Cultural adaptation and reproducibility of a dyspnea questionnaire in chronic obstructive pulmonary disease patients

Adaptação cultural e reprodutibilidade de questionário de dispnéia em pacientes com doença pulmonar obstrutiva crônica

Adaptación cultural y reproducibilidad del cuestionario de disnea en pacientes con enfermedad pulmonar obstructiva crónica

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ABSTRACT
Objective: To adapt to Brazilian culture and to evaluate the reproducibility of the dyspnea management questionnaire (DMQ-30) in patients with Chronic obstructive pulmonary disease patients. Methods: Cultural adaptation was carried out, where the first translated version passed through a committee of judges, including the author of the questionnaire and applied in eight patients. The new version went through retrograde translation and again by the commission for certification of no change in the original sense. The reproducibility consisted of two applications of the questionnaire with a 15-day interval by the same examiner in 50 Chronic obstructive pulmonary disease patients. We performed the correlation of the DMQ-30 questionnaire with the SF36, SGRQ and with HAD scale. To evaluate the reproducibility we used the intra-class correlation coefficient. For other correlations, we use the Pearson correlation coefficient. The significance level was established at 5%. Results: In the process of cultural adaptation the only altered term was "to play golf" for "to play pool". We found strong reproducibility of the total DMQ-30 (CCI 0.89), and in the dimensions: Dyspnea Intensity (CCI 0.82) Dyspnea anxiety (CCI 0.86), and Activity Avoidance (CCI 0.80). We observed moderate to strong correlation of SF36 with DMQ-30 (r = 0.72-0.40). We observed moderate to strong correlation of DMQ-30 with total SGRQ score (r = 0.69-0.41), and moderate correlation of DMQ-30 with HAD scale (r = 0.54). Conclusion: We were successful in the process of cultural adaptation with excellent reproducibility and good correlation with the SGRQ, SF36 and the HAD scale.

Keywords: dyspnea, COPD, reproducibility of tests, daily activities.

RESUMO
Objetivo: Adaptar para a cultura brasileira e avaliar a reproduzibilidade do questionário de gerenciamento da dispneia (DMQ-30), em pacientes com doença pulmonar obstrutiva crônica. Métodos: A reproduzibilidade consistiu de duas aplicações do questionário com intervalo de 15 dias, por um mesmo examinador em 50 portadores de doença pulmonar obstrutiva crônica. Realizamos a correlação do questionário DMQ-30 com o SF 36, SGRQ e escala HAD. Para avaliar a reproduzibilidade utilizamos o coeficiente de correlação intra-classe. Para outras correlações, o coeficiente de correlação de Pearson. Foi considerado significante um p < 0,05. Resultados: No processo de adaptação cultural o único termo alterado foi “jogar golf” por “jogar sinuca”. Encontramos forte reproduzibilidade do DMQ-30 total (CCI 0,89), e nos domínios: Intensidade da Dispneia (CCI 0,82), Dispnéia relacionada a ansiedade (CCI 0,86), e RECEIO de esforço nas atividades (CCI 0,80). Observamos moderada a forte correlação do SF36 com o DMQ-30 (r=0,72-0,40). Observamos moderada a forte correlação do DMQ-30 com a pontuação total do SGRQ (r= 0,69-0,41) e moderada correlação do DMQ-30 com a escala HAD (r= 0,54). Conclusão: Obtivemos êxito no processo de adaptação cultural com excelente reproduzibilidade e boa correlação com o SGRQ, SF36 e com a escala HAD.

Palavras-chave: dispnéia, DPOC, reproduzibilidade de testes, atividades diárias.
RESUMEN
Objetivo: Adaptarse al cultivo brasileño y evaluar la reproducibilidad del cuestionario de manejo de la disnea (DMQ-30) en pacientes con enfermedad pulmonar obstructiva crónica. Métodos: La reproducibilidad consistió en dos aplicaciones del cuestionario con un intervalo de 15 días, por el mismo examinador en 50 pacientes con enfermedad pulmonar obstructiva crónica. Se realizó la correlación del cuestionario DMQ-30 con la escala SF-36, SGRQ y HAD. Para evaluar la reproducibilidad se utilizó el coeficiente de correlación intraclase. Para otras correlaciones, el coeficiente de correlación de Pearson. Se consideró significativo un p < 0,05. Resultados: En el proceso de adaptación cultural el único término cambiado fue “jugar golf” por “jugar billar”. Encontramos una fuerte reproducibilidad del total del DMQ-30 (CCI 0,89), y en los campos: Intensidad de la Disnea (CCI 0,82), Disnea relacionada con la ansiedad (CCI 0,86), y Miedo al esfuerzo en las actividades (CCI 0,80). Se observó una correlación de moderada a fuerte de SF36 con DMQ-30 (r=0,72-0,40). Se observó una correlación moderada a fuerte de DMQ-30 con la puntuación total de SGRQ (r= 0,69-0,41) y una correlación moderada de DMQ-30 con la escala HAD (r= 0,54). Conclusión: Tuvimos éxito en el proceso de adaptación cultural con excelente reproducibilidad y buena correlación con SGRQ, SF36 y la escala HAD.

Palabras clave: disnea, enfermedad pulmonar obstructiva crónica, reproducibilidad de pruebas, actividades diarias.

1 INTRODUCTION

Chronic obstructive pulmonary disease (COPD) is a condition with significant systemic effects that may contribute to the severity of the disease but may be preventable and treatable. The pulmonary component is characterized by airflow limitation that is not fully reversible, progressive and associated with an abnormal inflammatory response of the lung to toxic particles or gases (CELLI BR et al., 2004).

COPD has been highlighted in recent years by increasing morbidity and mortality. In Brazil, it occupies the 5th position in the cause of death and 290,000 patients are hospitalized annually, leading to direct and indirect expenses, such as lost days of work, early retirements, premature death and family and social suffering (DATASUS, 2011). In addition, treatment requires adequate medication management, whether due to this disorder or other conditions involving the respiratory system, (KLUG GAB et al., 2024; ), and as occurred in the covid pandemic (DA SILVA FC et al., 2022; DE CASTRO DN et al., 2023).

The symptoms of COPD, especially dyspnea, frequently interfere with various aspects of the patient's life, such as in professional, family, social and daily life (ADL) activities, leading to the onset of depression and anxiety, in addition to a significant decrease in quality of life (HERBERT R E GREGOR F, 1997). Dyspnea is the main symptom associated with disability, reduced quality of life and worsening prognosis. It is usually progressive with the
evolution of the disease. Many patients only report dyspnea at a later stage of the disease, as they attribute part of the physical disability to aging and lack of physical fitness. In this way, the presence of dyspnea represents a more advanced phase of the disease and with greater systemic involvement (MEEK PM et al., 1999).

These factors lead to intolerance to exercise and also progressive worsening of physical conditioning, and may limiting the activities of daily living. This can cause social isolation, anxiety, depression and dependence (REARDON JZ ET AL., 2006). In addition, these patients frequently present changes in weight and composition of body, factors that may also contribute to their physical limitation. Physical incapacity, loss of productivity and worsening of quality of life are substantially aggravated by the progression of COPD (ARTÉS RC E TARRÉS PP, 1999). It is also known that there is a lack of evidence that validated quality of life questionnaires in a country can be applied to patients from another country with different languages and cultures. The questions should therefore be adapted to each language and culture of the country in which they will be used, so that their results may reflect the specific objectives (GUILLEMIN, F et al., 1993).

However, studies on the results of health education for patients with chronic lung diseases demonstrate that there is no uniformity in the results of this intervention and, on the other hand, there is no consistent data related to the cost-effectiveness of this procedure in improving health. health condition of these patients (SIGURGEIRSDOTTIR et al., 2019; WALKER et al., 2020). For education strategies in the context of pulmonar rehabilitation, the process must be based on knowledge of the disease, by the patient, as well as by their family members and/or caregivers, with the aim that they have an understanding of their clinical conditions and a certain self-control of the disease (SANTOS et al., 2022; SOUZA HVP et al., 2020)

2 OBJECTIVE

The objective of the study was to adapt to Brazilian culture and to evaluate the reproducibility of the Dyspnea Management Questionnaire (Dyspnea Management Questionnaire, (DMQ-30) in patients with COPD.
3 METHODS

This study was carried out at the Pulmonary Rehabilitation Center of the Universidade Federal de São Paulo (UNIFESP) from July 2009 to June 2010. The research protocol was approved by the institution’s ethics committee of the University Estadual de Ciências da Saúde de Alagoas under opinion number 130 and all patients signed the term of consent. Eight patients were evaluated in the cultural adaptation phase and 60 patients in the reproducibility phase, 10 of whom were excluded due to exacerbation or non-attendance. Inclusion criteria were: age > 40 years, good cognitive ability assessed by the mini mental state examination, and clinical stability characterized by no cough, no secretion or shortness of breath in the last days. Patients with exacerbation between the two visits, severe comorbidities or out of control, and the presence of other concomitant pulmonary diseases were excluded. The health-related quality of life was evaluated by the SF36 questionnaire (MAHLER D E MACKOWIAK JI, 1995) (scores ranging from 0 to 100), being the highest score representing the best health status, and was culturally translated and adapted to Brazil by CICONELLI R E FERRAZ, M. (1999). The questionnaire of Saint George Hospital in Respiratory Disease (SGRQ) was developed by Dr. Paul Jones with translation and validation for the Brazilian language and culture and already it’s described in the literature (JONES PW at el., 1992; SOUZA TC et al., 2000). This is composed of 76 items, divided into three domains: symptoms, activities and impact, and its result is expressed in percentage values, where the score greater than 10% represents altered health status and a 4% percentage difference in both senses represents change with clinical significance. We also applied the Hospital Anxiety and Depression HAD Scale used to detect traits of anxiety and depression, this questionnaire also presented good reproducibility and validation already proven. The patients performed spirometry using the portable spirometer of Easy One (NDD, Switzerland, USA) (ZIGMOND AS E SNAITH RP, 1983). Calculations for percentages of predicted values, according to the Guidelines for Pulmonary Function Tests of the Brazilian Society of Pulmonology and Tisiology, and conducted the 6-min walk test (6MWT) according to the standardization suggested by the American Thoracic Society (SOCIEDADE BRASILEIRA DE PNEUMOLOGIA E TISIOLOGIA, 2002; AMERICAN THORACIC SOCIETY, 2002).

DMQ-30 was developed in the United States by the researcher Anna Migliore and colleagues. It was created with the purpose of managing dyspnea in relation to functional activities, and anxiety and depression, can evaluate the perception of the benefits of strategies such as psycho-education, breathing control strategies and the way to approach cognitive behavioral in pulmonary rehabilitation of anxious patients with COPD. The questionnaire was
initially created with 74 items, being reduced after several studies for 30 items and was subdivided into 5 domains: Dyspnea Intensity, Dyspnea Anxiety, Activity Avoidance, Activity Self-efficacy, and Strategy Satisfaction. In relation to the points to calculate the score of each item of the subscales, a numerical value of 0 to 6 was assigned, and then all values are summed. The greater the symptom of dyspnea or anxiety/depression leads to a lower score. Each result added up a score, and it was divided by the number of items of the subscale to get an average count. Although the specific questionnaires for COPD relate aspects related to dyspnea and quality of life, DMQ-30 relates aspects related to emotional components such as Anxiety and Depression (NORWEB AM et al., 2006).

The DMQ-30 questionnaire was translated into Portuguese by a health professional with a command of both languages and a native English speaker. This first version underwent a cultural adaptation through a committee of judges composed by a specialist with knowledge in the area and in the language of origin of the questionnaire, the principal investigator and the author of the questionnaire, then it was applied in eight patients to know their doubts and difficulties, these were discussed by the committee of experts. This Portuguese version duly adapted culturally passed through a retrograde translation into English, by another native English translator. The second version in English was compared with the original version by the committee ensuring that there were no changes in the original sense of the questionnaire.

Reproducibility was performed as follows: The adapted final version of the questionnaire was applied twice in patients within a 15-days interval by the same examiner to verify intraobserver reproducibility. Reproducibility was assessed by intraclass correlation coefficients.

3.1 STATISTICAL ANALYSIS

In the analysis of the data, we used the descriptive statistics of measures of central tendency, such as means, standard deviation and 95% confidence interval. The Kolmogorov-Smirnov adhesion test was applied to evaluate the normality of the distributions of the variables. We also performed the Intraclass Correlation Coefficient to assess the reproducibility and Pearson's correlation coefficient to correlate the DMQ-30 questionnaire with other questionnaires and with physiological variables. Values were considered significant for p less than 0.05 (p <0.05).
RESULTS

During the cultural adaptation phase the only changed term in the DMQ-30 was with regard to the activity of "playing golf", since this activity is not part of the sport activities of the majority of the Brazilian population. In agreement with the author, it was replaced by "play pool", whose metabolic equivalent (met) was equivalent. The total questionnaire response time ranged from 9 to 12 minutes. In the application of the questionnaire some doubts emerged on the part of the patients, "in the questions" that presented negative answers like "never" that characterized no symptoms of shortness of breath in the accomplishment of tasks. In the last answers the word, never, referred to the lack of confidence in controlling the dyspnea and the use of some strategies for its control. However, this doubt was remedied with the previous explanation as to the interpretation of the word "never" to the participants of the research. After the discussion with the author that suggested the following changes: in question I "a little" for "very little" and "a little" for "little". The word "feel trouble" has also been changed by "has difficulty" in question II A. In the statement of question III-A we changed the words "from fear" to "or fear." In question IV the answers were changed from "a little" by "little". Finally in question V the word "technique" was put in the plural "techniques". In this way all suggestions of changes of the author were made.

Within the demographic characteristics of the 50 patients included, 29 male patients with a mean age of 65.8 ± 7.5 years, where the majority presented moderate staging according to GOLD (2016); the mean distance by Tc6 minutes was 471.28 ± 66.1 meters (Table 1).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender - N (%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>29 (58)</td>
</tr>
<tr>
<td>Female</td>
<td>21 (42)</td>
</tr>
<tr>
<td>age (years) †</td>
<td>65.8±7.5</td>
</tr>
<tr>
<td>FEV_1 / FVC pre†</td>
<td>0.48±0.12</td>
</tr>
<tr>
<td>FEV_1 L pre-BD (L) †</td>
<td>1.15±0.40</td>
</tr>
<tr>
<td>FEV_1 pre-BD (% ) †</td>
<td>47.3±17.9</td>
</tr>
<tr>
<td>CVFL pre-BD (L) †</td>
<td>2.39±0.66</td>
</tr>
<tr>
<td>CVF pre-BD (%) †</td>
<td>74.3±17.1</td>
</tr>
<tr>
<td>VEF1/ CVF pós-BD†</td>
<td>0.51±0.11</td>
</tr>
<tr>
<td>VEF1 post-BD (L) †</td>
<td>2.31±7.06</td>
</tr>
<tr>
<td>VEF1 post-BD (%) †</td>
<td>51.1±19.6</td>
</tr>
<tr>
<td>CVFL post-BD (L) †</td>
<td>2.56±0.76</td>
</tr>
<tr>
<td>CVF post-BD (%) †</td>
<td>78.3±20.9</td>
</tr>
<tr>
<td>Distance at TC6M (m) †</td>
<td>471.28±66.1</td>
</tr>
<tr>
<td>GOLD Staging</td>
<td></td>
</tr>
<tr>
<td>Light</td>
<td>4 (8)</td>
</tr>
<tr>
<td>Moderate</td>
<td>14 (28)</td>
</tr>
<tr>
<td>Serious</td>
<td>26 (52)</td>
</tr>
<tr>
<td>Very serious</td>
<td>6 (12)</td>
</tr>
</tbody>
</table>
GOLD: Global Initiative for Chronic Obstructive Lung Disease. Values expressed in † Average + standard deviation, except where indicated. Values expressed in (%), 6-min walk test (6MWT).

Source: Leite ML et al., 2024.

When we evaluated the reproducibility through the intraclass correlation coefficient, we observed that there was a strong correlation in three dimensions and in the total score. In two of the dimensions we found a moderate correlation, but in all there was small variation among the standard deviations as shown in Table 2.

Table 2. Reproducibility and Confidence Interval scores domains and DMQ-30 total score at Visits 1 and 2.

<table>
<thead>
<tr>
<th>Domains DMQ-30</th>
<th>Scores Visit 1</th>
<th>Scores Visit 2</th>
<th>CCI</th>
<th>IC95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of dyspnea</td>
<td>3.87±1.27</td>
<td>3.86±1.31</td>
<td>0.82</td>
<td>0.69 - 0.90</td>
</tr>
<tr>
<td>Dyspnea related anxiety</td>
<td>4.12±1.40</td>
<td>4.22±1.51</td>
<td>0.86</td>
<td>0.75 - 0.92</td>
</tr>
<tr>
<td>Filling avoid activity</td>
<td>4.21±1.51</td>
<td>4.36±1.41</td>
<td>0.80</td>
<td>0.64 - 0.88</td>
</tr>
<tr>
<td>Ability to perform activity</td>
<td>3.51±1.45</td>
<td>3.2±1.31</td>
<td>0.53</td>
<td>0.17 - 0.73</td>
</tr>
<tr>
<td>Satisfaction with the use strategy</td>
<td>2.3±1.40</td>
<td>3.0±1.35</td>
<td>0.53</td>
<td>0.17 - 0.73</td>
</tr>
<tr>
<td>Total score</td>
<td>12.2±3.7</td>
<td>12.5±3.9</td>
<td>0.89</td>
<td>0.81 - 0.93</td>
</tr>
</tbody>
</table>

† Mean + standard deviation; ICC and IC 95%.

Source: Leite ML et al., 2024.

In table 3, which refers to correlation data between the physiological variables, it is observed that there was a weak correlation between the 6MWT with the dyspnea anxiety dimension of DMQ-30 and with the total score. Forced Expiratory Volume in the first minute (FEV1) presented poor correlation with the dyspnea intensity. Forced Vital Capacity (FVC) also showed a weak correlation with the domain dyspnea Intensity and dyspnea anxiety. There was a weak correlation between 6MWT and FVC with total score.

Table 3. Correlation of DMQ-30 with pulmonary function and 6MWT.

<table>
<thead>
<tr>
<th>Domains of DMQ-30</th>
<th>Te 6’</th>
<th>FEV1 % post-BD</th>
<th>FVC % post-BD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity dyspnea</td>
<td>0.23</td>
<td>0.35*</td>
<td>0.38**</td>
</tr>
<tr>
<td>Dyspnea anxiety relationship</td>
<td>0.33*</td>
<td>0.22</td>
<td>0.39**</td>
</tr>
<tr>
<td>Fear of effort in activities</td>
<td>0.26</td>
<td>0.14</td>
<td>0.25</td>
</tr>
<tr>
<td>Ability to perform activity</td>
<td>0.03</td>
<td>0.02</td>
<td>0.11</td>
</tr>
<tr>
<td>Satisfaction with use strategies</td>
<td>-0.91</td>
<td>0.60</td>
<td>-0.13</td>
</tr>
<tr>
<td>DMQ-30 total</td>
<td>0.32*</td>
<td>0.27</td>
<td>0.39*</td>
</tr>
</tbody>
</table>

*p<0.05; ** p<0.001. 6-min walk test (6MWT).

Source: Leite ML et al., 2024.

When evaluated the correlation between DMQ-30 dimensions and health-related quality of life, we observed a moderate correlation in 14 dimensions as shown in Table 4.
Table 4. Correlation of DMQ-30 with SF36.

<table>
<thead>
<tr>
<th>Domain SF36</th>
<th>DMQ Intensity dyspnea</th>
<th>DMQ Dyspnea anxiety</th>
<th>DMQ Fear activity</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical aspects</td>
<td>0.32</td>
<td>0.27</td>
<td>0.42**</td>
<td>0.38**</td>
</tr>
<tr>
<td>Functional capacity</td>
<td>0.72**</td>
<td>0.48**</td>
<td>0.53**</td>
<td>0.64**</td>
</tr>
<tr>
<td>Aspectos</td>
<td>0.26</td>
<td>0.37*</td>
<td>0.40**</td>
<td>0.38**</td>
</tr>
<tr>
<td>Social aspects</td>
<td>0.31*</td>
<td>0.37*</td>
<td>0.41**</td>
<td>0.41**</td>
</tr>
<tr>
<td>Ache</td>
<td>0.25</td>
<td>0.25</td>
<td>0.43**</td>
<td>0.35*</td>
</tr>
<tr>
<td>Vitality</td>
<td>0.38**</td>
<td>0.40**</td>
<td>0.50**</td>
<td>0.48**</td>
</tr>
<tr>
<td>Mental health</td>
<td>0.30*</td>
<td>0.38**</td>
<td>0.46**</td>
<td>0.43**</td>
</tr>
<tr>
<td>General Health Status</td>
<td>0.35*</td>
<td>0.34**</td>
<td>0.34*</td>
<td>0.38*</td>
</tr>
</tbody>
</table>

*p<0.05; ** p<0.001.

Source: Leite ML et al., 2024.

5 DISCUSSION

It was demonstrated that DMQ-30 is an adaptable questionnaire for Brazilian culture and presented excellent reproducibility in patients with COPD.

The dimensions with the lowest reproducibility were exactly referring to the questions to which the patients had doubted about it. The responses with a common negative double meaning in American culture were not well understood by Brazilian culture, which generated the need for prior instruction regarding the meaning of the word "never" to the participants to alleviate these doubts. We recommend that DMQ-30, despite being a self-administered questionnaire, be applied with prior instruction, and even by a properly trained health professional.

Our research presented results that were different from those found by the original author of the questionnaire. She obtained strong reproducibility in all dimensions: Dyspnea Intensity (CCI 0.88); Dyspnea Anxiety (CCI 0.92); Activity Avoidance (CCI 0.90) Activity Self-efficacy (CCI 0.71); Strategy Satisfaction (CCI 0.72) and total DMQ (CCI 0.95) (NORWEG AM et al., 2006). We point out that this result may have occurred because the sample is composed of other lung diseases and oxygen supplementation, which differs from our study that used only patients with COPD, another factor may be the level of schooling probably lower in our patients.

When we performed a correlation between DMQ-30 and Tc6 'we found a weak correlation. We emphasize that DMQ-30 is a questionnaire that addresses the management of dyspnea in patients with anxiety and depression and Tc6 'reveals the capacity to exercise (AMERICAN THORACIC SOCIETY, 2018; NORWEG AM et al., 2006). The poor correlation is explained by the lack of specificity of DMQ-30 dimensions with 6MWT.
The main factors influencing the health status and quality of life of patients with COPD are dyspnea and psychological status, whereas physiological parameters such as exercise capacity and FEV1 generally do not contribute so much to justify the changes in this measure (BOWEN JB et al., 2000). The low correlation between DMQ-30 and pulmonary function is explained because pulmonary function is considered a poor predictor of anxiety and depression, justifying the result of our study (An L et al., 2000).

The present study showed that the worst pulmonary function leads to the greater score in the DMQ-30 dimension, the same behavior was found when the 6MWT was evaluated. Previous research has also shown that patients with COPD who were anxious and depressed walked less at 6MWT (An L et al., 2000), converging with the results obtained in our study.

When we performed the correlation of the DMQ-30 with the SF36 questionnaire we found a moderate to strong correlation. This result may have occurred because the SF36 is a quality of life generic questionnaire CICONELLI R E FERRAZ M, 1999) that also addresses emotional components and the DMQ-30 a specific questionnaire to assess the influence of dyspnea on health-related quality of life in patients with anxiety or depression with chronic lung diseases (NORWEG AM et al., 2006).

The original questionnaire found a moderate correlation of DMQ-30 in the dimension of dyspnea (r = 0.54). The activity avoidance (r = 0.40) and total DMQ (r = 0.57) also found a moderate correlation when compared to the physical component of the SF12 questionnaire (Short Form12 items), and a moderate correlation of the mental component of SF12 with the domain of dyspnoea DMQ-30 related to anxiety (r = 0.41). This diverged from our results, perhaps because the version of the SF12 questionnaire used didn't have eight domains, commumly that are present in SF36 was used, but only the physical and mental summaries (WARE JE et al., 1996), which was used in our study. In the area of fear of effort in activities (r = 0.56) and total DMQ (r = 0.46) presented similar results to those obtained in our study, despite these differences mentioned previously among the questionnaires. When we performed the correlation of DMQ-30 domains with SGRQ, we observed moderate to strong correlation with the domains of Activity, Impact and total SGRQ. The results obtained were relevant because according to JONES PW et al. (1992) the domains of the Activity SGRQ measures the limitation of activities for dyspnea, and the Impact domain measures disorders in the social and psychological function that contribute to the disease in the airway. These aspects are also measured by the domains of the DMQ-30 questionnaire, thus justifying the correlation results obtained.
The correlation found between DMQ-30 and levels of anxiety and depression can be explained by the relation of their domains to the issues addressed in the HAD scale (ZIGMOND AS E SNAITH RP, 1983).

NORWEG et al. (2006) found a moderate correlation of DMQ-30 with the HAD Scale in the domains of dyspnea anxiety \((r = 0.60)\); with the domain of activity avoidance \((r = 0.59)\); and with total DMQ \((r = 0.65)\), results similar to those obtained in our study. This result may have occurred due to the similarities in the anxiety and depression scores obtained in the population of both researches.

The results of our research showed a negative correlation with the HAD scale, showing that the lower the symptoms of anxiety and / or depression presented the greater the score in the DMQ-30 domain. Santos et al study demonstrated that the presence of anxiety or depression in COPD could compromise functional abilities (SANTOS M et al., 2009). Thus, The DMQ-30 questionnaire may suggest that functional activities may be compromised in COPD due to the presence of anxiety and depression.

NORWEG et al. (2011) demonstrated acceptable levels of reliability and validity for measuring multidimensional dyspnea outcomes after medical, psychological, and behavioral interventions for adults with COPD using the original DMQ with 66 itens, converging with our study (NORWEG AM et al., 2011).

6 CONCLUSION

We conclude that this study successfully demonstrated the process of cultural adaptation and reproducibility of the DMQ-30 questionnaire for Brazil. It presents a good correlation with other instruments that evaluate health-related quality of life and levels of anxiety and depression.
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