Validation of the Health Literacy Questionnaire (HLQ) to brazilian portuguese

Validação do *Health Literacy Questionnaire* (HLQ) para o português brasileiro

Validación del *Health Literacy Questionnaire* (HLQ) al portugués brasileño

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Abstract

Objective: To validate the health literacy assessment instrument Health Literacy Questionnaire to Brazilian Portuguese.

Methods: We used the protocol established by the original authors of the instrument for transcultural adaptation and validation of the psychometric properties of the Brazilian version of the Health Literacy Questionnaire (HLQ-Br). The HLQ-Br was answered by 794 adults from three regions of Brazil. Confirmatory Factor Analysis was performed by means of the Diagonally Weighted Least Squares and reliability was verified by Cronbach's Alpha and Composite Reliability indicators.

Results: Cognitive evaluation of the HLQ-Br showed that the items of the instrument were easily understood by the participants. The confirmatory analysis presented satisfactory fit indices: χ2WLSMV (866 df) = 1698.53, p <0.0001; CFI = 0.978; TLI = 0.976, and RMSEA = 0.035 [0.032; 0.037, 90%CI]. Cronbach's Alpha and Composite Reliability > 0.76 on eight of the nine scales of the instrument.

Conclusion: The HLQ-Br presented equivalence to the original version and satisfactory psychometric properties. It can be applied in the evaluation of Brazilian population HL in clinical practice, teaching and research. The use of HLQ-Br in health practices can aid in the incorporation of health literacy into health care practices in Brazil.

Resumo

Objetivo: Validar o instrumento de avaliação do letramento em saúde *Health Literacy Questionnaire* para o português brasileiro.

Métodos: Para a adaptação transcultural e validação das propriedades psicométricas da versão brasileira do *Health Literacy Questionnaire* (HLQ-Br), foi utilizado o protocolo estabelecido pelos autores do instrumento original. O HLQ-Br foi respondido por 794 adultos de três regiões do Brasil. A Análise Fatorial Confirmatória foi realizada por meio do *Diagonally Weighted Least Squares* e a confiabilidade foi verificada pelos indicadores alfa de *Cronbach* e confiabilidade composta.

Resultados: A avaliação cognitiva do HLQ-Br mostrou que os itens do instrumento foram facilmente compreendidos pelos participantes. A análise confirmatória apresentou índices de ajuste satisfatórios: χ2WLSMV (866 GL) = 1698,53, p<0,0001; CFI = 0,978; TLI = 0,976 e RMSEA = 0,035 [0,032; 0,037, IC de 90%]. O alfa de *Cronbach* e confiabilidade composta foram >0,76 em oito das nove escalas do instrumento.

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Conclusão: O HLQ-Br apresentou equivalência com a versão original e propriedades psicométricas satisfatórias. Pode ser aplicado para avaliar o letramento em saúde da população brasileira na prática clínica, ensino e pesquisa. O uso do HLQ-Br nas práticas de saúde pode auxiliar a incorporar o letramento em saúde nas práticas de saúde no Brasil.

Resumen

Objetivo: Validar el instrumento de evaluación del nivel de conocimientos en salud *Health Literacy Questionnaire* al portugués brasileño.

Métodos: Para la adaptación transcultural y validación de las propiedades psicométricas de la versión brasileña del *Health Literacy Questionnaire* (HLQ-Br), se utilizó el protocolo establecido por los autores del instrumento original. El HLQ-Br fue respondido por 794 adultos de tres regiones de Brasil. El análisis factorial confirmatorio fue realizado mediante el *Diagonally Weighted Least Squares* y la fiabilidad fue verificada por el indicador alfa de Cronbach y fiabilidad compuesta.

Resultados: La evaluación cognitiva del HLQ-Br demostró que los ítems del instrumento fueron fácilmente comprendidos por los participantes. El análisis confirmatorio presentó índices de ajustes satisfactorios: χ2WLSMV (866 GL) = 1698,53, p<0,0001; CFI = 0,978; TLI = 0,976 y RMSEA = 0,035 [0,032; 0,037, IC de 90 %]. El alfa de Cronbach y la fiabilidad compuesta fueron >0,76 en ocho de las nueve escalas del instrumento.

Conclusión: El HLQ-Br presentó equivalencia con la versión original y propiedades psicométricas satisfactorias. Puede aplicarse para evaluar el nivel de conocimientos en salud de la población brasileña en la práctica clínica, educación e investigación. El uso del HLQ-Br en las prácticas de salud puede ayudar a incorporar la instrucción en salud en las prácticas sanitarias en Brasil.

Introduction

There is no single definition for health literacy (HL), but searching consensual conceptualization the World Health Organization defines HL as the "cognitive and social skills witch determine the motivation and ability of individuals to gain acess to, understand and use information in ways witch promote and maintain good health".[1] HL has been indicated as an important determinant of health, since low scores are associated with worse health outcomes, such as non-compliance with medication; low use of health promotion and prevention services, and also higher rates of hospital readmissions.[2] Therefore, health literacy is an important factor in ensuring significant health outcomes; so we need to know and understand it to improve health promotion and reduce health inequalites.[3]

Health literacy is still little explored in the context on health practices and management in Brazil. There are no national data estimating the condition of health literacy of the Brazilian population or even public health policies to promote health literacy in the country. Such fact is, in part, the result of the few validated instruments available to measure this construct. Moreover, they all focus on the functional aspect of health literacy. It is necessary to determine an instrument that can execute this evaluation in Brazil.

The literature provides several other instruments to measure HL.[4] However, the measurement is, often, limited to evaluating the cognitive skills of reading and numeracy, disregarding others aspects of HL that enable individuals and communities to be responsible for their health condition.[4]

In order to fill the gap of instruments that really explored the multidimensionality of HL, multidimensional instruments were prepared such as the Health Literacy Survey-EU, in Europe[5] and the Health Literacy Questionnaire (HLQ) in Australia.[6]

The HLQ is an instrument widely used to measure HL, which has been translated to and validated in over 15 languages with excellent results in validity and reliability analyses.[7,8] The HLQ was prepared based on the health literacy definition proposed by the World Health Organization associated with the method of "validity-oriented approach".[9] Health administrators, health professionals and health users of the Australian health system were invited to bring their HL experiences to workshops. These ideas were organized into clusters, analyzed and grouped into a "conceptual map" of HL. The statements and clusters formed the basis of the questions (items) and of the latent variables (domains/scales) of the questionnaire.[6]

The instrument is composed of nine scales that can measure the access to and the use of information on health. It also enables the operationalization of the theoretical model of health literacy proposed by Nutbeam, considered dominant approach in public health.[10] This is a multilevel approach that determines three health literacy levels: functional health literacy; interactive health literacy and

critical health literacy.[11] This model reflects the differences related to the necessary skills to obtain and use information, so they progressively lead to greater autonomy and personal empowerment in health-related decision-making.[11]

Considering that the HLQ is an instrument internationally recognized by its methodological robustness and major clinical applicability, it is believed that it can be an instrument that enables evaluating the Brazilian population's health literacy condition and can aid administrators in health-related decision-making. In addition, if the instrument can measure health literacy in countries with diverse sociocultural contexts, including in developing countries such as Brazil and diverse models of organization of health systems, it will strengthen studies in this field of knowledge. This study aimed to validate the health literacy assessment instrument Health Literacy Questionnaire (HLQ) to Brazilian Portuguese, which was nominated HLQ-Br.

Methods

This study was previously authorized by the authors of the original Health Literacy Questionnaire - HLQ[6] and approved by the Human Research Ethics Committee of the Clinical Hospital, Federal University of Goiás (CAEE: 1733605/2017). Request for use of the HLQ-Br instrument from this validation must be conducted through e-mail hl-info@swin.edu.au.

Cross-cultural Adaptation

The translation process followed the protocol established by the Australian authors of the instrument.[12] The protocol includes the following phases: translation by professionals with experience in the transcultural translation and adaptation process (Brazilian translators, fluent in English); blind back translation (natives in the English language, fluent in Brazilian Portuguese); each translated item was rigorously examined by the group of researchers. After this process, a translation consensus meeting was held with the presence of the translation and back translation team, the author of the questionnaire and methodological translation process, as well as the researchers. It was confirmed that the items of the Brazilian version were semantically equivalent to those of the original instrument in English; that the translated items were potentially appropriate for people with the most diverse language skills and experiences in accessing, understanding and using health information and services.

Cognitive Validation

Subsequently, the level of comprehension and cognitive equivalence of the HLQ version transculturally adapted to Brazilian Portuguese was tested through cognitive interviews with 60 people from the centers participating in the study, with the intention of observing the difficulties presented by participants in answering the items. For this study we used the inclusion criteria to establish a sample. When the participants indicated some difficulty, the interviewer asked: "What were you thinking while you answered this question?" This process elucidated the cognition behind the answers. Moreover, another question was asked: "Why did you select this answer option?" The conclusion of this step produced the final Brazilian version of the Health Literacy Questionnaire or HLQ-Br.

Psychometrics Properties Validation

This study included 794 users of the Brazilian public health system in three of the five geographic regions of Brazil. Data were collected between March and December 2017 in five different health services, two of which provide primary health prevention and promotion services to the general population and the others provide medium and high-complexity health services. The selection of the health institution was made considering the health literacy expertise of local researchers, besides the users' chronic health conditions.

Each health institution selected a target group of users based on each type of service:

- Family Health Unit in Aparecida de Goiânia, state of Goiás => 150 participants;
- Family Health Unit in Piracicaba, state of São Paulo => 92 participants;
- Ambulatory care for patients with chronic renal disease in pre-dialysis treatment of the Clinical

Hospital of the Federal University of Minas Gerais, Belo Horizonte, state of Minas Gerais => 155 participants;
- Ambulatory care for patients with systemic arterial hypertension of the Clinical Hospital of the Federal University of Goiás, Goiânia, state of Goiás => 148 participants;
- Ambulatory care for cancer patients of the Integrated Regional Center of Oncology of Fortaleza, state of Ceará => 249 participants.

Data were collected in each institution through individual interviews conducted by members of the study team, following the protocols established by the Australian authors of the HLQ.[6] Selection criteria were being aged at least 18 years; being a user of health services or being present at the health units at the time of data collection.

Instruments

The Health Literacy Questionnaire - HLQ is a multidimensional instrument that can be self-administered or applied through interviews.[6] It contains 44 items arranged in nine scales:

1. Feeling understood and supported by healthcare providers (four items)
2. Having sufficient information to manage my health (four items)
3. Actively managing my health (five items)
4. Social support for health (five items)
5. Appraisal of health information (five items)
6. Ability to actively engage with healthcare providers (five items)
7. Navigating the healthcare system (six items)
8. Ability to find good health information (five items)
9. Understand health information enough to know what to do (five items)

The instrument is divided into two parts and the first part (scales one to five) has four points on a Likert scale ranging from "totally disagree (1)" to "totally agree (4)". In the second part (scales six to nine) the answers range from "always difficult (1)" to "always easy (5)".

In addition to the HLQ Brazilian version we used a sociodemographic characterization instrument (age, sex, schooling, personal and household income, work situation and family situation) and health conditions of participants (presence or absence of health problem).

Statistical analysis

The sociodemographic characterization and the health conditions of the participants are presented using frequency, mean, and standard deviation. In order to determine the degree to which the HLQ Brazilian version satisfied the same structure of the original model, Confirmatory Factor Analysis (CFA) was performed using the Diagonally Weighted Least Squares method, (DSWLS). This method is better applicable for factor analysis of ordinal data, since it produces more precise and invariant estimates.[13]

The goodness of fit to the original model was evaluated using the Chi-Square ratio indices by degrees of freedom (χ^2/G.L); Comparative Fit Index (CFI); Tucker-Lewis Index (TLI) and Root Mean Square Error of Approximation (RMSEA), in addition to the p-value to verify if the RMSEA was statistically greater than 0.05.

For the good fit to the model it is expected that χ^2/G.L is less than 3;[14] that the value of CFI is greater than 0.95;[15] that the TLI is greater than 0.95[16] and that the RMSEA is less than 0.10 (ideal is below 0.05).[17]

In order to verify reliability Cronbach's alpha and composite reliability indicators were used, which should present values above 0.70 as indication of ideal reliability or values above 0.60 in the case of exploratory research.[18]

Convergent validity was evaluated by the criterion of Average Variance Extracted – AVE,[19] which represents the average percentage of variance shared between the latent construct and its items. This criterion guarantees convergent validity for AVE values above 50%[20] or 40% in the case of exploratory research.[21]

For the discriminant validity the cross-factor loading method was used.[22] By the cross-factor loadings criterion, discriminant validity is reached when the factor loading of the item is higher than all its cross-factor loadings. The dimensionality of the constructs was evaluated using Kaiser criteri-

on[23] that evaluates if the version adapted to the new language presents the same quantity of dimensions of the construct of the original instrument.

Results

Cross-cultural adaptation

Changes were necessary in few items in the Brazilian pre-final version of the HLQ. They were related to the replacement of words/expressions that was discussed with the author of the instrument, regarding the semantic equivalence with the English language and cultural adaptation to the Brazilian context. For better cultural adaptation the term Healthcare was adapted sometimes as a synonym of *health services* (*serviços de saúde*) or as *healthcare* (*atendimento*), according to the intentionality of the scale item.

Cognitive test

In general, the items of the Brazilian pre-final version of the HLQ were easy to understand. Only the item five (5) of Part 2 - "*Confidently fill medical forms in the correct way",* initially translated as "*Preencher formulários médicos corretamente*" was changed. In this item, the interviewees questioned: "What are these medical forms?", or said "I've never had to fill any, so I don't know how to answer you". To ensure greater clarity the item was rewritten and submitted to the author of the original instrument, who accepted and authorized the change in the final version of the HLQ-Br to *"Preencher corretamente formulários com informações sobre sua saúde*".

Sociodemographic characteristics and health conditions

The sociodemographic characteristics and health conditions of the 794 participants in the HLQ-Br validation process are described in table 1. The participants' ages ranged from 18 to 94 years and more than 50% of them had less than nine years of schooling. Household income of up to two minimum salaries was prevalent and most of them lived with someone else. The most frequent health conditions included arterial hypertension and cancer.

Table 1. Sociodemographic and health characteristics of 794 participants of the validation of the Brazilian version of the Health Literacy Questionnaire (HLQ-Br)

Characteristics	n (%)
Sex	
Female	536(67.51)
Age in years	
Mean ± SD	52.40 ±17.59
Age group (years)	
18-40	208(26.20)
41-53	192(24.18)
54-66	204(25.70)
>66	190(23.92)
Cohabitation	
Lives with someone	706(89.48)
Years of education	
No schooling	70(8.81)
1-3	121(15.24)
4-8	217 27.32)
9	40(5.03)
10-11	126 15.90)
≥ 12	220 27.70)
Household income (R$ - Real) *	
0- 937	210(26.45)
938 - 1874	287(36.15)
1875 - 2811	140(17.63)
> 2812	157(19.77)
Region of the country	
Midwest	299(37.66)
Northeast	250(31.49)
Southeast	245(30.85)
Private health insurance plan	
No	644(81.10)
Health condition	
Hypertension	230(29.00)
Oncology	179(22.50)
Chronic renal	157(19.80)
Healthy	118(14.90)
Hypertension and Diabetes	75(9.40)
Diabetes	20(2.50)
Others	15(1.90)

U$ 1 Dollar = R$ 3,89 Reals

Psychometric Properties of the HLQ - Br

Confirmatory analysis (CFC) using the Diagonally Weighted Least Squares method explored the internal structure of the Brazilian version of the HLQ according to the structure of the original HLQ predefined. The HLQ - Br presented satisfactory fit indices: χ2WLSMV (866 df) =1698.53; p<0.0001; CFI=0.978; TLI=0.976, and RMSEA=0.035 [0.032; 0.037, 90%CI].

The factor loadings of the HLQ - Br items ranged from 0.31 to 0.75 (Table 2). Four items showed factor loading below 0.5:

Table 2. Psychometric properties of the Brazilian version of the Health Literacy Questionnaire (HLQ-Br)

Scale/ Question	Factor loading	M.C.L.[1]	Cronbach's Alpha / Composite Reliability	Dim[2]	AVE[3]
PART 1					
1. Feeling understood and supported by healthcare providers			0.77 / 0.77	1	0.46
I have at least one healthcare provider who…	0.58	0.42			
I have at least one healthcare provider I can…	0.64	0.35			
I have the healthcare providers I need…	0.72	0.46			
I can rely on at least one…	0.77	0.46			
2. Having sufficient information to manage my health			0.77 / 0.77	1	0.46
I feel I have good information about health…	0.56	0.40			
I have enough information to help me deal…	0.72	0.44			
I am sure I have all the information I…	0.66	0.39			
I have all the information I need to	0.76	0.46			
3. Actively managing my health			0.66 / 0.67	1	0.30
I spend quite a lot of time actively managing…	0.31	0.26			
I make plans for what I need to do to be…	0.62	0.40			
Despite other things in my life, I make time…	0.57	0.33			
I set my own goals about health and fitness	0.57	0.36			
There are things that I do regularly…	0.60	0.35			
4. Social support for health			0.77 / 0.78	1	0.42
I can get access to several people who…	0.76	0.38			
When I feel ill, the people around me really…	0.60	0.30			
If I need help, I have plenty of people I…	0.75	0.36			
I have at least one person…	0.40	0.23			
5. Appraisal of health information			0.76 / 0.76	1	0.39
I compare health information from different	0.47	0.33			
When I see new information about health, I…	0.62	0.37			
I always compare health information from…	0.60	0.39			
I know how to find out if the health…	0.73	0.48			
I ask healthcare providers about the quality…	0.66	0.40			
PART 2					
6. Ability to actively engage with healthcare providers			0.78 / 0.78	1	0.41
Make sure that healthcare providers understand…	0.56	0.43			
Feel able to discuss your health concerns with a…	0.63	0.42			
Have good discussions about your health…	0.62	0.43			
Discuss things with healthcare providers…	0.71	0.52			
Ask healthcare providers questions to get…	0.69	0.47			
7. Navigating the healthcare system			0.82 / 0.82	1	0.43
Find the right healthcare	0.57	0.41			
Get to see the healthcare providers I need to	0.62	0.45			
Decide which healthcare provider you need…	0.66	0.51			
Make sure you find the right place to get…	0.67	0.51			
Find out what healthcare services you are…	0.71	0.57			
Work out what is the best care for you	0.70	0.53			
8. Ability to find good health information			0.81 / 0.81	1	0.47
Find information about health problems	0.64	0,51			
Find health information from several…	0.70	0,55			
Get information about health so you are…	0.75	0,56			
Get health information in words you…	0.66	0,53			
Get health information by yourself	0.66	0,61			

Continue...

Continuation.

9. Understanding health information well enough to know what to do			0.76 / 0.78	1	0.42
Confidently fill medical forms in the correct…	0.69	0.58			
Accurately follow the instructions from…	0.42	0.34			
Read and understand written health…	0.73	0.60			
Read and understand all the information on…	0.67	0.57			
Understand what healthcare providers are…	0.68	0.58			

[1]MCL - Maximum cross-factor loadings; [2]DIM - Dimensionality; [3]AVE - Average Variance Extracted

Table 3. Correlation between the nine scales of the Brazilian version of the Health Literacy Questionnaire (HLQ-Br)

Scale	Scales Part 1				Scales Part 2			
	1	2	3	4	5	6	7	8
2	0.712							
3	0.535	0.648						
4	0.551	0.464	0.460					
5	0.514	0.637	0.604	0.312				
6	0.505	0.549	0.358	0.279	0.452			
7	0.461	0.563	0.250	0.217	0.419	0.747		
8	0.339	0.484	0.290	0.166	0.582	0.738	0.831	
9	0.231	0.429	0.246	0.147	0.513	0.644	0.722	0.882

- Question 6 (I spend much time involved with my health – "Actively managing my health" scale 3) factor loading of 0.31;
- Question 15 (I have at least one person who can accompany me to medical appointments – "Social support for health" scale 4) factor loading of 0.40;
- Question 4 (I compare health information obtained from different sources – "Appraisal of health information" scale 5) factor loading of 0.47;
- Question 9 (Follow exactly the instructions of health professionals – "Understanding health information well enough to know what to do" scale 9) factor loading of 0.42.

The Cronbach's alpha and composite reliability indicators of the nine scales presented values above 0.76, except in the "Actively managing my health" scale, which includes questions related to the time involved with health; to what the individual needs to do to be healthy; to decisions on health and fitness and to doing things to become healthy (Table 2).

Discriminant validation was achieved in all constructs, since the factor loadings of the items were higher than their respective maximum cross-factor loadings.[22]

All constructs of the Brazilian model were unidimensional, according to the criterion of Kaiser.[23] The average variance extracted proposed for convergent validation was not achieved in the constructs "Active health care" and "Health information evaluation" (AVE <0.40) (Table 2).

The scales of the HLQ Brazilian version showed small and medium correlations between them, ranging from 0.16 to 0.88 (Table 3).

Discussion

Brazilian version of the HLQ presented satisfactory psychometric properties, evidenced by the total reproduction of the nine scales that compose the original version of the instrument in English. The total reproduction of the nine factors of the HLQ in the Brazilian context suggests that the health literacy concept proposed by the instrument is robust and applicable in different cultures, as already evidenced in other countries.[7,8,24]

The rigorous translation and transcultural adaptation process proposed by the authors of the Health Literacy Questionnaire (HLQ), associated with the robust statistical analyzes to validate its psychometric properties are important factors that ensure the quality of the results obtained. The standard was also achieved in other studies for validation of HLQ instrument.[7,8,24]

The adaptation of an instrument to another culture can be difficult because an item may have a very different meaning or no meaning for the sociocultural context of the language to which it is being adapted.[25] Thus, it is imperative that the transcultural adaptation process follows a rigorous protocol which was carried out in the present study, both through constant contact with the authors who developed the instrument and through the selection of the members of the team that assisted in the translation and transcultural adaptation.

It is necessary a deep analysis of the causes that lead to the non-understanding of an item in an instrument adapted to a given culture, in order to determine if the cultures and contexts in which it is being used are really distant and if the way of thinking about the phenomenon is really different and leads to the non-understanding of the item.[25] Taking these aspects into consideration, we chose to change the wording of the item referring to "medical forms" to "health information forms," since, in Brazil, people often do not have the habit of reading carefully medical papers they are handed. Also frequently they do not understand the information in health forms, such as, for example, the authorization to perform medical procedures. However, completing these forms is an ethical recurring practice in any health context because individuals have the right to be informed about the risks and benefits, so they can make decisions related to their health.[26]

The right to information is constitutionally guaranteed in the Brazilian Health System. As established by laws 8080/1990 and 80142/1990, users have guaranteed the right to information about their own health and about health services, so they can exercise the right to participate in decisions involving public health policies and their role of supervising the system, that is, social participation.[27,28] However, it is observed the difficulty of operationalizing Brazilian health policies, which was expressed by the difficulty of the participants in this study to understand the item "filling out forms with health information". Investigating health literacy can help to empower the individual and the community, as a means of meeting the Brazilian Unified Health System guidelines.

In addition, it is necessary to ensure that in future studies the intentionality of the question is maintained and does not generate doubts about what is intended to be measured. Therefore, the item in question is perfectly adapted to the cultural context and to the health care systems used by the Brazilian population, making it adapted to the reality of the universe to which it will be applied.

As occurred with other adapted and validated versions of the HLQ[7,8,24] the Brazilian version presented some items with lower factor loadings than the original version. The factor loadings indicate the importance of an instrument in the formation of the latent variable[29] and it is acceptable that, in the process of translation and cultural adaptation of a health measurement instrument, some items may present lower factor loadings than the original version, due to cultural differences.[8]

The internal consistency lower than 0.70 observed in the "Actively managing my health" scale may be associated with the fact that this construct is challenging for individuals to perform. This scale includes items related to the individuals' responsibility for their health condition. In Brazil, historically there is predominance of public policies and health practices centered on health professionals that tend to minimize the individuals' participation and the self-management of their health condition and the factors that determine it.[30] Thus, study participants may have found it strange to answer about their ability to actively take care of their own health. The low factor loading presented by item six of this scale (I spend much time involved with my health) may also justify the consistency value obtained in the scale, since the composite reliability (CC) method is dependent on the value of the factor loadings.

Although discriminant validity was observed in all constructs by the cross-factor loadings criterion,[22] the high correlation between scales 7/8 and 8/9 (>0.80 and >0.85) may indicate lack of discriminant validity.[31] This also occurred in the original Australian version,[6] in the Danish version[7] and in the German version.[8] The authors argue that this strong association can be explained by relational factors, since scale 8 addresses the ability to find

health information; scale 9 addresses the ability to evaluate/use this information and scale 7 addresses the skills to navigate the health system.[7]

The present study showed some limitations such as the impossibility of concurrent validity due to the absence of Brazilian studies with multidimensional scales for literacy evaluation. In addition, data collection did not include all five regions of Brazil, nor did it include users of private health services.

Conclusion

The results demonstrate that the Brazilian version of the HLQ obtained satisfactory psychometric properties, indicated by the reliability, the discriminant validity between the items and the excellent fit indices in the replication of the original model of the instrument in the Brazilian population. It is recommended that the HLQ-Br is widely used in studies in diverse regions of the country, including users of the SUS and of private services. It may be possible to confirm its utility as a tool to evaluate the access, understanding and use of information by the Brazilian population. The availability of a reliable and multidimensional instrument for measurement of the Brazilian population's health literacy indicates good prospects for the incorporation of HL into health practices in Brazil.

Collaborations

Moraes KL, Brasil VV, Mialhe FL, Sampaio HAC, Sousa ALL, Canestro MR and Butrico GFO declare that they have contributed to conception of the study, analysis and interpretation of the date, article writing, relevant critical review of intellectual content and approval of final version to be published.

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