmann and to perform its cross-cultural adaptation, ensuring semantic, conceptual and operational equivalence with the original instrument, adequate for adolescents.

METHODS

The methodology employed assumed the universalist perspective of cross-cultural equivalence of measurement instruments proposed by Herdman et al (13) which is widely used in the literature (14-17).

The questionnaire developed by Feldmann et al. (7) is an instrument designed to assess expectations and experiences of adolescents in orthodontic treatment, and it consists of 46 questions divided into 5 domains: (1) treatment motivation (7 items); (2) treatment expectations (4 items); and (3) pain or discomfort from the teeth, jaws, and face (13 items); (4) functional jaw impairment (18 items); and (5) questionnaire validity (4 items). In the first and second domains, the answers are arranged on a visual analogue scale (VAS), ranging from "nothing at all" to "very much", or "nothing at all" to "completely". In the domain related to pain, the scale used is the same, with the extremes ranging from "none at all" to "worst imaginable". The fourth domain assesses functional disability through a scale of four verbal descriptors defined as "nothing", "slightly", "much" and "extremely difficult". The instrument validity is also assessed by a VAS of extremes "not at all" and "very well".

Equivalence of concepts and items

Before starting the translation and back translation processes, to obtain semantic equivalence between the Brazilian version and the original instrument, the adequacy of the conceptual model used to develop the questionnaire and the relevance of the items that compose it were evaluated in the context of Brazilian culture (13). These aspects were analyzed by a team of specialists composed

of two orthodontists, a graduate student in Orthodontics and a dentist with experience in the development and adaptation of quality of life instruments. All items of the original English version were carefully read and discussed. Subsequently, four adolescents were interviewed at the Orthodontics Clinic of UERJ. The interviews were filmed so that they could be analyzed later. The objective was to verify how patients referred to the problems raised in the questionnaire that were considered by the experts involved in the previous phase as potentially difficult to explain in Brazilian Portuguese.

Semantic equivalence

The adaptation process followed the guidelines proposed by Guillemin et al (15), Rupert et al (19) and Araújo et al. (17), which comprised six steps: (I) translation; (II) preliminary testing of the translated questionnaires; (III) consolidation of the questionnaire; (IV) back translation; (V) revision of the translations and back translations; and (VI) development of a synthesized questionnaire. The steps of semantic equivalence are represented in a flowchart shown in Figure 1.

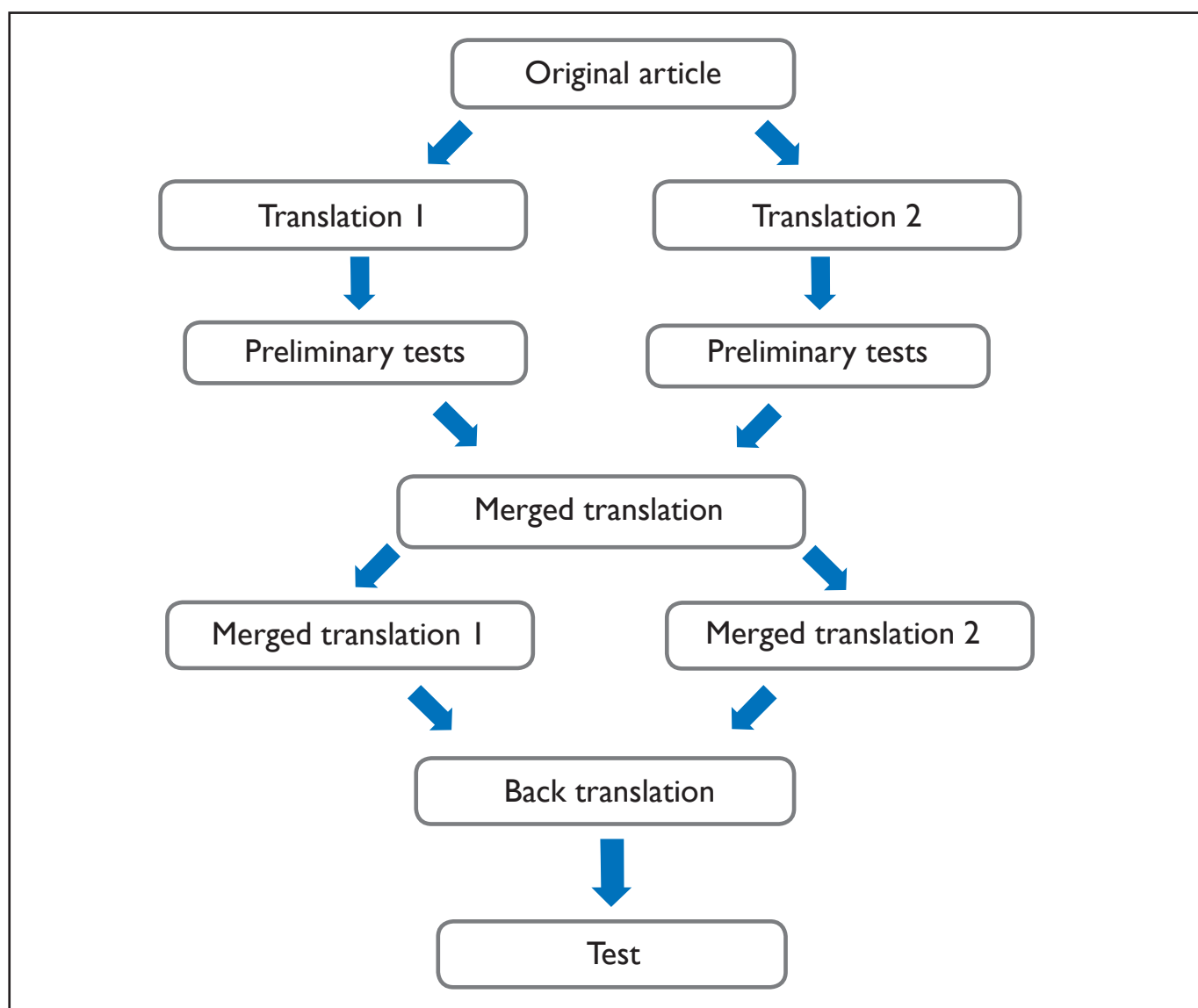


Figure 1 - Flowchart containing the steps of the semantic equivalence process

I - Translation

The questionnaire was initially translated into Brazilian Portuguese by two independent translators, with Brazilian Portuguese as their native language and fluency in English. None of the translators had prior knowledge of the instrument and at no point in the process they maintained communication with each other. The objectives of the questionnaire were explained to the two translators (T1 and T2), who were advised to use terms used by the target population daily, allowing the questionnaire to be easily understood by users of the unified health system.

II - Preliminary test of the translated questionnaires

The translations were applied randomly to 6 patients of the Orthodontic Clinic of the School of Dentistry of the State University of Rio de Janeiro (FOUERJ). Three of them answered the version of the questionnaire translator 1 (T1), and in the other 3 the version applied was made by translator 2 (T2). In this pre-test, perfect understanding by the target population was verified. Respondents were also asked about the need to replace any words or expressions.

III - Consolidation of the questionnaire

The same expert committee met then to develop a unified version of the translations. This committee, by consensus, decreased the number of differences found, choosing the best expressions and words for all issues and adapting the text to the cultural knowledge of Brazilian adolescents. This stage consisted in the evaluation of the semantic equivalence (translation of expressions that cannot be done literally, and must be equivalent in meaning) and cultural equivalence of each question (experiences lived within the cultural context of society). Still in this phase, operational equivalence was obtained, which consists of comparing the methods of using the instrument between the target and source populations in order to make adaptations in the modus operandi necessary to ensure that the tool's effectiveness is similar to the original instrument.

IV and V – Back translation and review

The questionnaire was back-translated into English by two bilingual translators (B1 and B2) who worked independently. Unlike the first translators, the back-translators were not informed about the objectives and concepts involved in the questionnaire, in order to avoid any bias in the back translation and thus be more similar to the original questionnaire. They discussed the discrepancies in their results and created the final version of the back translation.

VI - Development of the final questionnaire

Based on the results of the previous phase, the experts proposed a final version of the questionnaire written in Brazilian Portuguese, and then used it in a pilot study in order to evaluate other types of equivalence.

Pilot study

The pilot study was conducted in the clinic of the Graduate Program in Orthodontics of UERJ and involved 20 patients. Two researchers involved in the project conducted the pilot test and were present during the application of the 20 questionnaires to ensure the standardization of the method used to explain the questionnaire to the target audience. If the patients had any doubts about the questions, the researchers were advised not to influence their answers. The objective of this pilot study was to test all phases of subsequent studies in order to evaluate the psychometric properties of the instrument.

The sample was divided into two groups: untreated adolescents (ANT) and adolescents in orthodontic treatment (ATO). Adolescents aged between 12 and 17 years who speak Brazilian Portuguese as their mother language and sought or were undergoing orthodontic treatment at the FOUEJ Orthodontic Clinic were included. Patients with cleft lip and palate, craniofacial syndromes or congenital diseases were excluded to reduce the risk of response bias, since these patients tend to present more severe malocclusions with greater functional impairment. The questionnaire was self-administered. Participants were initially instructed on how to fill

out the questionnaire and instructed to request help from interviewers if necessary.

In the group of untreated adolescents, 10 adolescents with no history of corrective treatment were selected, and answered the constant questions in the domains of motivation for treatment, expectations of treatment, and validity of the questionnaire, for a total of 15 questions, following what was proposed by the

authors of the original instrument (6) (Table 1).

In the group of adolescents under treatment, 10 undergoing active corrective orthodontic treatment were selected and answered constant questions in the domains of pain and discomfort in the teeth, maxillary bones and face, functional damage in the jaws and validity of the questionnaire, totaling 35 items, also following the guidance of the original questionnaire (Table 2).

Table 1 - Questionnaire applied to untreated adolescents

TREATMENT MOTIVATION	
Questions	
1	Os seus dentes te incomodam?
2	Se fosse possível, quanto você gostaria de mudar a aparência dos seus dentes?
3	Você acha que seus dentes precisam ser alinhados?
4	Você acha que tratamento ortodôntico é bom para seus dentes?
5	Quão motivado você está para fazer tratamento ortodôntico com aparelho?
6	Você já foi adequadamente informado sobre o tratamento ortodôntico?
7	A decisão de fazer tratamento ortodôntico foi sua?
TREATMENT EXPECTATIONS	
Questions	
8	Você acha que vai ser difícil usar aparelho?
9	Você está preocupado com o tratamento ortodôntico?
10	Você está preocupado em como vai ser sua aparência quando estiver usando o aparelho?
11	Você já foi zocado por causa da aparência dos seus dentes?
QUESTIONNAIRE VALIDITY	
Questions	
12	Você acha que as perguntas que você respondeu descrevem o que você acha dos seus dentes?
13	Você acha que as perguntas que você respondeu descrevem o que você está sentindo a respeito de colocar o aparelho em breve?
14	Você acha que as perguntas que você respondeu descrevem o grau de dor e desconforto que você sente?
15	Você acha que as perguntas que você respondeu descrevem o quanto sua dor e desconforto afetam sua vida diariamente?

Table 2 - Questionnaire applied to adolescents undergoing orthodontic treatment

PAIN AND DISCOMFORT FROM TEETH, JAW AND FACE	
Questions	
01	Você tem dor na mandíbula?
02	Você tem dor no pescoço?
03	Você tem dor no céu da boca?
04	Você tem dor na língua?
05	Você tem dor nos incisivos (dentes da frente) quando eles estão em contato?
06	Você tem dor nos incisivos quando eles não estão em contato?
07	Você tem dor nos seus molares (dentes de trás) quando eles estão em contato?
08	Você tem dor nos seus molares (dentes de trás) quando eles não estão em contato?
09	Você sente tensão nos seus dentes?
10	Você sente tensão na mandíbula?
11	Você tem dores de cabeça?
12	Se tem, sua dor de cabeça é esporádica, frequente ou constante?
13	Se você respondeu que sua dor de cabeça é frequente ou constante, quantas vezes você teve dor de cabeça nos últimos 3 meses? 1-3 vezes ao mês, uma ou duas vezes por semana, dia sim, dia não
FUNCTIONAL JAW IMPAIRMENT	
Questions	
Se você tem dor ou desconforto nos seus dentes ou mandíbula, quanto esta dor afeta:	
14	Seu tempo de lazer
15	Sua fala
16	Sua habilidade de dar uma mordida grande
17	Sua habilidade de mastigar comidas duras
18	Sua habilidade de mastigar comidas macias
19	Seu trabalho escolar
20	Tomar líquidos
21	Rir
22	Sua habilidade de mastigar contra resistência
23	Bocejar
24	Beijar
Comer significa morder, mastigar e engolir. Quão difícil é pra você comer:	
25	Pão torrado
26	Carne
27	Cenouras cruas
28	Pão francês
29	Amendoim
30	Maçãs
31	Bolo
QUESTIONNAIRE VALIDITY	
Questions	
32	Você acha que as perguntas que você respondeu descrevem o que você acha dos seus dentes?
33	Você acha que as perguntas que você respondeu descrevem o que você está sentindo a respeito de colocar o aparelho em breve?
34	Você acha que as perguntas que você respondeu descrevem o grau de dor e desconforto que você sente?
35	Você acha que as perguntas que você respondeu descrevem o quanto sua dor e desconforto afetam sua vida diariamente?

This study was approved by the Ethics and Research Committee of the Pedro Ernesto University Hospital, associated with Plataforma Brasil (Opinion No. CEP/HUPE: 3,226,650 of 27/03/2019. CAAE: 07687019.0.0000.5259). All included patients and their guardians were informed of the characteristics and objectives of the research, and signed, respectively, the terms of consent and the terms of free and informed consent.

Results

Table 3 shows the items of the original questionnaire, the versions obtained from the two translations into Brazilian Portuguese, as well as the version resulting from the back translation. To verify the conceptual equivalence and number of items, the suitability of the conceptual model was assessed, in addition to the significance and relevance of the questionnaire items in the context of Brazilian culture by the study team, where they have been placed in a few terms that left no doubt in the translation process, such as: “bother you” (item 1), “undergo” (item 7),

“teased” (item 11), “jaws” (item 12), and “leisure time” (item 25), “to chew” (items 28, 29 and 33), and “roll” (item 39).

The group met and discussed the issues found, concluding that it was convenient to maintain the items of the original questionnaire.

Both translations of the questionnaire into Brazilian Portuguese have been shown to be similar to each other, with just a few differences in the translation of some terms, such as, for example, “good” (item 4): beneficial (T1) and bom (T2); “properly” (item 6): bem (T1) and adequadamente (2); “teased about” (item 11): ridicularizado (T1) and zoado (2); “jaws” (item 12): articulação mandibular (T1) and mandíbula (2); “palate” (item 14): palato (T1) and céu da boca (2); “leisure time” (item 25): livre (T1) and lazer (T2); “schoolwork” (item 30): dever de casa (T1), and trabalho escolar (T2). The remaining items had identical translation by both translators.

The application of the pre-test confirmed the need for some questions to be better evaluated, such as the understanding of the terms: “zoado”, “mandíbula”, “céu da boca”, “incisivos (dentes da frente)” and “molares (dentes de trás)”.

Table 3 - Summary containing the items of the original questionnaire, translations 1 and 2, final version and back translation.

Item	Original Questionnaire	Translation 1	Translation 2	Merged Version	Back translation
1	Do your teeth bother you?	Seus dentes lhe incomodam?	Os seus dentes te incomodam?	Os seus dentes te incomodam?	Do your teeth bother you?
2	If it was possible, how much would you like to change the appearance of your teeth?	Se fosse possível, o quanto você gostaria de mudar a aparência de seus dentes?	Se fosse possível, quanto você gostaria de mudar a aparência dos seus dentes?	Se fosse possível, quanto você gostaria de mudar a aparência dos seus dentes?	If it were possible how much would you like to change the look of your teeth?
3	Do you think your teeth need straightening?	Você acredita que seus dentes precisam ser alinhados?	Voce acha que seus dentes precisam ser alinhados?	Você acha que seus dentes precisam ser alinhados?	Do you think your teeth need to be straightened?
4	Do you think orthodontic treatment is good for your teeth?	Você considera o tratamento ortodôntico benéfico aos seus dentes?	Você acha que tratamento ortodôntico é bom pros seus dentes?	Você acha que tratamento ortodôntico é bom para os seus dentes?	Do you think an orthodontic treatment would be good for your teeth?

Item	Original Questionnaire	Translation 1	Translation 2	Merged Version	Back translation
5	How motivated are you to have orthodontic treatment with braces?	O quanto você está motivado para começar um tratamento ortodôntico com o uso de aparelho?	Quão motivado você está pra fazer tratamento ortodôntico com aparelho?	Quão motivado você está para fazer tratamento ortodôntico com aparelho?	How motivated are you to do an treatment with braces?
6	Have you been properly informed about the orthodontic treatment ?	Você foi bem informado(a) sobre o seu tratamento ortodôntico?	Você ja foi adequadamente informado sobre o tratamento ortodôntico?	Você já foi adequadamente informado sobre o tratamento ortodôntico?	Have you been properly informed about orthodontic treatment?
7	Was it your own decision to undergo orthodontic treatment?	Foi sua própria decisão iniciar o tratamento ortodôntico?	A decisão de fazer tratamento ortodôntico foi sua?	A decisão de fazer tratamento ortodôntico foi sua?	Was the decision to do an orthodontic treatment yours?
8	Do you think it is going to be difficult to wear braces?	Você acha que será difícil usar o aparelho ortodôntico?	Você acha que vai ser difícil usar aparelho?	Você acha que vai ser difícil usar aparelho?	Do you think it will be difficult to use braces?
9	Are you worried about having orthodontic treatment?	Você está preocupado com o tratamento ortodôntico?	Você está preocupado com o tratamento ortodôntico?	Você está preocupado com o tratamento ortodôntico?	Are you worried with the orthodontic treatment?
10	Are you worried about how you are going to look with braces on?	Você está preocupado com a sua aparência ao usar o aparelho durante o tratamento ortodôntico?	Você está preocupado em como vai ser a sua aparência quando estiver usando o aparelho?	Você está preocupado em como vai ser a sua aparência quando estiver usando o aparelho?	Are you worried with how you are going to look with braces?
11	Have you ever been teased about the appearance of your teeth?	Você já foi ridicularizado por causa da aparência de seus dentes?	Você já foi zoado por causa da aparência dos seus dentes?	Você já foi zoado por causa da aparência dos seus dentes?	Have you suffered bullying because of the look of your teeth?
12	Do you have pain in your jaws?	Você sente dor na articulação mandibular?	Você tem dor na mandíbula?	Você tem dor na mandíbula?	Do you have pain in your jaws?
13	Do you have pain in your neck?	Você sente dor no pescoço?	Você tem dor no pescoço?	Você tem dor no pescoço?	Do you have pain in your neck?

Item	Original Questionnaire	Translation 1	Translation 2	Merged Version	Back translation
14	Do you have pain in your palate?	Você sente dor no palato (céu da boca)?	Você tem dor no céu da boca?	Você tem dor no céu da boca?	Do you have pain in the palate?
15	Do you have pain in your tongue?	Você sente dor na língua?	Você tem dor na língua?	Você tem dor na língua?	Do you have pain in your tongue?
16	Do you have pain in your incisors when they are in contact?	Você sente dor nos incisivos quando estão em contato?	Você tem dor nos incisivos quando eles estão em contato?	Você tem dor nos incisivos (dentes da frente) quando eles estão em contato?	Do you have pain in your incisors (front teeth) when they are in contact?
17	Do you have pain in your incisors when they are not in contact?	Você sente dor nos incisivos quando não estão em contato?	Você tem dor nos incisivos quando eles não estão em contato?	Você tem dor nos incisivos quando eles não estão em contato?	Do you have pain in your incisors (front teeth) when they are not in contact?
18	Do you have pain from your molars when they are in contact?	Você sente dor nos molares quando estão em contato?	Você tem dor nos seus molares quando eles estão em contato?	Você tem dor nos seus molares (dentes de trás) quando eles estão em contato?	Do you have pain in your molars (back teeth) when they are in contact?
19	Do you have pain from your molars when they are not in contact?	Você sente dor nos molares quando não estão em contato?	Você tem dor nos seus molares quando eles não estão em contato?	Você tem dor nos seus molares quando eles não estão em contato?	Do you have pain in your molars (back teeth) when they are not in contact?
20	Do you experience tension in your teeth?	Você sente ou tem sensação de tensão nos dentes?	Você sente tensão nos seus dentes?	Você sente tensão nos seus dentes?	Do you feel pressure on your teeth?
21	Do you experience tension in your jaws?	Você sente ou tem sensação de tensão na mandíbula?	Você sente tensão na mandíbula?	Você sente tensão na mandíbula?	Do you have pain in your jaws?
22	Do you ever have a headache?	Você tem dor de cabeça?	Você tem dores de cabeça?	Você tem dores de cabeça?	Do you have headaches?

Item	Original Questionnaire	Translation 1	Translation 2	Merged Version	Back translation
23	If yes, is your headache sporadic, frequent, or constant?	Se sim, sua dor de cabeça é esporádica, frequente ou constante?	Se tem, sua dor de cabeça e esporádica, frequente ou constante?	Se tem, sua dor de cabeça e esporádica, frequente ou constante?	If you do, is your headache occasional, frequent or constant?
24	If you answered that your headache occurs frequently or constantly, how often have you had a headache in the last 3-month period? 1-3 times a month, once or twice a week, every other day?	Se você respondeu que sua dor de cabeça é frequente ou constante, qual a frequência da dor de cabeça nos últimos 3 meses? 1-3 vezes por mês, 1-2 vezes por semana, dia sim, dia não	Se você respondeu que sua dor de cabeça é frequente ou constante, quantas vezes você teve dor de cabeça nos últimos 3 meses? 1-3 vezes ao mês, uma ou duas vezes por semana ou dia sim dia não	Se você respondeu que sua dor de cabeça é frequente ou constante, quantas vezes você teve dor de cabeça nos últimos 3 meses. 1-3 vezes ao mês, uma ou duas vezes por semana ou dia sim dia não	If you answered that your headache was frequent or constant, how many times you have an headache in the last 3 months? 1-3 times a month, once or twice a week, every other day?
	If you have pain or discomfort in your teeth and jaws, how much does that affect:	Se você tem dor ou desconforto nos dentes e mandíbula, o quanto isso afeta:	Se você tem dor ou desconforto nos seus dentes ou mandíbula, quanto esta dor afeta:	Se você tem dor ou desconforto nos seus dentes ou mandíbula, quanto esta dor afeta:	If you have discomfort in your teeth or jaw, how much does this pain affect:
25	Your leisure time	Seu tempo livre (de lazer)	Seu tempo de lazer	Seu tempo de lazer	Your lunch time
26	Your speech	Sua fala	Sua fala	Sua fala	Your speech
27	Your ability to take a big bite	Sua habilidade de tirar "grandes mordidas"	Sua habilidade de dar uma mordida grande	Sua habilidade de dar uma mordida grande	Your habillity to bite large
28	Your ability to chew hard food	Sua capacidade de mastigar comidas duras	Sua habilidade de mastigar comidas duras	Sua habilidade de mastigar comidas duras	your capability to eating hard food
29	Your ability to chew soft food	Sua capacidade de mastigar comidas macias	Sua habilidade de mastigar comidas macias	Sua habilidade de mastigar comidas macias	your ability of eating soft food
30	Your schoolwork	Seu dever de casa	Seu trabalho escolar	Seu trabalho escolar	your homework

Item	Original Questionnaire	Translation 1	Translation 2	Merged Version	Back translation
31	Drinking	Beber	Tomar líquidos	Tomar líquidos	Drink liquids
32	Laughing	Rir	Rir	Rir	Laugh
33	Your ability to chew against resistance	Sua habilidade de mastigar contra resistência	Sua habilidade de mastigar contra resistência	Sua habilidade de mastigar contra resistência	Your ability to chew against resistance
34	Yawning	Bocejar	Bocejar	Bocejar	Yawn
35	Kissing	Beijar	Beijar	Beijar	Kiss
	Eating means taking a bite, chewing, and swallowing. How difficult is it for you to eat:	Comer significa tirar uma mordida, mastigar e engolir. O quanto é difícil para você comer:	Comer significa morder, mastigar e engolir. Quanto difícil é pra você comer:	Comer significa morder, mastigar e engolir. Quanto difícil é pra você comer:	Eating means biking, chewing and swallowing. How hard is it for you to eat:
36	Crispbread	Pão francês	Pão torrado	Pão torrado	Bread Toast
37	Meat	Carne	Carne	Carne	Meat
38	Raw carrots	Cenoura crua	Cenouras cruas	Cenouras cruas	Raw Carrots
39	Roll	Pão tipo brioche	Pão francês	Pão francês	French Bread
40	Peanuts	Amendoim	Amendoim	Amendoim	Peanuts
41	Apples	Maçã	Maçãs	Maçãs	Apples
42	Cake	Bolo	Bolo	Bolo	Cake
43	Do you think that the questions you have answered describe what you think of your teeth?	Você acha que as perguntas que você respondeu descrevem o que você pensa em relação aos seus dentes?	Você acha que as perguntas que você respondeu descrevem o que você acha dos seus dentes?	Você acha que as perguntas que você respondeu descrevem o que você acha dos seus dentes?	Do you think the questions you have answered describe what you think of your teeth?

Regarding the scale used for filling, the VAS was initially maintained, but some difficulty was detected in filling by the interviewees. It was then changed to a numerical scale quantified from “0 to 10”, in which the interviewee should mark an “X” in the desired option, with 0=Nothing and 10=Completely (Figure 2)

The back translations remained similar to the original questionnaire, presenting small differences without compromising the conceptual and item equivalence.

We observed that the average time of the interviews ranged from 10 to 15 minutes

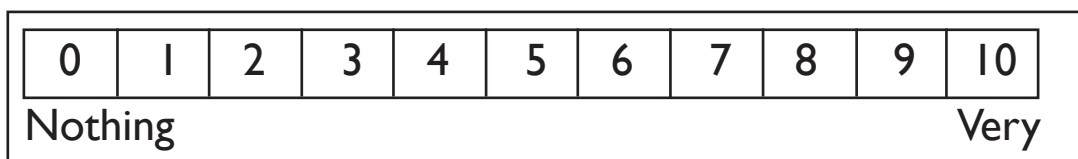


Figure 2 - Scale used to answer the questionnaire in Brazilian Portuguese.

DISCUSSION

A translated instrument should be able to achieve the same effect it has in its original context in the target culture. The lack of cross-cultural equivalence hinders the validity of the information collected, making it impossible to use the instrument properly to study the concept intended (17,18). A careful process of translation into Brazilian Portuguese and retranslation into English was performed following that proposed by Herdman et al. (13, 17, 19). Before having a final version of the instrument, the different versions of the questionnaire in Brazilian Portuguese were subjected to evaluation by specialists in the field, as well as to tests performed by patients. This strategy allowed us to compare the opinion of experts on how the items of the questionnaire were written with the perceptions of the target population, enabling the identification of expressions more suitable for understanding the questions in the instrument without changing the ideas and concepts underlying those of the original instrument.

When comparing the original version of the questionnaire with the merged version of the back translations, we verified that they were similar and that the small differences found arose from changes considered necessary during the semantic equivalence evaluation phase, as per suggestions made by specialists or patients. These changes were kept, as they were considered important for the clarity of the questionnaire translated into Brazilian Portuguese.

The instrument was divided into domains to be answered by patients before treatment and during treatment, according to what was recommended by the authors of the original questionnaire in their discussion (7). This was considered an advantage of the present study, in view of the decreased time to fill out the questionnaire and the focus given to the context experienced by the patients in each group, in order to leave the most appropriate questions to each phase in which the patient was.

The format of the questionnaire was changed to a visual scale categorized from "0" to "10" in order to ensure complete understanding by the patient and the reliability of their answers.

As the patients showed no difficulties during the interviews and in the preliminary test, the questionnaire was self-administered, as suggested by the authors of the original instrument in English (7).

CONCLUSION

The process of translation and cross-cultural adaptation of the questionnaire developed by Feldmann et al. was successfully conducted following the pre-defined methodology. We achieved an instrument with semantic and conceptual equivalence to the original, relevant in the context of the Brazilian Portuguese language, and able to evaluate the patient's expectations, motivations and perceptions of pain and discomfort regarding orthodontic treatment. The final version obtained consistency, and further studies are recommended to validate its psychometric properties.

The authors declare no conflict of interest.

Corresponding author Tatiana Ettore do Valle de Sousa Freitas
Odontoclínica Central da Marinha
Praça Barão de Ladário, 1 - Centro, Rio de Janeiro - RJ, 20091-000
Email: tatiettore@hotmail.com

REFERENCES

1. Shaw WC. Factors influencing the desire for orthodontic treatment. *Eur J Orthod.* 1981; 3(3):151-62.
2. Arnett GW, Worley CM Jr. The treatment motivation survey: Defining patient motivation for treatment. *Am J Orthod Dentofacial Orthop.* 1999 Mar; 115(3):233-8.
3. Bos A, Hoogstraten J, Prah Andersen B. Expectations of treatment and satisfaction with dentofacial appearance in orthodontic patients. *Am J Orthod Dentofacial Orthop.* 2003 Feb; 123(2):127-32.
4. Zhang M, McGrath C, Hägg U. Patients' expectations and experiences of fixed orthodontic appliance therapy: impact on quality of life. *Angle Orthod.* 2007 Mar; 77(2):318-22.
5. Yao J, Li DD, Yang YQ, McGrath CPJ, Mattheos N. What are patients' expectations of orthodontic treatment: a systematic review. *BMC Oral Health.* 2016 Feb; 16:19.
6. Albino JEN, Lawrence SD, Lopes CE, Nash LB, Tedesco LA. Cooperation of adolescents in orthodontic treatment. *J. Behav. Med.* 1991; 14(1):53-70.
7. Feldmann I, List T, John M.T, Bondemark L. Reliability of a

- Questionnaire Assessing Experiences of Adolescents in Orthodontic Treatment. *Angle Orthodontist*. 2007; 77(2):311-317.
8. Grassi-Oliveira R, Stein LM, Pezzi JC. Translation and content validation of the Childhood Trauma Questionnaire into Portuguese language. *Rev Saúde Pú. 2006; 40(2):249-255.*
 9. Li L, Wang HM, Shen Y. Chinese SF-36 Health Survey: translation, cultural adaptation, validation, and normalisation. *J Epidemiol Community Health*. 2003; 57(4):259-263.
 10. Maneesriwongul W, Dixon JK. Instrument translation process: a methods review. *J Adv Nurs*. 2004; 48(2):175-186.
 11. Van Widenfelt BM, Treffers PD, de Beurs E, Siebelink BM, Koudijs E. Translation and cross-cultural adaptation of assessment instruments used in psychological research with children and families. *Clin Child Fam Psychol Rev*. 2005; 8(2):135-147.
 12. Sperber AD. Translation and validation of study instruments for cross-cultural research. *Gastroenterology*. 2004; 126(1 Suppl 1):S124-128.
 13. Herdman M, Fox-Rushby J, Badia X. A model of equivalence in the cultural adaptation of HRQoL instruments: the universalist approach. *Qual Life Res*. 1998;7(4): 323-325.
 14. Gava ECB, Miguel JAM, Araújo, AM, Oliveira BH. Psychometric properties of the Brazilian Version of the Orthognathic Quality of Life Questionnaire. *J Oral Maxillofac Surg*. 2013; 71(10): 1762.e1 - 1762.e8.
 15. 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.
 16. Beaton, DE, Bombardier, C, Guillemin, F, Ferraz, M.B. Guidelines for the Process of Cross-Cultural Adaptation of Self-Report Measures. *Spine*. 2000; 25(24), 3186–3191.
 17. Araújo AM, Miguel JAM, Gava ECB, Oliveira BH. Translation and cross-cultural adaptation of an instrument designed for the assessment of quality of life in orthognathic patients. *Dental Press J. Orthod*. 2013; 18(5): 99-106.
 18. Reichenheim ME, Moraes CL. Operacionalização de adaptação transcultural de instrumentos de aferição usados em epidemiologia. *Rev Saúde Pú. 2007; 41(4): 665-673.*
 19. 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.