Dyspnea descriptors translated from English to Portuguese: application in obese patients and in patients with cardiorespiratory diseases*

Uso de descritores de dispneia traduzidos da língua inglesa em pacientes com doenças cardiorrespiratórias ou obesidade

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Abstract

Objective: To investigate the usefulness of descriptive terms applied to the sensation of dyspnea (dyspnea descriptors) that were developed in English and translated to Brazilian Portuguese in patients with four distinct clinical conditions that can be accompanied by dyspnea. **Methods:** We translated, from English to Brazilian Portuguese, a list of 15 dyspnea descriptors reported in a study conducted in the USA. Those 15 descriptors were applied in 50 asthma patients, 50 COPD patients, 30 patients with heart failure, and 50 patients with class II or III obesity. The three best descriptors, as selected by the patients, were studied by cluster analysis. Potential associations between the identified clusters and the four clinical conditions were also investigated. **Results:** The use of this set of descriptors led to a solution with nine clusters, designated *expiração* (exhalation), *fome de ar* (air hunger), *sufoco* (suffocating), *superficial* (shallow), *rápido* (rapid), *aperto* (tight), *falta de ar* (shortness of breath), *trabalho* (work), and *inspiração* (inhalation). Overlapping of the descriptors was quite common among the patients, regardless of their clinical condition. Asthma, COPD, and heart failure were significantly associated with the *inspiração* cluster. Heart failure was also associated with the *trabalho* cluster, whereas obesity was not associated with any of the clusters. **Conclusions:** In our study sample, the application of dyspnea descriptors translated from English to Portuguese led to the identification of distinct clusters, some of which were similar to those identified in a study conducted in the USA. The translated descriptors were less useful than were those developed in Brazil regarding their ability to generate significant associations among the clinical conditions investigated here.

Keywords: Dyspnea; Pulmonary disease, chronic obstructive; Asthma; Heart failure.

Resumo

Objetivo: Investigar a utilidade de descritores de dispneia, desenvolvidos em língua inglesa e traduzidos para o português falado no Brasil, em pacientes com quatro condições distintas que cursam com dispneia. **Métodos:** Uma lista de 15 descritores de dispneia construída em um estudo nos EUA foi traduzida para o português. Esse conjunto de descritores foi aplicado a 50 pacientes com asma, 50 com DPOC, 30 com insuficiência cardíaca e 50 com obesidade graus II ou III. Os termos selecionados como os três melhores para descrever a sensação de dispneia pelos pacientes foram estudados por análise de agrupamentos. Também foram investigadas as possíveis associações entre os agrupamentos encontrados e as quatro condições clínicas incluídas. **Resultados:** O emprego dessa lista levou a uma solução com nove agrupamentos, denominados expiração, fome de ar, sufoco, superficial, rápido, aperto, falta de ar, trabalho e inspiração. Houve acentuada superposição no uso de descritores pelos pacientes com as quatro condições clínicas. Asma, DPOC e insuficiência cardíaca mostraram associações relevantes com inspiração. Insuficiência cardíaca mostrou associação adicional com trabalho, enquanto nenhum agrupamento se associou de maneira expressiva com obesidade. **Conclusões:** O uso de descritores de dispneia traduzidos da língua inglesa por pacientes no Brasil levou a identificação de agrupamentos distintos, os quais guardaram semelhança com aqueles obtidos em um estudo nos EUA. Esses descritores traduzidos foram menos úteis do que um grupo de descritores desenvolvido no Brasil no que se refere à capacidade de gerar associações significativas com as condições clínicas investigadas.

Descritores: Dispneia; Doença pulmonar obstrutiva crônica; Asma; Insuficiência cardíaca.

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Introduction

Dyspnea is a major complaint and is quite common in clinical practice, as well as being the principal factor limiting quality of life in many chronic lung diseases.[1-4]

In recent years, numerous studies have suggested that the sensation of dyspnea does not involve a single, specific perception; rather, it involves a set of distinct sensations.[5-9] Different terms used by patients to describe the sensation of dyspnea might reflect the underlying pathophysiological mechanisms and therefore be related to the underlying diagnoses. Although there have been various studies regarding the potential usefulness of descriptive terms applied to the sensation of dyspnea (dyspnea descriptors),[10-15] there is a lack of such studies in Brazil.

Specific linguistic and cultural characteristics of each language and country, as well as regional variations, can influence the way in which individuals describe their sensation of shortness of breath. In a related article, we reported the process of development of specific dyspnea descriptors, which were developed from descriptive terms collected from some patients who lived in a rural town in the state of São Paulo, Brazil, and who reported shortness of breath.[16] The final list of descriptors, which included 15 Brazilian Portuguese-language dyspnea descriptors, was proffered to 180 patients with four distinct clinical conditions. This led to the formation of seven clusters of descriptors. However, because overlapping of descriptors was quite common among the patients, regardless of their clinical condition, it was impossible to differentiate among the four clinical conditions evaluated: asthma; COPD; heart failure; and obesity (class II or III). In the present study, we report the results obtained by proffering another list of dyspnea descriptors, originally developed in the United States by Mahler et al.[8] and translated from English to Brazilian Portuguese, to the same groups of patients. We also compare the results obtained by employing the translated descriptors with those reported in the original study,[8] as well as with those obtained by employing the dyspnea descriptors developed in Brazil.

Methods

The English-language descriptors were obtained from the study conducted by Mahler et al. and published in 1996.[8] That set of descriptors was chosen to be used in the present investigation because the Mahler et al. study[8] was one of the first on the theme and has been widely used by other authors for comparison.[11,14,17,18]

The terms were translated to Brazilian Portuguese by two pulmonologists who are fluent in English, one of whom had lived in the United States for an extended period. Because the descriptors used were quite simple, and because the translation was to be used exclusively in the present study, we chose not to fully follow the recommended methodology for translation and validation of international questionnaires. The original descriptors and their respective translations are listed in Table 1.

In the present study, we included patients who had been diagnosed with bronchial asthma, COPD, heart failure, or obesity (class II or III) and had been clinically stable for at least two months. The volunteers were selected from among patients treated at the pulmonology, cardiology, and clinical nutrition outpatient clinics of the *Faculdade de Medicina de Ribeirão Preto, Universidade de São Paulo* (FMRP-USP, University of São Paulo at Ribeirão Preto School of Medicine) *Hospital das Clínicas*, located in the city of Ribeirão Preto, Brazil. The diagnoses of asthma, COPD, and heart failure were established on the basis of widely accepted clinical and laboratory parameters.[19,20] Patients with a body mass index (BMI) > 35 kg/m^2 were included in the obesity group.

We established specific exclusion criteria for each group of patients: for those diagnosed with asthma—BMI > 30 kg/m^2, smoking history > 10 pack-years, and heart disease; for those diagnosed with COPD—BMI > 30 kg/m^2 and heart disease; for those diagnosed with heart failure—BMI > 30 kg/m^2, smoking history > 10 pack-years, and current or previous lung disease; and for those diagnosed with obesity—smoking history > 10 pack-years and current or previous heart or lung disease.

The patients were approached during an outpatient visit, and some of the patients with obesity were approached during hospitalization for dietary control. All of the patients were

Table 1 - Dyspnea descriptors in English[a] and their respective translations to Brazilian Portuguese.

Number	Descriptors in English	Translated descriptors
1	My breath does not go in all the way.	*O ar parece que não entra por completo.*
2	My breathing requires effort.	*Minha respiração requer esforço.*
3	I feel that I am smothering.	*Eu sinto que estou asfixiando.*
4	I feel hunger for air.	*Eu me sinto faminto por ar.*
5	My breathing is heavy.	*Minha respiração é pesada.*
6	I feel out of breath.	*Eu sinto falta de ar.*
7	My chest feels tight.	*Meu peito parece que está preso.*
8	My breathing requires work.	*Minha respiração requer trabalho.*
9	I feel that I am suffocating.	*Eu sinto que estou sufocando.*
10	My chest is constricted.	*Meu peito está apertado.*
11	I feel that my breathing is rapid.	*Eu sinto que minha respiração está rápida.*
12	My breathing is shallow.	*Minha respiração é superficial.*
13	I feel that I am breathing more.	*Eu sinto que estou respirando mais.*
14	I cannot get enough air.	*Eu não tenho ar suficiente.*
15	My breath does not go out all the way.	*O ar parece que não sai por completo.*

[a]Descriptors taken from the study conducted by Mahler et al.[8]

asked whether they had experienced dyspnea in recent months. If the answer was "yes", the individual was invited to participate in the study and was asked to report to the pulmonary function laboratory in the near future. The study was approved by the Human Research Ethics Committee of the FMRP-USP *Hospital das Clínicas*, and all of the patients who participated in the project gave written informed consent.

At the pulmonary function laboratory, all interviews of the volunteers were conducted by one of two researchers. Initially, demographic information, as well as information regarding the level of education, was obtained. Subsequently, a modification of the baseline dyspnea index developed by Mahler et al.[21] was used in order to evaluate the intensity of dyspnea during activities of daily living. The patients then selected dyspnea descriptors from a list of dyspnea descriptors developed in Brazil, as previously described.[16] After the first stage of selections had ended, another list, comprising the 15 dyspnea descriptors translated from English to Brazilian Portuguese, was presented to the patients. On both occasions, the volunteers were instructed to indicate, by marking "Yes" or "No", whether a given descriptor applied to their sensation of dyspnea, either at rest or during intense physical activity. Subsequently, the patients were instructed to choose the 3 descriptors that best described their sensations of respiratory distress. Finally, they were instructed to choose, from among the 3 descriptors previously selected, the one that provided the best description. Because we had predicted that some of the patients included in the study might be illiterate, the two lists of descriptors were read to all patients in the same manner, i.e., slowly, one by one, by one of the two researchers, in order to allow volunteers to answer all the questions confidently.

After we had obtained information regarding the intensity of dyspnea and the types of respiratory sensations, the volunteers underwent a full battery of spirometry tests with a Pulmonet Godard spirometer (SensorMedics, Bilthoven, The Netherlands). In addition, we collected blood samples from the brachial artery in order to perform arterial blood gas analysis with a gas analyzer (Ciba Corning 178 Gas System; Ciba Corning, Diagnostics Corp., Medfield, MA, USA). The predicted values used in order to characterize the reference values followed the equations devised by Crapo et al.[22]

For the statistical analysis, the descriptors selected by the patients as being the 3 best were analyzed and grouped into domains that shared common characteristics by means of cluster analysis.[23,24] The clusters were defined in an exploratory manner in order to achieve the highest degree of similarity within a given set.

The associations between the clusters obtained and the four classes of clinical conditions analyzed were established, in an attempt to define patterns of specific sensations for each clinical situation, in accordance with the

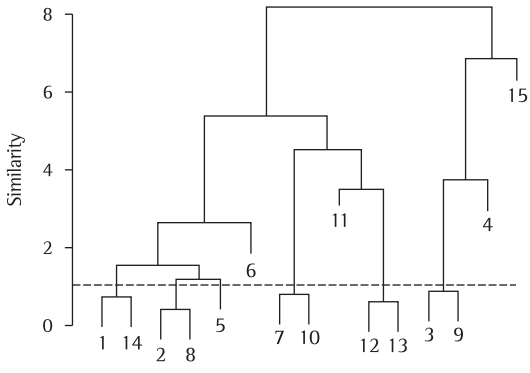
methodology employed in previously published studies.[5,8] Initially, the number of times that the descriptors within a given cluster were chosen as the 3 best was divided by the product of the number of descriptors within that cluster and the number of patients with that specific condition. If the result was > 0.25, the cluster of descriptors was considered representative of the disease.

Results

Of the 180 patients studied, 50 presented with asthma, 50 presented with COPD, 30 presented with heart failure, and 50 presented with obesity. All of the patients under study were clinically stable and were divided into four groups: asthma; COPD; heart failure; and obesity. The clinical and functional characteristics of those patients have previously been described[16] and are summarized here. The mean age of the patients was 39.6 ± 12.3 years in the asthma group; 66.1 ± 8.5 years in the COPD group; 52.3 ± 15.9 years in the heart failure group; and 38.8 ± 10.6 years in the obesity group. With regard to gender, the number and proportion of female patients was 30 (60%) in the asthma group; 12 (24%) in the COPD group; 25 (83%) in the heart failure group; and 42 (84%) in the obesity group. The mean baseline dyspnea index was 6.3 ± 2.4 in the asthma group; 5.3 ± 2.1 in the COPD group; 4.7 ± 2.0 in the heart failure group; and 7.6 ± 2.6 in the obesity group. With regard to pulmonary function, the mean FEV_1 (in percentage of predicted) was 70.0 ± 20.8% in the asthma group; 39.8 ± 20.7% in the COPD group; 79.2 ± 18.8% in the heart failure group; and 90.0 ± 14.2% in the obesity group. With regard to the oxygenation levels, the mean PaO_2 was 81.1 ± 9.8 mmHg in the asthma group; 67.0 ± 11.8 mmHg in the COPD group; 84.4 ± 10.6 mmHg in the heart failure group; and 75.5 ± 10.0 mmHg in the obesity group. In all of the groups, most of the interviewees reported that they had had ≤ 9 years of schooling: 72% in the asthma group; 64% in the COPD group; 77% in the heart failure group; and 60% in the obesity group. However, a relevant proportion of patients reported that they did not know how to read or write: 0% in the asthma group; 26% in the COPD group; 17% in the heart failure group; and 2% in the obesity group.

The analysis of the answers provided by the 180 volunteers allowed us to obtain nine clusters that, because of the characteristics of the descriptors involved, were designated *expiração* (exhalation), *fome de ar* (air hunger), *sufoco* (suffocating), *superficial* (shallow), *rápido* (rapid), *aperto* (tight), *falta de ar* (shortness of breath), *trabalho* (work), and *inspiração* (inhalation), as illustrated by the dendrogram and list shown in Figure 1.

The frequencies of the first three choices of descriptors, as selected by the groups of patients,



Translated descriptors	Clusters
15. O ar parece não sair por completo	*Expiração*
4. Eu me sinto faminto por ar	*Fome de ar*
9. Eu sinto que estou sufocado *3. Eu sinto que estou asfixiando*	*Sufoco*
13. Eu sinto que estou respirando mais *12. Minha respiração é superficial*	*Superficial*
11. Eu sinto que minha respiração está rápida	*Rápido*
10. Meu peito está apertado *7. Meu peito parece que está preso*	*Aperto*
6. Eu sinto falta de ar	*Falta de ar*
5. Minha respiração é pesada *8. Minha respiração requer trabalho* *2. Minha respiração requer esforço*	*Trabalho*
13. Eu não tenho ar suficiente *1. O ar parece que não entra por completo*	*Inspiração*

Figure 1 - Dendrogram illustrating the distribution of the dyspnea descriptors translated from English to Brazilian Portuguese and the clusters formed after 180 volunteers had selected the three descriptors that best described their sensation of dyspnea. Descriptors taken from the study conducted by Mahler et al.[8]

Table 2 - Frequencies of the three dyspnea descriptors most often chosen, by group.

Group	Descriptors	Cluster	%
Asthma	1. *O ar parece que não entra por completo.*	*Inspiração*	92
	14. *Eu não tenho ar suficiente.*	*Inspiração*	62
	9. *Eu sinto que estou sufocando.*	*Sufoco*	36
COPD	1. *O ar parece que não entra por completo.*	*Inspiração*	70
	14. *Eu não tenho ar suficiente.*	*Inspiração*	54
	2. *Minha respiração requer esforço.*	*Trabalho*	30
HF	1. *O ar parece que não entra por completo.*	*Inspiração*	80
	2. *A minha respiração requer esforço.*	*Trabalho*	60
	6. *Eu sinto falta de ar.*	*Falta de ar*	33
Obesity	6. *Eu sinto falta de ar.*	*Falta de ar*	44
	2. *Minha respiração requer esforço.*	*Trabalho*	42
	1. *O ar parece que não entra por completo.*	*Inspiração*	32

HF: heart failure.

are shown in Table 2. Many of the descriptors were shared by more than one group of patients.

The analysis of the associations between the clusters and clinical conditions showed that the *inspiração* cluster was strongly associated with asthma, COPD, and heart failure. The *trabalho* cluster was also associated with heart failure. None of the clusters were significantly associated with obesity (Table 3).

Table 4 shows a comparison between the clusters obtained by applying the translated descriptors in our sample of patients and the original results of the English-language study.[8] The distribution of the descriptors was quite similar among the groups. Seven clusters that exactly matched those found in the study conducted in the United States ("tight", "rapid", "suffocating", "air hunger", and "exhalation") received similar names when translated to Brazilian Portuguese (*aperto*, *rápido*, *sufoco*, *fome de ar*, and *expiração*). Of the remaining eight sentences, four ended up in clusters that exhibited some degree of similarity with the distribution found in the original manuscript (sentences 1, 2, 8, and 12),[8] and the clusters obtained in Brazilian Portuguese were therefore given names that were related to the original names in English: "inhalation" (*inspiração*); "work/effort" (*trabalho*); and "shallow" (*superficial*). Only sentence 6 led to a cluster that was completely different from those described previously. That cluster was designated *falta de ar*.

Discussion

In the present study, the proffering of dyspnea descriptors translated from English to Brazilian Portuguese to a sample of volunteers in Brazil led to the formation of clusters that were largely similar to those found in the original article, which described patients evaluated in the United

Table 3 - Associations between the clusters of descriptors and the clinical conditions analyzed.

Cluster	Group			
	Asthma	COPD	HF	Obesity
Expiração	0.04	0.12	0.00	0.02
Fome de ar	0.02	0.02	0.03	0.00
Sufoco	0.24	0.19	0.15	0.05
Superficial	0.03	0.07	0.02	0.13
Rápido	0.02	0.10	0.00	0.24
Aperto	0.14	0.12	0.10	0.14
Falta de ar	0.06	0.14	0.17	0.14
Inspiração	0.77*	0.61*	0.52*	0.24
Trabalho	0.16	0.17	0.27*	0.23

HF: heart failure. *Relevant relationships, as evidenced by an index value > 0.25.

Table 4 - Comparisons between the clusters obtained by employing dyspnea descriptors translated from English to Brazilian Portuguese in the present study and those obtained in the original study.[a]

Present study		Original study	
Cluster	Descriptors	Cluster	Descriptors
Inspiração	1. *O ar parece não entrar por completo.*	Inhalation	My breath does not go in all the way.
	14. *Eu não tenho ar suficiente.*	Work/effort	I cannot get enough air.
Trabalho	2. *Minha respiração requer esforço.*	Work/effort	My breathing requires effort.
	8. *Minha respiração requer trabalho.*	Work/effort	My breathing requires effort.
	5. *Eu sinto a respiração pesada.*	Heavy	My breathing is heavy.
Falta de ar	6. *Eu sinto falta de ar.*	Work/effort	I feel out of breath.
Aperto	7. *Meu peito parece que está preso.*	Tight	My chest feels tight.
	10. *Meu peito está apertado.*	Tight	My chest is constricted.
Rápido	11. *Eu sinto que minha respiração está rápida.*	Rapid	I feel that my breathing is rapid.
Superficial	12. *Minha respiração é superficial.*	Shallow	My breathing is shallow.
	13. *Eu sinto que estou respirando mais.*	Breathing more	I feel that I am breathing more.
Sufoco	3. *Eu sinto que estou asfixiando.*	Suffocating	I feel that I am smothering.
	9. *Eu sinto que estou sufocando.*	Suffocating	I feel that I am suffocating.
Fome de ar	4. *Eu me sinto faminto por ar.*	Air hunger	I feel hungry for air.
Expiração	15. *O ar parece que não sai por completo.*	Exhalation	My breath does not go out all the way.

[a]Descriptors taken from the study conducted by Mahler et al.[8]

States.[8] Nevertheless, unlike the authors of the original study,[8] we were unable to differentiate among the four clinical conditions investigated.

The English-language descriptors that were translated for use in the present study were those employed in the Mahler et al. study published in 1996.[8] In that study, the authors evaluated 218 patients presenting with seven cardiorespiratory conditions in the stable phase and reporting sensations of respiratory distress. Most of those patients had COPD, asthma, heart failure, or interstitial lung disease. The descriptors employed in that study had been adapted from an original set of descriptors developed by Simon et al.[5] In the present study, the questionnaire was administered a second time to a subgroup of 16 patients with COPD, who completed the questionnaire at rest, in order to evaluate reproducibility, and after a walk that caused moderate dyspnea, in order to compare their ability to recall the sensation after a direct experience. The two evaluations produced concordant results. The "work/effort" cluster was associated with all of the clinical conditions analyzed. All of the conditions, with the exception of COPD, were associated with more than one cluster. Each combination of clusters was associated with a single clinical condition. For instance, asthma was significantly associated with the "work/effort" and "tight" clusters, whereas heart failure was associated with the same clusters that were associated with asthma, as well as with the "heavy" cluster.

As can be seen in Table 4, the way in which the translated descriptors, applied in our sample of patients, were grouped was largely similar to the way in which the descriptors in the study conducted in the United States were grouped, as well as to the way in which the descriptors were grouped in a study that was also conducted in the United States and involved healthy individuals submitted to physical exercise.[8,14] This great similarity in the distribution of the clusters supports the hypothesis that the ideas used to describe the sensation of dyspnea are shared by all individuals, regardless of their culture or language. However, the analysis also revealed certain differences. In the translated questionnaire, the descriptor *Eu sinto falta de ar* (I have shortness of breath) was isolated in a single cluster, whereas in the study conducted in the United States the descriptor "I feel out of breath" constituted, together with questions 2, 8, and 14, the "work/effort" cluster. In fact, the descriptor *Eu sinto falta de ar* is admittedly generic and possibly nonspecific for the Brazilian population. In our sample, the term *respiração pesada* ("heavy", i.e., heaviness of

breathing) showed greater similarity with those that constituted the *trabalho* cluster.

When we applied the list of translated descriptors, the clusters that were most often chosen were *inspiração*, *sufoco*, *trabalho*, and *falta de ar*, the *inspiração* cluster having been chosen by all of the groups. The finding of different conditions sharing clusters has previously been reported, suggesting that the sensations of dyspnea are mediated by at least some similar mechanisms in distinct diseases.[5,8,14]

In our sample of volunteers, the *fome de ar* cluster comprised a single descriptor, and only 3 individuals chose it as one of three terms that best described their respiratory sensations. The term also proved meaningless in a study conducted in Mexico, strongly suggesting that it has little or no linguistic significance in Latin America.[11]

When the translated descriptors were used, the *inspiração* cluster was the only cluster that was significantly associated with asthma and COPD. In contrast, heart failure was shown to be associated with the *inspiração* and *trabalho* clusters, whereas obesity was not significantly associated with any of the clusters. These results are in disagreement with those of other studies, in which each clinical condition was associated with a unique collection of clusters.[5,8,14] However, an analysis of the composition of the collections of clusters across studies shows that the associations between clusters and specific clinical conditions do not follow a homogeneous pattern. In addition, various studies have noted only the frequencies of the descriptors chosen and of the clusters formed, no mathematical attempts having been made to characterize, in a more precise manner, the role of the clusters obtained in the differential diagnosis of the conditions under study.[7,11,12] Nevertheless, our findings provide evidence that the interpretation of the patterns of clusters of dyspnea descriptors does not play an important role in the differential diagnosis of clinical conditions.

It is important to draw a parallel between the results obtained by employing dyspnea descriptors translated from English to Brazilian Portuguese and those obtained by employing descriptors developed from information collected from the Brazilian population, which were reported in a related article.[16] Four of the sentences that constituted the Brazilian Portuguese-language descriptors were practically the same as those that constituted the translated descriptors: *Eu tenho a sensação que estou sufocando*|*Eu sinto que estou sufocando*; *Eu sinto aperto no peito*|*Meu peito está apertado*; *Minha respiração fica rápida*|*Eu sinto que minha respiração está rápida*; and *Minha respiração fica pesada*|*Minha respiração é pesada*. One of the sentences (*Eu sinto falta de ar*) was identical in the two groups of descriptors. Of the seven clusters formed by employing the Brazilian Portuguese-language descriptors, five received names that were similar to those of the clusters obtained by using the translated descriptors. This was due to the fact that, although the words and phrases used were not exactly the same, the clusters that were formed had related meanings. That was the case for the Brazilian Portuguese-language clusters *sufoco*, *aperto*, *rápido*, *trabalho*|*inspiração*, and *falta de ar*. It is of note that the use of translated descriptors led to the individualization of the *trabalho* and *inspiração* clusters. Once again, this data set indicates that the ways in which different populations and cultures describe their sensations of dyspnea are directly related.

It is also of note that, for the translated descriptors, there were four significant associations between the clinical conditions under study and the clusters formed, whereas for the descriptors developed in Brazil, there were nine. Although neither set of descriptors allowed us to differentiate among the clinical conditions analyzed, the results strongly suggest that descriptors originally developed in the language of the country in which they are to be used are superior to simple translations of the descriptors that are available in the international literature.

As reported in a related study, the present study has a series of limitations, among which are the small number of conditions evaluated (only four) and the fact that the choices of dyspnea descriptors by the volunteers were based exclusively on their memory.[16] Had the interview regarding the perception of the symptom been conducted immediately after a dyspnea-inducing stimulus, such as a six-minute walk test, the results might have been different.

On the basis of the results obtained, we can conclude that the use of dyspnea

descriptors translated from those used in an English-language study led to the formation of distinct dyspnea descriptor clusters, which were somewhat similar to those obtained by applying a related questionnaire in individuals in the United States. The use of translated descriptors, however, was shown to be inferior to the use of a set of descriptors developed in Brazil regarding their ability to generate significant associations with the clinical conditions investigated.

Although there are many similarities among languages in terms of how dyspnea is described, the development of descriptors that are specific to a given culture seems to be the most appropriate approach.

References

1. Curley FJ. Dyspnea. In: Irwin RS, Curley FJ, Grossman RF, editors. Diagnosis and treatment of symptoms of the respiratory tract. Armonk: Futura Publishing Company; 1997. p. 55-115.
2. Dyspnea. Mechanisms, assessment, and management: a consensus statement. American Thoracic Society. Am J Respir Crit Care Med. 1999;159(1):321-40.
3. Martinez TY, Pereira CA, dos Santos ML, Ciconelli RM, Guimarães SM, Martinez JA. Evaluation of the short-form 36-item questionnaire to measure health-related quality of life in patients with idiopathic pulmonary fibrosis. Chest. 2000;117(6):1627-32.
4. Katsura H, Yamada K, Wakabayashi R, Kida K. The impact of dyspnoea and leg fatigue during exercise on health-related quality of life in patients with COPD. Respirology. 2005;10(4):485-90.
5. Simon PM, Schwartzstein RM, Weiss JW, Lahive K, Fencl V, Teghtsoonian M, et al. Distinguishable sensations of breathlessness induced in normal volunteers. Am Rev Respir Dis. 1989;140(4):1021-7.
6. Simon PM, Schwartzstein RM, Weiss JW, Fencl V, Teghtsoonian M, Weinberger SE. Distinguishable types of dyspnea in patients with shortness of breath. Am Rev Respir Dis. 1990;142(5):1009-14.
7. Elliott MW, Adams L, Cockcroft A, MacRae KD, Murphy K, Guz A. The language of breathlessness. Use of verbal descriptors by patients with cardiopulmonary disease. Am Rev Respir Dis. 1991;144(4):826-32.
8. Mahler DA, Harver A, Lentine T, Scott JA, Beck K, Schwartzstein RM. Descriptors of breathlessness in cardiorespiratory diseases. Am J Respir Crit Care Med. 1996;154(5):1357-63.
9. Manning HL, Schwartzstein RM. Pathophysiology of dyspnea. N Engl J Med. 1995;333(23):1547-53.
10. Wilcock A, Crosby V, Hughes A, Fielding K, Corcoran R, Tattersfield AE. Descriptors of breathlessness in patients with cancer and other cardiorespiratory diseases. J Pain Symptom Manage. 2002;23(3):182-9.
11. Vázquez-García JC, Balcázar-Cruz CA, Cervantes-Méndez G, Mejía-Alfaro R, Cossío-Alcántara J, Ramírez-Venegas A. Descriptors of breathlessness in Mexican Spanish [Article in Spanish]. Arch Bronconeumol. 2006;42(5):211-7.
12. Caroci Ade S, Lareau SC. Descriptors of dyspnea by patients with chronic obstructive pulmonary disease versus congestive heart failure. Heart Lung. 2004;33(2):102-10.
13. Hardie GE, Janson S, Gold WM, Carrieri-Kohlman V, Boushey HA. Ethnic differences: word descriptors used by African-American and white asthma patients during induced bronchoconstriction. Chest. 2000;117(4):935-43.
14. Harver A, Mahler DA, Schwartzstein RM, Baird JC. Descriptors of breathlessness in healthy individuals: distinct and separable constructs. Chest. 2000;118(3):679-90.
15. Mahler DA, Harver A. Do you speak the language of dyspnea? Chest. 2000;117(4):928-9.
16. Teixeira CA, Rodrigues Jr AL, Straccia LC, Vianna ES, Silva GA, Martinez JA. Dyspnea descriptors developed in Brazil: application in obese patients and in patients with cardiorespiratory diseases. J Bras Pneumol. 2011;37(4):446-54.
17. Ekman I, Boman K, Olofsson M, Aires N, Swedberg K. Gender makes a difference in the description of dyspnoea in patients with chronic heart failure. Eur J Cardiovasc Nurs. 2005;4(2):117-21.
18. Parshall MB. Psychometric characteristics of dyspnea descriptor ratings in emergency department patients with exacerbated chronic obstructive pulmonary disease. Res Nurs Health. 2002;25(5):331-44.
19. McKee PA, Castelli WP, McNamara PM, Kannel WB. The natural history of congestive heart failure: the Framingham study. N Engl J Med. 1971;285(26):1441-6.
20. Global Initiative for Chronic Obstructive Lung Disease –GOLD [homepage on the Internet]. Bethesda: Global Initiative for Chronic Obstructive Lung Disease. [cited 2011 Mar 9]. Global strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease. [Adobe Acrobat document, 117p.] Available from: http://www.goldcopd.org/uploads/users/files/GOLDReport_April112011.pdf
21. Stoller JK, Ferranti R, Feinstein AR. Further specification and evaluation of a new clinical index for dyspnea. Am Rev Respir Dis. 1986;134(6):1129-34.
22. Crapo RO, Morris AH, Clayton PD, Nixon CR. Lung volumes in healthy nonsmoking adults. Bull Eur Physiopathol Respir. 1982;18(3):419-25.
23. Dawson B, Trapp RG, editors. Basic and clinical biostatistics. Norwlak: Appleton & Lange; 1990.
24. Frei F. Análise de agrupamentos: Estudo metodológico e aplicações em epidemiologia. 1997 [Dissertation]. São Paulo: Universidade de São Paulo; 1998.

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