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Original Article

VALIDATION OF THE TEACHER'S HEALTH QUESTIONNAIRE FOR THE BRAZILIAN CONTEXT

VALIDAÇÃO DO QUESTIONÁRIO SAÚDE DOCENTE PARA O CONTEXTO BRASILEIRO

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RESUMO
O presente estudo apresenta a adaptação e validação transcultural do Questionário Saúde Docente (QSD) para o contexto brasileiro nas variáveis de bem-estar (satisfação e autoeficácia) e mal-estar (disfunções musculoesqueléticas, disfunções cognitivas, esgotamento e disfunções da voz). Foram realizadas distintas etapas para assegurar a qualidade da tradução e da adaptação do QSD no que se refere à equivalência semântica, idiomática, experiencial e conceitual entre os itens originais e traduzidos. A amostra final do estudo piloto foi constituída por 697 professores, sendo 168 do sexo masculino e 529 do feminino, com idades entre 18 e 52 anos, atuantes em 03 centros de Educação Infantil, 09 escolas do nível Ensino Fundamental de 1º ao 5º ano e 04 dos níveis Ensino Fundamental de 6º ao 9º ano e Ensino Médio. Para a análise da estabilidade temporal dos escores foi empregado o teste de Kappa e para a consistência interna das dimensões e da avaliação global do instrumento o teste de alfa de Cronbach, os quais apresentaram correlações satisfatórias. Como instrumento de medida, o questionário é considerado confiável para avaliar a saúde docente, além disso contém diretrizes para futuros estudos das variáveis associadas ao bem-estar e mal-estar de professores brasileiros.
Palavras-chave: Validação. Bem-estar. Mal-estar. Avaliação. Saúde docente.

ABSTRACT
The present study aimed at showing the cross-cultural adaptation and validation of the Spanish health questionnaire so-called *Cuestionario de Salud Docente* (CSD) for the Brazilian context with regard to the following variables: welfare (satisfaction and self-efficacy), and discomfort (musculoskeletal disorders, cognitive disorders, exhaustion and vocal cord disorders). Different steps were taken in order to ensure the quality of the translation and adaptation of the CSD concerning semantic, idiomatic, experiential and conceptual equivalence between the original items and the translated ones. The final sample of the pilot study consisted of 697 teachers, 168 men and 529 women, aged between 18 and 52 years who worked in 3 Early Childhood Education Centers, 9 Elementary Schools from the 1st to 5th grade, 04 Elementary Schools from the 6th to 9th grade, and 4 High Schools. Cohen's Kappa coefficient was used for assessing the temporal stability of the scores, and Cronbach's alpha test for the internal consistency of the dimensions and overall evaluation of the instrument, which showed a significant correlation. As a measuring instrument, the questionnaire is considered reliable to evaluate teacher's health, in addition to containing guidelines for further studies on welfare and discomfort variables of Brazilian teachers.
Keywords: Validation. Welfare. Discomfort. Evaluation. Teacher's Health.

Introduction

Assessing and monitoring the teacher's health has long been the subject of interest in the public domain with regard to the prevention of occupational risks[1,2]. The efficacy of this monitoring tends to increase as the assessment instruments improve in terms of methodology and is standardized.

Currently, investigations on the teacher's health are modeled to capture his/her self-perceived health in numerous studies on risk factors and their impact on professional performance[1,3,4]. However, in Brazil, there is still no instrument capable of objectively and specifically assessing the health risk indicators associated with teaching.

Self-perceived health, in spite of being a more subjective evaluation, is considered a valid indicator for the perception of both, the person's individual health status and that of the teaching staff. Although it might vary according to sociocultural experiences and individual

pedagogical concerns[4], self-perceived health has been shown to be strongly associated with objective measures of morbidity and use of health services.

Appropriate and specific evaluation instruments are needed for monitoring and controlling health. In this sense, the Health Perceptions Questionnaire (HPQ) is the most used instrument to monitor the individual and collective health status, which allows to obtain information about the subject's perception on his/her own health status based on the review of symptoms, thoughts, feelings and behavior[5,6].

However, considering Brazilian reality, there is no valid short form instrument that gathers a wide set of the teacher's health indicators, and the ones used are limited to symptoms resulting from stress or burnout dimensions, such as the Inventory of Stress Symptoms for Adults (ISSL)[7] and Maslach Burnout Inventory (MBI)[8], among others.

On the other hand, the Spanish questionnaire so-called *Cuestionario de Salud Docente* (CSD)[3], hereafter referred to as Teacher's Health Questionnaire (THQ), which was also validated for the Portuguese context[9], brings together items focused on the self-perception of the positive teaching experience and the presence of physical and psychological symptoms related to teaching occupational risks. It is noteworthy that the THQ offers advantages for being short, reliable and easy to be used to assess the teacher's health, including central aspects of the most relevant risks with regard to teaching and aspects of professional welfare, in addition to contributing to monitor in institutional terms.

Therefore, considering that having instruments to further assess the teacher's health is essential concerning Brazilian reality, the present study aimed at cross-culturally validating the Teacher's Health Questionnaire for Brazilian Portuguese.

Methods

Type of research and ethical aspects

This is a psychometric research approved by the Committee on Ethical Research with Humans at the Brazilian university referred to as *Universidade Estadual do Oeste do Paraná* (UNIOESTE), under opinion number 2.414.959.

Description of the Teacher's Health Questionnaire (original)

The Teacher's Health Questionnaire[3] of Spanish origin assesses the self-perception on the positive teaching experience and the presence of physical and psychological symptoms related to teaching occupational risks.

Three steps were taken in order to develop the original instrument. In the first phase, after a bibliographic review, information was triangulated with interviews applied to specialists in the area (teachers, school managers and researchers), so as to identify the items and dimensions of the instrument. In the second phase, 30 teachers answered the questionnaire and a qualitative assessment was carried out on the complexity, interest and adequacy of the items. After adjusting the items, the instrument consisted of 112 items distributed in the dimensions of the teacher's health by considering the physical, cognitive and emotional aspects (78 items), as well as the positive experience with regard to teaching (34 items). In the third phase, the instrument was applied to 335 teachers. The analysis of internal consistency and reliability of the answers enabled the selection of 70 items distributed according to the following subjects: exhaustion (7 items), vocal cords (6 items), general health status (15 items), cognitive status (8 items), emotional status (12 items), satisfaction (12 items) and self-efficacy (10 items). It is noteworthy that the seven themes showed adequate internal consistency ($\alpha > 0.70$)[3].

A total of 6208 teachers participated in psychometric analysis of the instrument. The discrimination analysis of the items was initially carried out, and 59 questions remained in this phase. After this procedure, the database was divided in two; the first half was used to perform

the data exploratory factor analysis, which reached acceptable Kaiser-Meyer-Olkin (KMO) and Bartlett's sphericity indexes. It is worth mentioning that in this phase 23 items reached acceptable factor loads, divided into six factors that explained 61.43% of the instrument. The items were named and distributed as follows: exhaustion (3 items), satisfaction (5 items), vocal cords disorders (3 items), musculoskeletal disorders (3 items), cognitive disorders (4 items), and self-efficacy (5 items)[3].

Confirmatory factor analysis was performed by considering the second half of the database. When taking the 23 items into account, the analysis showed a good fit of the six-factor model (x^2gl = 253; x^2 = 23744.07; p <0.001; CFI = 0.96; IFI = 0.96; GFI = 0.97; AGFI = 0.96; RMSEA – IC 90% = 0.04). The factorial invariance analyzes among different strata of the teachers showed acceptable results, when considering their performance and sex. Finally, the analysis of the internal consistency of the instrument dimensions was considered significant (α between 0.71 and 0.87)[3].

Therefore, the final version of the instrument[3] contemplates themes related to discomfort and welfare, consisted of 23 items distributed in six indicators. Self-efficacy and Satisfaction are the dimensions associated with welfare. The dimensions associated with discomfort are the following: Musculoskeletal Disorders, Cognitive Disorders, Exhaustion and Vocal Cord Disorders. In order to answer the instrument, the teacher uses a Five-point-like Likert Scale, that is, 1 – 'Strongly Disagree', 2 – 'Slightly disagree'; 3 – 'Neither agree or disagree', 4 – 'Slightly agree'; 5 – 'Strongly agree'.

Procedures for translation and cross-cultural adaptation of the instrument

Cultural, idiomatic, linguistic and contextual aspects concerning translation were considered so that the instrument cross-cultural adaptation was carried out. In this sense, the instrument underwent semantic translation, which was performed by two specialists in linguistics who translated the Spanish version questionnaire into Brazilian Portuguese. Considering the translation of the original Spanish version (Spain) and the Portuguese one (Brazil), the proficiency of both translators is highlighted, in addition to the fact that they were familiar with the associated cultures, which enabled greater cultural adjustment of the adaptation process[10].

After translating the two versions of the instrument, the synthesis process began with the aim of reaching a single version. Thus, the instrument translated versions went through evaluation, comparison and synthesis of their semantic, idiomatic, conceptual, linguistic and contextual discrepancies[11-13].

This phase involved three specialists from the Health and Education areas in charge of the research, who analyzed each item in particular, clarifying theoretical doubts, assisting in the decision on the best expressions to be used, and guiding the equivalence between the translated versions and the original instrument. The semantic validation phase aimed at verifying whether the items, instructions and response scale were understandable, in addition to ascertain if the terms of the items were adequate and the expressions corresponded to those used by the target audience. At that moment, the sample consisted of 50 teachers who worked in Elementary and High School, considering the spheres of public education, that is, state and municipal, and private one as well.

Back-translation was performed in order to verify the quality control of the instrument[11]. This process was used as a tool to identify ambiguous words in the target language by seeking to find inconsistencies or conceptual errors in the final version, when compared to the original one. In this phase, the instrument was translated by a third translator who was bilingual and native in the Spanish language and had not participated in the first translation phase. The translated version was sent to the authors of the original instrument, including explanations on the reasons why inserting synonymous terms in parentheses. An explanation on Brazilian

cultural characteristics and the significance of the accuracy of the items for the target audience was also carried out. The adjustments were approved by the authors of the original version.

Psychometric validation procedures

In this phase, the temporal stability of the scores, the confirmation of the theoretical model, the factorial invariance analysis among the different teaching strata, the evaluation of the construct adjustment, and the analysis of the instrument internal consistency were assessed.

In order to evaluate the temporal stability of the scores, the sample set with 718 teachers was used. The teachers who participated in this phase answered the instrument in two different moments with an interval from seven to fourteen days between the first and the second collection. Cohen's kappa coefficient was used for assessing the data on the score temporal stability, and the indexes were classified according to Cassepp-Borges, Balbinotti and Teodoro[14], which determine the following: indexes <0.00 are discordant; indexes between 0.00 and 0.19 represent almost no agreement; indexes between 0.20 and 0.39 mean little agreement; indexes between 0.40 and 0.59 represent moderate agreement; indexes between 0.60 and 0.79 mean substantial agreement; indexes between 0.80 and 1.00 represent almost perfect agreement. It is noteworthy that the questions that reached indexes equal to or greater than 0.60 according to Cohen's kappa coefficient were part of the process to confirm the theoretical model based on the Confirmatory Factor). Analysis (CFA) by using the Structural Equation Modeling (SEM

Initially, the sample analysis consisted of 718 teachers in order to perform the study psychometric evaluation. However, when identifying the existence of outliers based on Mahalanobis distance test, 21 teachers were excluded from the database. Thus, the subsequent confirmatory factor analyzes were carried out with 697 teachers, that is, 168 (24.1%) men and 529 (75.9%) women, aged between 18 and 52 years who worked in two municipalities in the western region of the State of Paraná - Brazil, with 18.3% of teachers from 3 Early Childhood Education centers, 25.4% from 9 Elementary Schools from the 1st to 5th grade, 43.5% from 4 Elementary Schools from 6th to 9th grade, and 12.8% from 4 High Schools, all of which are public schools. Regarding performance, 41.2% of the teachers had been teaching for over 20 years, 31.0% from 11 to 20 years, 16.1% from 6 to 10 years, and 11.7% for up to 5 years. The teachers' weekly workload was up to 20 hours for 21.4%; from 21 to 40 hours for 38.3%, and from 41 to 60 hours for 40.3% of the teachers with employment bond, 19.1% for temporary employees and 80.9% for the permanent staff.

The following cutoff points of the adjustment indexes[15] are the ones used in the confirmatory factor analysis model carried out based on the Structural Equation Modeling:

- **Chi-square/Degree of Freedom (x^2/gl):** an index less than 5 was considered acceptable;
- **Comparative Fit Index (CFI):** an index equal to or greater than 0.8 was considered acceptable;
- **Goodness of Fit Index (GFI):** an index equal to or greater than 0.8 was considered acceptable;
- **Tucker-Lewis Index (TLI):** an index equal to or greater than 0.8 was considered acceptable;
- **Parsimony Comparative Fit Index (PCFI):** an index equal to or greater than 0.6 was considered good;
- **Parsimony Goodness of Fit Index (PGFI):** an index equal to or greater than 0.9 was considered good;
- **Root Mean Square Error of Approximation – Confidence Interval of 90% (RMSEA – CI90%):** an index less than or equal to 0.1 was considered good.

It is worth mentioning that the Factor Loads of items above 0.40 were considered acceptable. On the other hand, the Modification Indexes (MI) were consulted when necessary in order to improve and define the final adjusted model[15].

The Chi-square (x^2) and Degree of Freedom (x^2gl) indexes of both, the original model and the model adjusted according to the procedure shown by Marôco[15] were compared to assess the adjusted model fit.

In addition, after establishing the final model of the confirmatory factor analysis, the internal consistency of the dimensions and the overall evaluation of the instrument were assessed by using Cronbach's alpha test. The sample in this phase consisted of 697 teachers, who had a normal distribution according to Mahalanobis distance test. The cut-off points adopted for evaluating Cronbach's alpha were as follows: above 0.90 - excellent, from 0.80 to 0.89 - good, from 0.70 to 0.79 - adequate, from 0.60 to 0,69 - weak, and below 0.59 - unacceptable[16].

Results

Translation and cross-cultural adaptation of the instrument

In the entire process of the instrument linguistic adaptation for Brazilian Portuguese, there was a need to change the wording for three items. Considering the process of cross-cultural adaptation of the instrument, a new version that was more appropriate to Brazilian culture was proposed for item 7, that is, '*After my working day, I feel powerless*', in which the term 'daily' was included referring to the whole day of work, since labor legislation in Brazil defines working day as being daily or weekly. Thus, the wording of the item was as follows: '*After my daily working day, I feel powerless*'.

Regarding the semantic validation with Elementary Education teachers, item 6 '*I enjoy my daily tasks*' was questioned four times about whether it portrayed the teacher's personal or professional context. Thus, after making an analysis, the team of experts decided to complement the question with the expression '*at work*'. In this case, the question was as follows: '*I enjoy my daily tasks at work*'.

For the final version of the instrument, which was tested after the process of cross-cultural adaptation and semantic validation, there was consensus between the authors of the original instrument[3] and the group of experts on the need to adapt item 8 '*I feel aphonic or dysphonic*'. Thus, it was changed to '*I feel aphonic or dysphonic (loss or weakening of the voice*)' due to the relevance shown by experts in the sense of clarifying the terms aphonic and dysphonic in the Brazilian context.

Psychometric Validation

When assessing the temporal stability of the scores, it was seen that all questions were significant ($p < 0.001$) and had acceptable indexes; two items showed an almost perfect classification, and 21 items were classified as substantial[14] (between $k = 0.67$ and $k = 0.86$), according to Table 1.

Table 1. Agreement indexes for assessing the temporal stability of the scores of the items included in the Teacher's Health Questionnaire - Brazilian Version

Dimensions	Items	Kappa	Classification
Self-efficacy	1 - I have the ability to be creative and agile in my teaching activity.	0.79*	Substantial
	4 - I feel capable of making decisions	0.75*	Substantial
	13 - I am satisfied with the way I do things	0.71*	Substantial
	19 - I am satisfied with my contribution to school	0.79*	Substantial
	22 - When I finish a task, I am often happy with the results	0.76*	Substantial
Musculoskeletal disorders	2 - My back hurts due to the activity I do.	0.75*	Substantial
	5 - I have pain on my lower back.	0.71*	Substantial
	21 - I often have pain on the back of my neck	0.68*	Substantial
Cognitive disorders	3 - I have lacked concentration to perform tasks for some time	0.73*	Substantial
	9 – I sometimes have the impression of becoming obsessed with subjects, which at other moments I could solve without difficulties.	0.68*	Substantial
	11 - There are times when I get more distracted than usual	0.68*	Substantial
	20 - Lately, I have had lack of memory	0.67*	Substantial
Satisfaction	6 - I enjoy my daily tasks at work.	0.71*	Substantial
	10 - I feel good at work.	0.69*	Substantial
	15 - When I wake up, I feel like going to work	0.76*	Substantial
	18 - If I could, I would choose to be a teacher again	0.86*	Almost perfect
	23 - I am very happy at my work	0.82*	Almost perfect
Exhaustion	7 - After my daily working day, I feel powerless	0.69*	Substantial
	12 - I feel physically exhausted at the end of my working day	0.72*	Substantial
	17 – I get very tired at work.	0.71*	Substantial
Vocal cord disorders	8 - I feel aphonic or dysphonic (loss or weakening of the voice)	0.69*	Substantial
	14 - My voice gets tired easily	0.77*	Substantial
	16 - I feel discomfort on my neck after a day at work	0.70*	Substantial

Note: *p<0,001
Source: The authors

When evaluating the original model of the instrument confirmatory factor analysis (x^2gl = 215; x^2 = 1340.37; p <0.001; x^2/gl = 6.23; CFI = 0.86; GFI = 0.87; TLI = 0.84; PCFI = 0.73; PGFI = 0.68; RMSEA - 90% CI = 0.09), as well as the original model after excluding the participants considered as outliers (x^2gl = 215; x^2 = 1495.34; p <0.001; x^2/gl = 6.96; CFI = 0.84; GFI = 0.86; TLI = 0.82; PCFI = 0.72; PGFI = 0.67; RMSEA - 90% CI = 0.09), it was seen that only the x^2/gl index showed inadequate values, according to the cutoff points adopted in this study[15].

When considering the MI established in the analysis, without the outliers, it was seen that item 16 ('*I feel discomfort on my neck after a day at work*') was extremely correlated with the Musculoskeletal Disorders (MI = 224.25), but not related to the dimension to which it referred, that is, Vocal Cord Disorders. In addition, there were correlations between the errors of items 1 ('*I have the ability to be creative and agile in my teaching activity*') and 4 ('*I feel capable of making decisions*') (MI = 42.23) and 22 ('*When I finish a task, I am often happy with the results*') and 23 ('*I am very happy at my work*') (MI = 21.05). Thus, after performing the correlations suggested by the modification indexes in the analysis, as well as excluding question 16 due to the fact that it had no association with its respective dimension in the original

instrument[3], the adjustment indexes showed acceptable results (x^2gl = 192; x^2=808.97; p <0.001; x^2/gl=4.21; CFI=0.92; GFI=0.90; TLI=0.90; PCFI=0.76; PGFI=0.69; RMSEA - CI90%=0,07) (Figure 1). Moreover, the factorial load indexes, which showed the correlation level between the dimension and the item, varied between 0.44 (item 1) and 0.92 (item 12), which are considered acceptable[15].

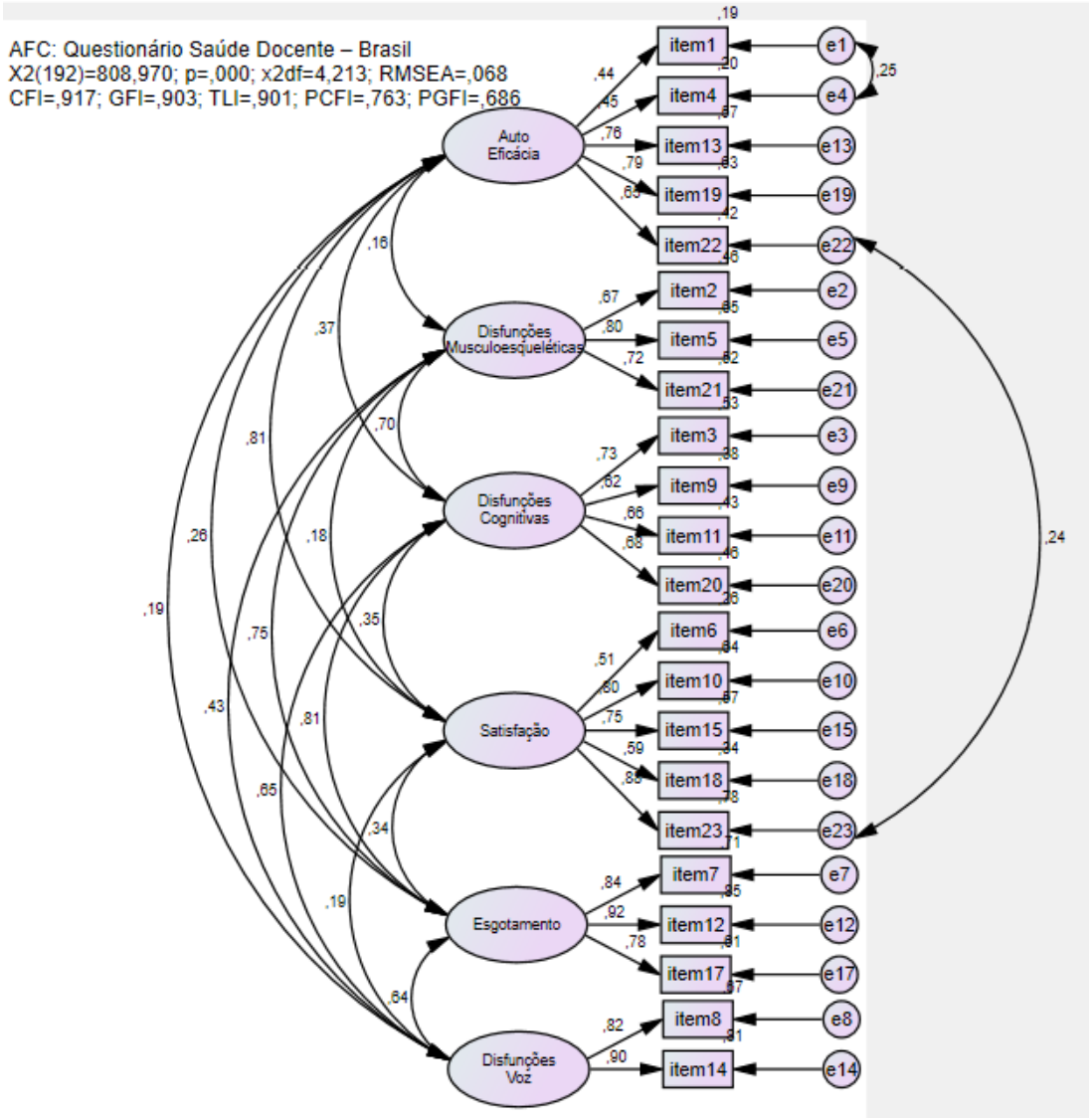

Figure 1. Final model of the confirmatory factor analysis of the Teacher's Health Questionnaire - Brazilian Version

Source: the authors (2020)

When testing the final model by considering the variables Performance, Sex and Age group (Table 2), it was found that only the evaluations applied to Early Childhood Education teachers (GFI=0.78; TLI=0.79; PGFI=0.59) and High School teachers (GFI=0.78; PGFI=0.59) did not show adequate results, although the scores were close to those recommended in the literature[15].

Table 2. Assessement of the Final Model of the Teacher's Health Questionnaire - Brazilian Version, considering the variables: Performance, Sex and Age Group

Categories	X^2	p	X^2df	RMSEA	CFI	GFI	TLI	PCFI	PGFI
Early Childhood Education	479.33	<0.001	2.50	0.10	0.83	0.78	0.79	0.69	0.59
Elementary School	475.37	<0.001	2.48	0.09	0.84	0.81	0.81	0.70	0.61
Elementary School and High School	389.02	<0.001	2.02	0.06	0.94	0.90	0.92	0.78	0.69
High School	299.68	<0.001	1.56	0.08	0.90	0.78	0.88	0.75	0.59
Men	324.71	<0.001	1.69	0.06	0.92	0.86	0.91	0.77	0.65
Women	622.54	<0.001	3.24	0.06	0.92	0.91	0.91	0.77	0.69
Up to 29 years old	317.96	<0.001	1.66	0.06	0.94	0.88	0.93	0.78	0.67
From 30 to 39 years old	443.78	<0.001	2.31	0.07	0.91	0.87	0.89	0.75	0.66
40 years old or over	398.20	<0.001	2.07	0.06	0.92	0.87	0.91	0.77	0.66

Source: Authors

Considering the analysis of the adjustment quality of the study general sample, it was found that the difference between the index x^2 of the original model and the simplified model was 531.398, and that of the x^2gl was 23. It is noteworthy that the value of x^2 when considering x^2gl 23 is equal to 49.728 (p=0.001), that is, less than 531.398. Thus, it was evident that the simplified final model had a better adjustment than the structure of the original model[15].

Finally, when assessing the internal consistency of the dimensions and the global instrument, it was seen that the indexes regarding the analysis of the dimensions showed scores considered good and adequate. It is worth mentioning that in the overall evaluation of the instrument, the index was considered good[16] (Table 3).

Table 3. Internal consistency of the dimensions and overall evaluation of the Teacher's Health Questionnaire - Brazilian Version

Dimensions	Cronbach's Alpha	Classification
Self-efficacy	0.763	Adequate
Musculoskeletal Disorders	0.772	Adequate
Cognitive Disorders	0.765	Adequate
Satisfaction	0.813	Good
Exhaustion	0.882	Good
Vocal Cord Disorders	0.848	Good
Overall Evaluation	0.891	Good

Source: Authors

Discussion

The present study aimed at validating the Teacher's Health Questionnaire[3] for the Brazilian context. After the analysis, it was seen that the cross-culturally adapted instrument showed acceptable psychometric properties to assess the teacher's health. It is noteworthy that the instrument lost only one item, which indicates that the Brazilian version showed good adjustment and high similarity with the Spanish original version, which enables to carry out a direct comparison of transnational studies by using the same instrument[3] and the same methodology[14].

The internal consistency of the instrument had acceptable indexes[15], which showed that the items aggregated in their respective dimensions and the instrument overall evaluation were consistent on the aspects related to the theme investigated, that is, the teacher's health.

In order to prove both, the evidence about the semantic equivalence of the items and the psychometric evidence of the instrument new version for the Brazilian reality, the guidelines for translation and adaptation of tests were observed[10-13]. In this sense, it was found that the instrument needed small adaptations in a reduced number of questions. Thus, a version in

agreement with the authors of the original instrument was achieved. The positive interaction in adjusting terms between the authors of the original instrument and the team of experts for the final version is emphasized, which maintained a balanced treatment of linguistic, cultural, contextual and scientific considerations and coherence with the target language fluency.

When considering the temporal stability of the instrument items, it was found that all questions achieved acceptable reproducibility, with higher scores equal to or greater than k=0.67, and 8.78% of the questions showed almost perfect agreement scores[14]. Thus, it is seen that the understanding of the instrument is adequate, which means that the respondent does not confuse the statement, which highlights the precision of the question[17].

The exclusion of item 16 was necessary for showing a conflict of interpretation. The occurrence focused on neck discomfort after a day at work. Originally, the item was associated with the dimension 'Vocal cord disorders'. However, the modification indexes showed that there was a high correlation between the item and the dimension 'Musculoskeletal Disorders'. In fact, discomfort on the posterior region of the neck is not a rare occurrence and, at first, it can be associated with musculoskeletal problems[18]. However, the neck is not limited to the posterior region. When the anterior region is affected, the discomfort may be associated with problems in the vocal track[19]. The indication of this occurrence in the original instrument did not distinguish these elements accordingly. In this sense, it is suggested that further studies on the instrument validation specify in such an item that the issue deals with neck discomfort during a working day, which can lead to voice disorders.

Regarding the correlations between the questions, it was seen that the errors in items 1 and 4 corresponded to the 'Self-efficacy' domain that dealt with being creative, agile and making decisions. An expectation of personal efficacy is related to the subject's conviction that he/she can successfully perform the behavior required to produce the results. Self-efficacy shall be the basis of expectations with regard to results, so the teacher who considers himself/herself more competent, tends to perceive greater control over the results that can be achieved in the teaching and learning processes. In fact, personal efficacy seems to be the basis of the teacher's intrinsic motivation, since this motivation is directly linked to self-perceived competence[20].

The correlation between items 22 and 23, which addressed the dimensions 'Self-efficacy' and 'Satisfaction', is regarded to the fact of the teacher feeling happy with the results achieved at the end of a working day and being happy at work. Although the dimensions address different subjects, it is emphasized that there is a correlation between them, and the perception of having done a good task is associated with work satisfaction[21], feeling physical and psychological welfare in the profession and, having a good quality in interpersonal relationships[22]. Positive self-efficacy has an influence on professional achievement (dimension linked to Burnout Syndrome), which, consequently, can have a positive influence on job satisfaction[23].

Finally, the adjustment indexes of the model considering the different variables, that is, sex, age groups and performance (Elementary School and Elementary and High School) showed acceptable results. On the other hand, teachers who worked only in Early Childhood Education and High School had GFI, PGFI and TLI indexes close to the cutoff points stipulated in the study. Regarding High School teachers, it was seen that such a situation is likely to be associated with the smaller size of the subsample, which interferes with the quality of data adjustment[15]. The Early Childhood Education indexes, in addition to the smaller size of the subsample, might be related to the characteristics of the instrument questions, which had a limited correlation with the work demands of these teachers, who have greater proximity to students, which facilitates control and can favor the prevention of emotional exhaustion[24].

Conclusions

The Brazilian Version of the Teachers' Health Questionnaire showed acceptable psychometric validity as a measuring short form instrument for a wide set of the teacher's health indicators in order to guide the assessment and prevent occupational health risks.

However, the detailed analyzes showed that when considering the teachers' performance, Early Childhood Education and High School reached indexes close to the acceptable ones recommended in the literature in the area of psychometrics. Therefore, it is suggested that further studies on the evaluation of an instrument are carried out by including more robust samples for these subgroups.

The Brazilian Version of the Teachers' Health Questionnaire consisted of 22 questions distributed in six dimensions, including two associated with welfare (Satisfaction and Self-efficacy) and four associated with discomfort (Musculoskeletal Disorders, Cognitive Disorders, Exhaustion and Vocal Cord Disorders). Finally, the instrument was considered reliable for assessing the Brazilian teachers' health on topics related to welfare and discomfort.

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Annex

Teachers' Health Questionnaire – Brazilian Version

Below you will find statements about **your work and health**. You must assess the extent to which each statement expresses **your experience in the past few months** and answer the questions by using the following scale. Answer the instrument considering your degree of Disagreement/Agreement on the statements listed below:

Strongly Disagree	Slightly Disagree	Neither agree or Disagree	Slightly Agree	Strongly Agree
1	2	3	4	5

Teachers' Health Questionnaire – Brazilian Version	Strongly Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Strongly Agree
1. I have the ability to be creative and agile in my teaching activity	1	2	3	4	5
2. My back hurts due to the activity I do	1	2	3	4	5
3. I have lacked concentration to perform tasks for some time	1	2	3	4	5
4. I feel capable of making decisions	1	2	3	4	5
5. I have pain on my lower back	1	2	3	4	5
6. I enjoy my daily tasks at work	1	2	3	4	5
7. After my daily working day, I feel powerless	1	2	3	4	5
8. I feel aphonic or dysphonic (loss or weakening of the voice)	1	2	3	4	5
9. Sometimes I have the impression of becoming obsessed with issues, which at other times, I could solve without difficulty	1	2	3	4	5
10. I feel good at work	1	2	3	4	5
11. There are times when I get more distracted than usual	1	2	3	4	5
12. I feel physically exhausted at the end of my working day	1	2	3	4	5
13. I am satisfied with the way I do things	1	2	3	4	5
14. My voice gets tired easily	1	2	3	4	5
15. When I wake up, I feel like going to work	1	2	3	4	5
16. I get tired at work	1	2	3	4	5
17. If I could, I would choose to be a teacher again	1	2	3	4	5
18. I am satisfied with my contribution to school	1	2	3	4	5
19. Lately, I have had lack of memory	1	2	3	4	5
20. I often have pain on the back of my neck	1	2	3	4	5
21. When I finish work, I am often happy with the results	1	2	3	4	5
22. I am very happy at my work	1	2	3	4	5

Suggestion for assessing the instrument: Teachers' Health Questionnaire - Brazilian Version

Initially, inverting the scores of the items in the Self-efficacy and Satisfaction dimensions is needed so as to standardize the analysis process. Thus, score '1' is modified to '5'; score '2' is modified to '4, score '4' is modified to '2', and score '5' is modified to '1'. It should be noted that score '3' must not be modified.

The questions that make up each dimension of the Brazilian Version of the Teachers' Health Questionnaire are as follows:

- **Self-efficacy:** 1, 4, 13, 18 e 21
- **Satisfaction:** 6, 10, 15, 17 e 22
- **Musculoskeletal Disorders:** 2, 5 e 20
- **Cognitive Disorders:** 3, 9, 11 e 19
- **Exhaustion:** 7, 12 e 16
- **Vocal Cord Ddisorders:** 8 e 14

In order to determine the index of each dimension, add the scores of each question and then divide the sum score according to the number of questions in each dimension.

To determine the overall index of the teacher's health, add all the index dimensions and then divide it by 6, which corresponds to the number of the instrument dimensions.

After this procedure, using the cut-off points is possible to classify the dimension indexes and the overall evaluation of the teacher's health, which are as follows:

- **Excellent:** 1.00 a 1.50;
- **Good:** 1.51 a 2.50;
- **Regular:** 2.51 a 3.50;
- **Bad:** 3.51 a 4.50;
- **Extremely bad:** 4.51 a 5.00.