

## INTERNAL CONSISTENCY AND REPRODUCIBILITY OF PORTUGUESE VERSION OF RESEARCH DIAGNOSTIC CRITERIA FOR TEMPOROMANDIBULAR DISORDERS (RDC/TMD-AXIS II)

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### ABSTRACT

**Objective:** To study the reliability of the Portuguese version of a questionnaire for psychologically and psychosocially diagnosing individuals with temporomandibular disorders (RDC/TMD). **Method:** Interviews were held with 109 individuals of both sexes who required care at the physical therapy clinic of the Araraquara University Center (UNIARA) from January to July 2006. The questionnaires were applied by a single examiner. Two weeks later, the same questionnaire was reapplied to 36 individuals. To evaluate the internal consistency of the method, Cronbach's alpha coefficient was used. The intra-examiner reproducibility was analyzed using the intraclass correlation coefficient ( $\rho$ ) for quantitative variables and Kappa ( $\kappa$ ) statistics for qualitative variables. **Results:** The internal consistency for the dimensions of chronic pain intensity, disability, limitations relating to mandibular function, nonspecific physical symptoms with pain items included, and nonspecific physical symptoms with pain items and depression excluded, were 0.8479, 0.8971, 0.8673, 0.8080 and 0.9270 respectively, thus confirming the excellent internal validity of the method. The intra-observer agreement was found to be "excellent" for questions relating to pain duration and intensity and "good" for the question relating to current pain. The lowest  $\kappa$  values were associated with items relating to physical symptoms and depression. The subjects' perception of clicking and creaking also had "satisfactory" agreement, as did the question on seeking professionals for pain treatment. The remaining questions showed "good" and "very good" reproducibility and most of them presented the maximum agreement. **Conclusion:** The Portuguese adaptation of the questionnaire was shown to be reliable for detecting psychological and psychosocial abnormalities relating to temporomandibular disorders.

**Key words:** Reliability; Internal consistency; Reproducibility of results; Temporomandibular joint dysfunction; Diagnosis.

### RESUMO

#### **Consistência interna e reprodutibilidade da versão em português do Critério de Diagnóstico na Pesquisa para desordens temporomandibulares (RDC/TMD – Eixo II)**

**Objetivo:** Estudar a confiabilidade, da versão em português, do questionário para o diagnóstico psicológico e psicossocial dos indivíduos com desordens temporomandibulares (RDC/TMD). **Métodos:** Foram entrevistados 109 indivíduos, de ambos sexos, que demandaram atendimento junto à Clínica de Fisioterapia do Centro Universitário de Araraquara, de janeiro a julho de 2006. Os questionários foram aplicados por um único examinador. Após duas semanas, o mesmo foi reaplicado em 36 indivíduos. Para avaliação da consistência interna do método, utilizou-se o Coeficiente Alfa de Cronbach; para análise da reprodutibilidade intra-examinador, o Coeficiente de Correlação Intraclasse ( $\rho$ ) e a estatística Kappa ( $\kappa$ ), respectivamente às variáveis de natureza quantitativa e qualitativa. **Resultados:** A consistência interna para as dimensões intensidade da dor crônica e incapacidade; limitação da função mandibular; sintomas físicos não-específicos, incluindo os itens de dor; sintomas físicos não-específicos, excluindo os itens de dor e depressão foi de 0,8479, 0,8971, 0,8673, 0,8080 e 0,9270 respectivamente, atestando ao método excelente validade interna. Obteve-se "excelente" concordância intra-examinador para as questões referentes ao tempo de presença da dor e sua graduação, e "boa" para a questão referente à dor presente. Os menores valores de  $\kappa$  relacionaram-se aos itens de sintomas físicos e depressão. A percepção de estalos ou rangidos pelos indivíduos apresentou concordância "regular" bem como a questão referente à procura de profissional para tratamento da dor. As demais questões apresentaram reprodutibilidade "boa" e "ótima", sendo que a maioria dessas apresentou nível máximo de concordância. **Conclusão:** A versão adaptada para o português mostrou-se confiável para detecção das alterações psicológicas e psicossociais associadas às desordens temporomandibulares.

**Palavras-chave:** confiabilidade; consistência interna; reprodutibilidade de resultados; disfunção da articulação temporomandibular; diagnóstico.

## INTRODUCTION

Temporomandibular disorders (TMDs) are a collective term that refers to a group of musculoskeletal and joint problems that affect the temporomandibular joint and its associated structures. Among these disorders, myofascial pain stands out for being documented as the most prevalent cause of pain in that area<sup>1-3</sup> and having the potential to affect the sufferer's daily routine to a certain extent<sup>4</sup>.

The etiology of temporomandibular disorder is associated with various factors, such as occlusal imbalance, parafunctional oral behaviors, postural imbalance, hormonal variations, besides psychosocial and behavioral alterations<sup>4-7</sup>. Dworkin and Leresche<sup>5</sup> point out that, in literature, there is no consensus on diagnostic criteria. Kosminsky et al.<sup>8</sup> emphasize that the lack of standard criteria to evaluate the aspects related to this pathology often leads to discrepant results. In this sense, Svensson<sup>9</sup> cites the need to use universally accepted and validated classification criteria.

In order to achieve this, the Research Diagnostic Criteria for Temporomandibular Disorders (RDC/TMD – Axis I and Axis II)<sup>5</sup> instrument was proposed which reflects the complex interaction between the physical and psychological dimensions of chronic pain. This instrument evolved into a double axis system in an attempt to provide reliable measurement of signs and symptoms of temporomandibular disorder (Axis I), as well as its associated psychological and psychosocial factors (Axis II).

The development of RDC/TMD aimed to establish reliable and valid criteria<sup>10</sup> for diagnosing and defining TMD subtypes because one of the biggest methodological problems is the lack of precision in defining populations. The RDC/TMD established a classification system for research that consists of a self-administered questionnaire with 31 questions and a clinical examination form with 10 items, as well as clinical examination specifications and diagnostic criteria that allow classification of each case according to the patient's physical (Axis I) and psychological (Axis II) conditions. Axis I classifies the individuals in three categories, that is, muscular TMD, joint disc displacement and other temporomandibular joint (TMJ) conditions, while Axis II divides them according to chronic pain intensity and disability, degree of depression, scale of non-specific physical symptoms and limitation of jaw function.

The RDC/TMD was initially proposed in the English language, and the questionnaire was later translated by Pereira et al.<sup>11</sup>. To make the cultural adaptation of this questionnaire, Kominsky et al.<sup>8</sup> assessed the English into Portuguese translation and submitted the translated version to an assessment by a multidisciplinary committee,

followed by a pre-test. According to Goes et al.<sup>12</sup>, this process of cultural adaptation resulted in an easily understood and administered instrument. However, it would be useful to verify the internal consistency and reproducibility of this questionnaire in order to provide a reliable standard instrument that measures the psychological and psychosocial factors related to temporomandibular disorders, and additionally provide the means to compare results. Therefore, this study aims to verify the internal consistency and the reproducibility of the Brazilian Portuguese version of the diagnostic criteria for RDC/TMD – Axis II.

## MATERIAL AND METHODS

### Sample

We assessed 109 individuals of both genders who requested care at the Physical Therapy Clinic of Centro Universitário de Araraquara—UNIARARA between January and July 2006, using the convenience sampling method. The inclusion criteria were: minimum age of 20, at least twenty functional teeth in the oral cavity and a history of musculoskeletal facial pain. The exclusion criteria were: the presence of total or removable partial prosthesis, occlusal splints and the use of analgesic drugs.

This study was conducted after the approval by the Ethics in Research Committee of Centro Universitário de Araraquara - UNIARA (protocol 361/2005), and subject participation was voluntary and linked to acceptance and signing of the written informed consent.

### Instrument

As a measuring instrument, we used the cross-cultural adaptation to Brazilian Portuguese of the Research Diagnostic Criteria for Temporomandibular Disorders RDC/TMD – Axis II produced by Kominsky et al.<sup>8</sup>. This questionnaire comprises 31 questions, however it was decided that, for the study of internal consistency and reproducibility, the 9 sociodemographic questions would not be included, limiting the questionnaire to 22 questions, which allow answers according to categories in nominal, ordinal, and numeric scale.

### Experimental procedure

The questionnaires were administered by a single rater who was previously trained and familiar with the procedure. The questionnaire was administered again to a sample of 36 individuals after two weeks, during which time the patient received no treatment for pain.

### Statistical analysis

To assess internal consistency, we used the standardized Cronbach Alpha Coefficient<sup>13,14</sup> ( $\alpha$ ) for the first

administration of the questionnaire, as recommended by studies<sup>14-16</sup> that name as one of the Coefficient's advantages the possibility of calculation with only one administration of the questionnaire. There was an assessment of the internal consistency of the questions composing each proposed domain (chronic pain intensity and disability, limitation of jaw function, scale of non-specific physical symptoms, and degree of depression). After that, the intrarater reproducibility of all questions was estimated. Thus for quantitative variables, the Intraclass Correlation Coefficient ( $\rho$ )<sup>17</sup> was estimated; based on the value of  $\rho$ , the agreement level was classified according to criteria suggested by Fermanian<sup>18</sup>. For the qualitative data, the weighted Kappa statistic was applied ( $\kappa$ )<sup>19</sup>, and the agreement level was classified according to Landis and Koch<sup>20</sup>. To achieve this, we used the STATA software<sup>21</sup> in a Windows environment<sup>®</sup>.

## RESULTS

At the end of the study, the sample consisted of 23 male individuals (21.10%) and 86 female individuals (78.90%), with mean age of 31.65 years, standard error of 0.92, with a minimum age of 20 and maximum age of 50 years. In terms of instruction level, 3 participants had only elementary education; 6 had junior high education; 65 had completed high school; and 35 were college graduates.

Table 1 shows the internal consistency analysis in each domain (chronic pain intensity and disability; limitation of jaw function; scale of non-specific physical symptoms [pain items included]; non-specific physical symptoms [pain item excluded] and depression) proposed by the RDC/TMD – Axis II.

There is excellent internal consistency in all proposed domains. The homogeneity analysis for chronic pain intensity and disability showed that the variation of the  $\alpha$  coefficient when each question was excluded was greater than 0.03, indicating a great contribution of questions 7, 8, and 9 to this domain's internal consistency. The  $\alpha$  coefficient rose only with the exclusion of question 10. The same was observed in the non-specific physical symptoms domain (pain items excluded) when items c, w, and x of question 20 were eliminated, which shows their important contribution to this domain.

Table 2 includes the findings for intrarater reproducibility for the questions related to the presence and intensity of pain. For questions 4a, 4b, 8, 9, 11, 12, and 13, there was excellent agreement, whereas for question 7, it was classified as good.

Table 3 presents the Kappa statistic values for the qualitative questions. The lowest Kappa values observed, typical of poor agreement, were related to a few items from question 20 that refer to distress caused by loss of

interest, lack of energy, feelings of guilt, lower back pain, loneliness, sorrow, nausea, muscle soreness, weakness, heavy feelings in the arms and legs, and overeating.

For the subjects' perception of popping or grinding (questions 15a and 15b), there was "fair" agreement. This "fair" agreement ( $\kappa = 0.5894$ ) also draws attention in the question related to seeking a health care professional to treat facial pain. The remaining questions presented "good" and "very good" reproducibility, most of them with maximum agreement level.

## DISCUSSION

In epidemiological studies, the quality of collected data represents one of the most relevant aspects, as well as the validation of the method to be employed<sup>8,12,16,22-27</sup>. The concept of internal consistency of methods based on questionnaires must be verified through the Cronbach  $\alpha$  coefficient<sup>11</sup> and has been widely used<sup>12,14,16,28,29</sup> to determine both the reliability of the questionnaire in general and the adequacy of each question inserted therein<sup>30,31</sup>.

Internal consistency and interrater reproducibility analysis of the RDC/TMD – Axis I is available in current literature<sup>24-27,32</sup>. However, when it comes to internal consistency<sup>33</sup> and intrarater reproducibility of the RDC/TMD – Axis II, studies are scarcer, especially for an instrument in the Portuguese language.<sup>34</sup> Consequently, this study is considered a very important contribution to researchers in the field of TMDs in terms of the reliability of a culturally-adapted assessment tool in Brazilian Portuguese.

The internal consistency of the proposed domains proved to be excellent, and the high correlation among the items comprising each domain (Table 1) indicated that they are part of a single conceptual dimension, resulting in a reliable measuring scale. Regarding the homogeneity of the questions within each domain, it is recommended that the variation of the test's  $\alpha$  value not exceed 0.03 when each individual question is excluded.

The smallest homogeneity recorded among the items of chronic pain intensity and disability and non-specific physical symptoms (pain items excluded) may have occurred because of their reduced number of questions<sup>13</sup>. However, this fact does not threaten their reliability because the correlation  $\alpha$  coefficients proved to be adequate, i.e. above 0.20<sup>22</sup>.

In a validation study of the Portuguese version of RDC/TMD – Axis II, Lucena et al.<sup>34</sup> found  $\alpha = 0.73$  for jaw function limitation, which is considered an adequate value, although lower than what was found in the present study ( $\alpha = 0.8971$ ). For the original version of the questionnaire (in English), Dworkin et al.<sup>33</sup> found  $\alpha$  values of 0.91, 0.82, 0.78 and 0.71 for the domains of depression, non-specific physical symptoms (pain items included), non-specific

**Table 1.** Standardized Cronbach alpha coefficient ( $\alpha$ ) for each item of the RDC/TMD – Axis II domains. Araraquara, 2006.

Domain/Questions	Average inter-item correlation	$\alpha$
<b>INTENSIDADE DA DOR CRÔNICA E INCAPACIDADE (CHRONIC PAIN INTENSITY AND DISABILITY)</b>		
7 - Em uma escala de 0 a 10, se você tivesse que dar uma nota para a sua dor na face, agora, neste exato momento, que nota você daria, sendo que 0 é “nenhuma dor” e 10 é a “pior dor possível”?	0.5361	0.7761
8 - Pense na pior dor na face que você já sentiu nos últimos meses, dê uma nota para ela, sendo que 0 é “nenhuma dor” e 10 é a “pior dor possível”.	0.5037	0.7528
9 - Pense em todas as dores na face que você já sentiu nos últimos 6 meses, qual o valor médio que você daria para essas dores, utilizando uma escala de 0 a 10, sendo que 0 é “nenhuma dor” e 10 é a “pior dor possível”?	0.4564	0.7158
10 - Aproximadamente quantos dias, nos últimos 6 meses você, ficou afastado de suas atividades diárias como: trabalho, escola e serviço doméstico, devido a sua dor na face?	0.8330	0.9374
<b>Teste da Escala (Scale Test)</b>	0.5823	0.8479
<b>LIMITAÇÃO DA FUNÇÃO MANDIBULAR (LIMITATION OF JAW FUNCTION)</b>		
19 - Quais atividades a sua dor na face ou problema na mandíbula (queixo) impedem, limitam ou prejudicam?		
A - mastigar	0.4023	0.8810
B - beber (tomar líquidos)	0.4188	0.8880
C - fazer exercícios físicos ou ginástica	0.4508	0.9003
D - comer alimentos duros	0.4078	0.8834
E - comer alimentos moles	0.4238	0.8900
F - sorrir ou gargalhar	0.4018	0.8808
G - atividade sexual	0.4873	0.9127
H - limpar os dentes ou a face	0.4043	0.8819
I - bocejar (abrir muito a boca quando está com sono)	0.4124	0.8853
J - engolir	0.4166	0.8871
K - conversar	0.4131	0.8856
L - ficar com o rosto normal: sem a aparência de dor ou triste	0.4111	0.8848
<b>Teste da Escala (Scale Test)</b>	0.4208	0.8971
<b>SINTOMAS FÍSICOS NÃO-ESPECÍFICOS, INCLUINDO OS ITENS DE DOR (NONSPECIFIC PHYSICAL SYMPTON [PAIN ITEMS INCLUDED])</b>		
20 - No último mês, o quanto você tem estado angustiado ou preocupado por:		
A - sentir dores de cabeça	0.4437	0.8645
C - ter fraqueza ou tontura	0.4032	0.8438
D - sentir aperto no “peito” ou no coração	0.4361	0.8609
F - ter pensamentos sobre morte ou relacionados ao ato de morrer	0.4245	0.8551
J - sentir dores na parte inferior das costas	0.4423	0.8639
O - ter enjôo ou problemas no estômago	0.4008	0.8425
P - ter músculos doloridos	0.3953	0.8395
W - sentir-se fraco em partes do corpo	0.3904	0.8367
X - sensação de peso nos braços ou pernas	0.4506	0.8677
<b>Teste da Escala (Scale Test)</b>	0.4208	0.8673
<b>SINTOMAS FÍSICOS NÃO-ESPECÍFICOS, EXCLUINDO OS ITENS DE DOR (NONSPECIFIC PHYSICAL SYMPTOMS [PAIN ITEMS EXCLUDED])</b>		
A - sentir dores de cabeça	0.5380	0.8232
C - ter fraqueza ou tontura	0.4149	0.7394
F - ter pensamentos sobre morte ou relacionados ao ato de morrer	0.5394	0.8241
W - sentir-se fraco em partes do corpo	0.3949	0.7230
X - sensação de peso nos braços ou pernas	0.3978	0.7255
<b>Teste da Escala (Scale Test)</b>	0.4570	0.8080

**Table 1.** Continued.

<b>DEPRESSÃO (DEPRESSION)</b>		
20 - No último mês, o quanto você tem estado angustiado ou preocupado por:		
B - perda do interesse ou prazer sexual	0.3865	0.9229
E - sensação de falta de energia ou lentidão	0.3869	0.9230
F - ter pensamentos sobre morte ou relacionados ao ato de morrer	0.3904	0.9241
G - ter falta de apetite	0.3997	0.9267
H - chorar facilmente	0.3867	0.9230
I - culpar-se pelas coisas que acontecem ao seu redor	0.3849	0.9224
K - sentir-se só	0.3862	0.9228
L - sentir-se triste	0.3789	0.9206
M - preocupar-se muito com as coisas	0.3889	0.9236
N - não sentir interesse pelas coisas	0.3847	0.9224
Q - ter dificuldade em adormecer	0.3847	0.9224
V - sentir-se desanimado sobre o futuro	0.3874	0.9232
Y - pensamentos sobre acabar com a sua vida	0.4028	0.9276
Z - comer demais	0.4042	0.9280
AA - acordar de madrugada	0.4009	0.9271
BB - ter sono agitado ou perturbado	0.3816	0.9214
CC - sensação de que tudo é um esforço ou sacrifício	0.3771	0.9200
DD - sentir-se inútil	0.3867	0.9230
EE - sensação de ser enganado ou iludido	0.3824	0.9217
FF - ter sentimentos de culpa	0.3848	0.9224
<b>Teste da Escala (Test)</b>	<b>0.3883</b>	<b>0.9270</b>

**Table 2.** Intraclass correlation coefficient ( $\rho$ ) and its classification for history of presence and intensity of pain. Araraquara, 2006.

Questions	$\rho$	Classification
4a - Há quantos anos a sua dor na face começou pela primeira vez?	0.9869	Excellent
4b - Há quantos meses a sua dor na face começou pela primeira vez?	0.9856	Excellent
7 - Em uma escala de 0 a 10, se você tivesse que dar uma nota para a sua dor na face, agora, neste exato momento, que nota você daria, sendo que 0 é “nenhuma dor” e 10 é a “pior dor possível”?	0.8302	Good
8 - Pense na pior dor na face que você já sentiu nos últimos meses, dê uma nota para ela, sendo que 0 é “nenhuma dor” e 10 é a “pior dor possível”?	0.9869	Excellent
9 - Pense em todas as dores na face que você já sentiu nos últimos 6 meses, qual o valor médio que você daria para essas dores, utilizando uma escala de 0 a 10, sendo que 0 é “nenhuma dor” e 10 é a “pior dor possível”?	0.9661	Excellent
11 - Nos últimos 6 meses, o quanto a sua dor na face interferiu em suas atividades diárias, utilizando uma escala de 0 a 10, em que 0 é “nenhuma interferência” e 10 é “incapaz de realizar qualquer atividade”?	0.9850	Excellent
12 - Nos últimos meses, o quanto sua dor na face mudou sua disposição de participar de atividades de lazer, sociais e familiares, sendo que 0 é “nenhuma mudança” e 10 é “mudança extrema”?	0.9785	Excellent
13 - Nos últimos 6 meses, quanto sua dor facial alterou sua capacidade para trabalhar (incluindo serviços domésticos), sendo que 0 é “nenhuma alteração” e 10 é alteração extrema?	0.9265	Excellent

physical symptoms (pain items excluded), and chronic pain intensity and disability respectively, similar to those shown in Table 1.

Stability has been determined by test-retest, also known as reproducibility, commonly used in studies on temporomandibular disorders. However, Braga<sup>15</sup> points

out that, depending on the type of assessment desired, this type of approach is not viable because it requires two assessments.

We believe that the verification of reproducibility is of utmost importance to the quality of the Brazilian Portuguese version of the questionnaire. However,

**Table 3.** Kappa value ( $\kappa$ ) and its classification in relation to items of the questionnaire proposed by Kosmynsky et al.<sup>7</sup>. Araraquara, 2006.

Questions	$\kappa$	Classification
1 - O que você acha da sua saúde em geral?	0.4194	Fair
2 - Você diria que a saúde de sua boca é:	0.7724	Good
3 - Você já sentiu dor na face em locais como a mandíbula (queixo), nos lados da cabeça, na frente do ouvido, ou no ouvido nas últimas 4 semanas?	0.8400	Very Good
5 - A dor na face ocorre o tempo todo, aparece e desaparece ou ocorreu somente uma vez?	0.6987	Good
6 - Você já procurou algum profissional da saúde para tratar a sua dor na face?	0.5894	Fair
10 - Aproximadamente quantos dias nos últimos 6 meses você ficou afastado de suas atividades diárias como: trabalho, escola e serviço doméstico, devido a sua dor na face?	0.6471	Good
14a - Alguma vez a sua mandíbula (boca) já ficou travada de uma forma que você não conseguiu abrir totalmente a boca?	0.7209	Good
14b - Este travamento da mandíbula (boca) foi grave a ponto de interferir em sua capacidade de mastigar?	1.0000	Very Good
15a - Você ouve estalos quando mastiga, abre ou fecha a boca?	0.5263	Fair
15b - Quando você mastiga, abre ou fecha a boca, você ouve o barulho (rangido) na frente do ouvido como se fosse osso contra osso?	0.5714	Fair
15c - Você percebeu ou alguém falou que você range ou aperta os dentes quando está dormindo?	0.7662	Good
15d - Durante o dia, você range ou aperta os seus dentes?	0.7222	Good
15e - Você sente sua mandíbula (queixo) "cansada" ou dolorida quando acorda pela manhã?	0.8235	Very Good
15f - Você ouve apitos ou zumbidos nos seus ouvidos?	0.8800	Very Good
15g - Você sente que a forma como os seus dentes se encostam é desconfortável ou diferente?	0.8861	Very Good
16a - Você tem artrite reumatóide, lúpus ou qualquer outra doença que afeta muitas articulações (juntas) do seu corpo?	1.0000	Very Good
16b - Você sabe se alguém da sua família, isto é seus avós, pais, irmãos, etc... já teve artrite reumatóide, lúpus ou qualquer outra doença que afeta várias articulações (juntas) do corpo?	0.7857	Good
16c - Você já teve ou tem alguma articulação (junta) que fica dolorida ou incha, sem ser a articulação (junta) perto do ouvido?	0.8400	Very Good
16d - A dor ou inchaço que você sente nesta articulação (junta) apareceu várias vezes nos últimos 12 meses?	1.0000	Very Good
17a - Você teve recentemente alguma pancada ou trauma na face ou na mandíbula (queixo)?	1.0000	Very Good
17b - A sua dor na face (em locais como a mandíbula - queixo, nos lados da cabeça, na frente do ouvido ou no ouvido), já existia antes da pancada ou trauma?	1.0000	Very Good
18 - Durante os últimos 6 meses, você tem tido problemas de dor de cabeça ou enxaqueca?	0.7692	Good
19 - Quais atividades a sua dor na face ou problema na mandíbula (queixo) impedem, limitam ou prejudicam?		
A - mastigar	1.0000	Very Good
B - beber (tomar líquidos)	1.0000	Very Good
C - fazer exercícios físicos ou ginástica	1.0000	Very Good
D - comer alimentos duros	1.0000	Very Good
E - comer alimentos moles	1.0000	Very Good
F - sorrir ou gargalhar	1.0000	Very Good
G - atividade sexual	1.0000	Very Good
H - limpar os dentes ou a face	1.0000	Very Good
I - bocejar (abrir muito a boca quando está com sono)	1.0000	Very Good
J - engolir	1.0000	Very Good
K - conversar	1.0000	Very Good
L - ficar com o rosto normal: sem a aparência de dor ou triste	1.0000	Very Good
20 - no último mês, o quanto você tem estado angustiado ou preocupado por:		
A - sentir dores de cabeça	0.5425	Fair
B - perda do interesse ou prazer sexual	0.6471	Good
C - ter fraqueza ou tontura	0.2529	Poor
D - sentir aperto no peito ou no coração	0.5414	Fair

**Table 3.** Continued.

E - sensação de falta de energia ou lentidão	0.3831	Poor
F - ter pensamentos sobre morte ou relacionados ao ato de morrer	1.0000	Very Good
G - ter falta de apetite	1.0000	Very Good
H - chorar facilmente	0.6087	Fair
I - culpar-se pelas coisas que acontecem ao seu redor	0.3405	Poor
J - sentir dores na parte inferior das costas	0.3862	Poor
K - sentir-se só	0.3816	Poor
L - sentir-se triste	0.3571	Poor
M - preocupar-se muito com as coisas	0.4297	Fair
N - não sentir interesse pelas coisas	0.5556	Fair
O - ter enjoô ou problemas no estômago	0.3517	Poor
P - ter músculos doloridos	0.3816	Poor
Q - ter dificuldade em adormecer	0.5207	Fair
R - ter dificuldade de respirar	0.6393	Good
S - sentir, de vez em quando, calor ou frio	0.4748	Fair
T - sentir dormência ou formigamento em partes do corpo	0.5610	Fair
U - sentir um “nó na garganta”	0.6344	Good
V - sentir-se desanimado sobre o futuro	0.6000	Fair
W - sentir-se fraco em partes do corpo	0.3571	Poor
X - sensação de peso nos braços ou pernas	0.3333	Poor
Y - pensamentos sobre acabar com a sua vida	1.0000	Very Good
Z - comer demais	0.5028	Fair
AA - acordar de madrugada	0.2340	Poor
BB - ter sono agitado ou perturbado	0.5161	Fair
CC - sensação de que tudo é um esforço ou sacrificio	0.5309	Fair
DD - sentir-se inútil	0.5434	Fair
EE - sensação de ser enganado ou iludido	0.6571	Good
FF - ter sentimentos de culpa	0.3415	Poor
21 - O quanto você acha que têm sido os cuidados que tem tomado com a sua saúde de uma forma geral?	1.0000	Very Good
22 - O quanto você acha que têm sido os cuidados que tem tomado com a saúde da sua boca?	1.0000	Very Good

attention must be given to the variability that can occur in symptomatology due to the interval between the two applications of the questionnaire. This fact can be observed in Table 2, which shows “good” reproducibility when facial pain is questioned during assessment, while reproducibility was classified as “excellent” in the other questions referring to the history of presence and intensity of pain. This may have occurred because this question refers to the exact moment the assessment was taking place and, because the individuals were questioned in two different occasions, there may have been alterations in symptomatology. These findings show that the questions were clearly worded,

which contributes to their very reliable measures for the presence and intensity of pain.

Poor levels of reproducibility were verified for highly subjective questions (question 20 – Table 3), such as the perception of various symptoms, feelings of guilt, lack of interest, sorrow, loneliness, and heavy feeling in the arms or legs, which may have occurred because of the two-week interval between assessments, possibly leading to an alteration in the cited conditions. We recommend a shorter interval in future studies.

The question on seeking treatment for facial pain had fair agreement ( $\kappa=0.5894$ ), which can be explained by the fact that the individuals initially answered that they had

not sought treatment, and later, this answer was altered, probably because some of the individuals saw the first application of the questionnaire as a treatment visit.

It is difficult to compare the findings of this study with others of the same nature because there are no studies in literature that investigated intrarater reproducibility of the RDC/TMD – Axis II. Given the importance of this type of study for determining the reliability of a measuring instrument, we recommend that more studies be conducted. In light of that, it can be stated that the cross-cultural adaptation, test validation and pre-test of this version of the RDC/TMD – Axis II questionnaire, prepared by Kominsky et al.<sup>8</sup>, was a process that resulted in a clearly-worded and very reliable instrument.

### CONCLUSION

Given the internal consistency and reproducibility results, we can conclude that the Brazilian Portuguese version of the questionnaire (Research Diagnostic Criteria for Temporomandibular Disorders RDC/TMD – Axis II) proved to be a reliable instrument to detect psychological and psychosocial alterations associated with temporomandibular disorders.

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