● **Original article**

CROSS-CULTURAL ADAPTATION OF A TOOL TO ASSESS THERAPEUTIC EDUCATIONAL INTERVENTIONS FOR DIABETES PATIENTS*

Laura Barbosa Nunes[1], Camila Aparecida Pinheiro Landim Almeida[2], Malvina Thaís Pachêco Rodrigues[3],Eliana Campêlo Lago[4],Luana Kelle Batista Moura[5], Magda Coeli Vitorino Sales Coêlho[1]

ABSTRACT: Objective: to identify the use of contraceptive methods by adolescents of a public school in the state of Maranhão. **Method:** a quantitative, descriptive-exploratory, cross-sectional study was conducted between November and December 2015, with high school adolescents from a public school in the state of Maranhão. Descriptive statistical analysis of the data was performed. **Results:** of the adolescents, 199 (88.1%) reported having information on contraceptive methods, which was mainly obtained from their mothers, by 139 (69.8%). Of the young women who had information, 184 (92.5%) reported knowing about the male condom. Of the adolescents who had already started sexual activity, some reported not using any method, despite having the information, and 59 (76.6%) young women reported having used the male condom. **Conclusion:** there is a need to constantly develop health actions in order to allow adolescents to exercise their sexuality more safely, so they avoid sexually transmitted infections and unplanned pregnancies.
KEYWORDS: Contraception; Adolescent; Reproductive Health; Public Health; Nursing.

ADAPTAÇÃO CULTURAL DE UM INSTRUMENTO PARA AVALIAR AS INTERVENÇÕES DE EDUCAÇÃO TERAPÊUTICA À PESSOA COM DIABETES

Objetivo: adaptar culturalmente a Escala de Educação Terapêutica para o Comportamento do Autocuidado à Pessoa com Diabetes para o português do Brasil. **Método:** estudo metodológico, com análise semântica e análise de conteúdo, realizado na cidade de Teresina, Piauí, entre janeiro e julho de 2017. Foi realizada avaliação das equivalências semântica, idiomática, cultural e conceitual por oito enfermeiros. Na análise de conteúdo, foi desenvolvido um *brainstorming* com participação de 12 especialistas. A avaliação da pertinência prática, relevância e dimensão teórica foi feita por sete profissionais *experts.* **Resultado:** as etapas de adaptação cultural foram bem-sucedidas, e as equivalências semântico-idiomáticas, culturais e conceituais foram suficientemente alcançadas. Dos 34 itens do instrumento, 29 sofreram alterações. Obteve-se Índice de Validade de Conteúdo de 0,93 para o conjunto total de itens. **Conclusão:** evidenciou-se que os itens são pertinentes à cultura brasileira e avaliam aspectos na perspectiva do instrumento original, demonstrando evidências da adaptação cultural.
DESCRITORES: Educação em saúde; Diabetes *mellitus*; Enfermagem; Estudos de validação.

ADAPTACIÓN CULTURAL DE UN INSTRUMENTO PARA EVALUAR LAS INTERVENCIONES DE EDUCACIÓN TERAPÉUTICA A LA PERSONA CON DIABETES

Objetivo: adaptar culturalmente la Escala de Educación Terapéutica para el Comportamiento del Auto Cuidado a la Persona con Diabetes para el portugués de Brasil. **Método:** estudio metodológico, con análisis semántico y análisis de contenido, realizado en la ciudad de Teresina, Piauí, entre enero y julio de 2017. Se realizó evaluación de las equivalencias semántica, idiomática, cultural y conceptual por ocho enfermeros. En el análisis de contenido, se desarrolló un *brainstorming* con participación de 12 especialistas. La evaluación de la pertinencia práctica, relevancia y dimensión teórica se hizo por siete profesionales *experts.* **Resultado:** las etapas de adaptación cultural fueron exitosas, y las equivalencias semántico idiomáticas, culturales y conceptuales fueron suficientemente atingidas. De los 34 ítems del instrumento, 29 tuvieron alteraciones. Se obtuvo Índice de Validad de Contenido de 0,93 para el conjunto total de ítems. **Conclusión:** se evidenció que los ítems son pertinentes a la cultura brasileña y evalúan aspectos en la perspectiva del instrumento original, demostrando evidencias de la adaptación cultural.
DESCRITORES: Educación en salud; Diabetes *mellitus*; Enfermería; Estudios de validación.

*Paper taken from Qualification Exam (Master's degree) entitled "Cultural adaptation of a tool to assess therapeutic educational interventions for diabetes patients". Professional Master's Program in Family Health. Centro Universitário UNINOVAFAPI, 2017.

[1]RN. Master's student in Family Health at Centro Universitário UNINOVAFAPI. Teresina, PI, Brazil.
[2]RN. Ph.D. in Nursing. Full Professor, Nursing Department and Professional Master's Program in Family Health at Centro Universitário UNINOVAFAPI. Teresina, PI, Brazil.
[3]RN. Ph.D. in Collective Health. Coordinator, Professional Master's Program in Health and Community at Universidade Federal do Piauí. Teresina, PI, Brazil.
[4]RN. Ph.D. in Biotechnology. Coordinator, Professional Master's Program in Family Health at Centro Universitário UNINOVAFAPI. Teresina, PI, Brazil.
[5]Dental Surgeon. Ph.D. in Endodontics. Professor, Professional Master's Program in Family Health at Centro Universitário UNINOVAFAPI. Teresina, PI, Brazil.

Corresponding Author:
Author: Laura Barbosa Nunes
Instituição vinculada Centro Universitário UNINOVAFAPI.
Endereço: Rua Vitorino Orthiges Fernandes, 6123 - Uruguai
E-mail: laurexx_71@hotmail.com

Received: 20/09/2017
Finalized: 16/04/2018

INTRODUCTION

Diabetes mellitus (DM) stands out due to its increasing prevalence and incidence. In Brazil and internationally, it is considered to be one of the main chronically evolving syndromes[1-2]. Characterized by hyperglycemia and caused by an absolute and / or relative deficiency of insulin, DM influences metabolic and glycemic control, which can lead to acute and chronic complications[3].

Although early detection and appropriate treatments significantly reduce the deaths and complications of this chronic condition, it is emphasized that interventions based on effective communication between the DM patient and the nurse are one of the steps for treatment compliance, as the health professional is able to promote enhanced conditions for appropriate self-care behaviors[4-5].

In this context, health education for self-care in DM is considered the most targeted therapeutic intervention as, when the health professional considers the DM patient to be the main element in decision making, care becomes more effective[6- 8]. In this context, the need for greater valuation of health professionals' role is highlighted, serving as drivers of adaptations in educational practices and in the health model[9-12].

In view of the continuous difficulties to evaluate self-care education practices, there is a need to culturally adapt tools to measure therapeutic education interventions, as these interventions have shown gains in the health of DM patients. This study is justified because specific tools designed for this purpose have not been identified in the Brazilian scientific literature, as a correct orientation of self-care reduces health costs and minimizes acute and chronic complications and the disabilities resulting from the chronic condition.

The scale selected for the purpose of this study was the Therapeutic Education for Diabetes Self-Care Behavior Scale (ETCAD). Originally constructed in Portugal, this scale has valid and reliable psychometric properties to evaluate the role of nurses in promoting self-care in therapeutic education interventions[13]. The scale is not excessively long, is self-applied and contains varied items that are easy to understand. In view of the above, the aim in this study was to cross-culturally adapt the ETCAD to Brazilian Portuguese.

METHOD

Methodological study, which aims to investigate the methods of data collection, organization and analysis methods through the elaboration, validation and evaluation of measuring instruments[14].

The ETCAD scale consists of 34 items, divided into six domains (healthy eating, staying active, monitoring, medication, risk reduction, problem solving and healthy coping), which measure the frequency of therapeutic education interventions for self-care behavior that primary care nurses use with diabetes mellitus patients[13]. Each domain contains two to nine items, and each item has a five-point Likert scale, ranging from "always" to "never". The scores for each of the six domains of the scale range from 7 to 35, 2 to 10, 5 to 25, 4 to 20, 7 to 35 and 9 and 45, respectively, and the total score from 34 to 170.

The total domain scores are calculated by the simple arithmetic mean of the weighted items in the respective domains, and the total ETCAD score is obtained by the simple arithmetic mean of the 34 items in the scale. The highest score corresponds to a high frequency of nurses' practices in the therapeutic education for self-care behaviors[13].

The formal authorization to initiate the cross-cultural adaptation process was granted by the author of the instrument, Eva Patrícia da Silva Guilherme Menino. As the ETCAD was originally elaborated in Portugal, and Brazil and Portugal are countries whose native language is Portuguese, the cross-cultural adaptation process of the ETCAD was initiated through a linguistic revision by a Brazilian Portuguese teacher who was knowledgeable in the health area, in order to standardize the writing and adapt the instrument to the language of the target culture, according to the norms of the Portuguese Orthographic Agreement[15]. Figure 1 illustrates the cross-cultural adaptation process.

According to Pasquali's recommendations[16-17], the cross-culturally standardized version of the ETCAD continued for content validation, sequentially conducted in two stages semantic analysis and content or expert analysis.

During the semantic analysis, eight nurses working at primary health care units (UBS) compared and analyzed the ETCAD versions, with the items of the original scale and the items of the Brazilian Portuguese consensus version, during a one-month period. Each judge received an invitation letter and material with specific instructions to individually analyze the semantic, idiomatic, cultural and conceptual equivalence of the proposed ETCAD version by e-mail. Semantic equivalence refers to the meaning of words based on grammatical and vocabulary evaluation. Idiomatic equivalence considers the equivalent expressions in both countries. In cultural equivalence, the situations portrayed in the items of the original version have to correspond to those experienced in the target culture. Finally, conceptual equivalence encompasses the validity of the concept explored[16-17].

Subsequent to the semantic analysis, we proceeded to the content analysis stage, with the brainstorming. The goal of brainstorming is to explore the creativity of a team, with the constitution of varied groups. The technique proposes the gathering of as many ideas, thoughts, experiences, visions, proposals and possibilities as possible that will lead to a common and effective problem-solving denominator[17].

In this study, brainstorming took place in June 2017 at a Higher Education Institution in Teresina, Piauí. In this stage, 12 nurses who had worked at the Primary Health Care Units for at least one year participated. Three groups were formed: four specialist nurses, four nurses holding a Master's and four holding a Doctoral degree. In order to facilitate the understanding of the scale items, a member of each group read the items individually and proposed changes in sentences and words, as well as suggestions and modifications, better directing the meaning of the item to the associated domain.

For the second stage of the content analysis, seven Brazilian experts were selected in August 2017, through an online consultation of the Lattes Platform, being mostly Doctoral graduates and experts in the adaptation and validation of health measuring instruments. The participants evaluated the items regarding practical pertinence, theoretical relevance and theoretical dimension[16-18]. In this stage, the Content Validity Index (CVI) was verified. This index measures the proportion or percentage of experts who agree on certain aspects of the instrument, its items and domains. The method consists of a Likert scale ranging from 1 to 4, in which 1 = non-equivalent item; 2 = item needs major revision to evaluate equivalence; 3 = equivalent item, but needs minor changes; 4 = absolutely equivalent item[19].

In order to calculate the CVI, the experts' item scores "3" and "4" in the content analysis were added up and divided by the sum of the total number of answers, according to the following equation: CVI = number of scores "3" or "4" / total number of answers. Items that received scores "1" or "2" were reviewed and modified[16-17,19]. For the sake of an acceptable interrater agreement rate, the CVI should be higher than 0.80[15].

The research received approval from the Research Ethics Committee under Opinion No. 1.808.005, dated November 4, 2016.

RESULTS

The orthographic correction by the linguistic reviewer resulted in adjustments in four of the 34 items: in item 9, "face ao nível de atividade" was changed to "face o nível"; in item 17, the word "tomas" was replaced by "ingestões"; in item 25, "ao melhor nível possível" was replaced by "no melhor nível possível"; and, in item 32, the expression "a alcançar objetivos alcançáveis" was adapted to "a atingir objetivos alcançáveis".

Of the eight nurses participating in the second stage of the semantic analysis, all were female, with an average age of 35 years and coming from the Northeast, with an average11 years since graduation and average experience of nine years with the subject.

Of the 34 items, for six, changes were suggested in the adapted version in the first cross-cultural adaptation stage. The number of judges who suggested changes in writing varied from two (25%) - in items 11, 13, 21 and 23 - to five (62.5%) - in item 6. The items with suggested changes, 2, 11, 13, 21 and 23, were evaluated as having exactly the same meaning in the semantic, idiomatic, cultural and conceptual aspects. According to two (25%) judges, however, item 6 presented approximately the same meaning in the four equivalences. Table 1 shows the frequency distribution of changed items after the experts' evaluation of the scale equivalences.

Table 1 - Frequency distribution of items with changes after expert evaluation of scale equivalences (N=8). Teresina, PI, Brazil, 2016

Item*	Equivalence							
	Semantic		Idiomatic		Cultural		Conceptual	
	ASM	ESM	ASM	ESM	ASM	ESM	ASM	ESM
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Item 2	-	8 (100)	-	8 (100)	-	8 (100)	-	8 (100)
Item 6	2 (25)	6 (75)	2 (25)	6 (75)	2 (25)	6 (75)	2 (25)	6 (75)
Item 11	-	8 (100)	-	8 (100)	-	8 (100)	-	8 (100)
Item 13	-	8 (100)	-	8 (100)	-	8 (100)	-	8 (100)
Item 21	-	8 (100)	-	8 (100)	-	8 (100)	-	8 (100)
Item 23	-	8 (100)	-	8 (100)	-	8 (100)	-	8 (100)

Legend: ASM: approximately the same meaning; ESM: exactly the same meaning; *: version after first semantic adaptation stage.

In items 2 and 6, the expression "hidratos de carbono" was changed to "carboidratos", in accordance with the suggestion of four (50%) and five (62.5%) experts, respectively. As regards item 11, two (25%) experts considered that "horas" should be replaced by "horário". In items 13 and 23, two (25%) experts suggested replacing "pressão sanguínea" by "pressão arterial". And in item 21, two judges (25%) suggested replacing "à cessação tabágica" by "ao abandono do fumo".

The brainstorming session in the content analysis involved three groups of nurses (specialists, Master's and Doctoral graduates), totaling 12 experts. As a result, changes were made in 19 items, as shown in Chart 1.

Chart 1 – Items of cross-culturally adapted version after semantic analysis of content validation (N=12). Teresina, PI, Brazil, 2017. (continues)

No.	Cross-culturally adapted scale	Version after brainstorming
7	Preparar refeições	Preparar **as** refeições
8	Analisar barreiras (físicas, ambientais, psicológicas e de tempo)	**Identificar** barreiras (físicas, ambientais, psicológicas e de tempo)
9	Desenvolver um plano de atividade apropriada que pondera a alimentação e medicação face ao nível de atividade	Desenvolver um plano de atividade **física considerando alimentação, medicação e nível de atividade (leve, moderada e intensa)**
12	Interpretação e uso dos valores obtidos	Interpretação e uso dos valores **glicêmicos**
15	Ensinar relativamente a cada medicação: a sua ação, efeitos secundários, eficácia, toxicidade.	Ensinar relativamente a cada medicação: a sua ação, efeitos **adversos**, eficácia, toxicidade
16	Ensinar relativamente a cada medicação: dosagem prescrita, hora e frequência de administração.	Ensinar **sobre quanto a** cada medicação: dosagem prescrita, hora e frequência de administração
17	Ensinar relativamente a cada medicação: efeito de omissão ou atraso das tomas	Ensinar **quanto à cada** medicação: efeito de omissão das **doses ou atraso das doses**

18	Ensinar relativamente a cada medicação: instruções sobre administração, armazenamento, viagens e segurança	Ensinar relativamente a cada medicação: instruções sobre **segurança na administração**, **armazenamento, transporte**
19	Ensinar sobre recomendações terapêuticas com vista à diminuição de riscos	Ensinar sobre recomendações terapêuticas **para minimizar os** riscos
21	Proporcionar o desenvolvimento de competências no que respeita à cessação tabágica	Proporcionar o desenvolvimento de **estratégias relativas ao abandono do fumo**
22	Proporcionar o desenvolvimento de competências no que respeita à inspeção dos pés	Proporcionar o desenvolvimento de **habilidades para o autocuidado** de inspeção dos pés
23	Proporcionar o desenvolvimento de competências no que respeita à monitorização da pressão sanguínea	Proporcionar o desenvolvimento **de habilidades relativas à** monitorização da **pressão arterial**
24	Proporcionar o desenvolvimento de competências no que respeita à automonitorização da glicemia	Proporcionar o desenvolvimento de **habilidades relativas** à automonitorização da glicemia
26	Analisar dificuldades físicas	**Identificar** dificuldades físicas
27	Analisar dificuldades emocionais	**Identificar** dificuldades emocionais
28	Analisar dificuldades cognitivas	**Identificar** dificuldades cognitivas
29	Analisar dificuldades financeiras	**Identificar** dificuldades financeiras
30	Fomentar o desenvolvimento de estratégias de *coping*	**Incentiva**r o desenvolvimento de estratégias de *coping* (estilo de vida saudável)
33	Analisardificuldadesefomentarodesenvolvimento-competênciasde*coping*	**Identificar** dificuldades e **Incentivar** o desenvolvimento competências de *coping*

During the brainstorming, the nurses suggested removing item 20, which was maintained for content analysis, which is the stage that permits the exclusion of items (based on the CVI analysis). Joing items 26, 27, 28 and 29 was also suggested, which were kept separately for evaluation in the content analysis.

In the content analysis, the experts' mean age was 32 years. All were female and distributed between the Northeast and Southeast. The average time since graduation was eight years, and the average time of experience with the subject was six years.

The items evaluated for practical pertinence and theoretical relevance presented a mean CVI of 0.98, 0, 0.9, 0.8, 93, 0.97, 0.90 and 0.94 in the dimensions "food", "staying active", "monitoring", "medication use" and "risk reduction", respectively. The latter dimension, which was "problem solving", presented lower average practical pertinence (0.89) and theoretical relevance (0.82) indices. The items were maintained with a mean CVI of approximately 80%, corresponding to both criteria. The mean final CVI of this last dimension was 0.86.

In the evaluation of the theoretical dimension each item belonged to, all were considered corresponding, with a minimum agreement of six (85.7%) experts for "food" (item 1); six (85.7%) for "staying active" (item 8); five (71.4%) for "monitoring" (items 13 and 14); seven (100%) for "medication use" and "risk reduction"; and a minimum agreement of six (85.7%) experts for "problem solving" (item 26). The total CVI of the instrument, resulting from the average of the dimension indices, was high (0.93), as well as of the evaluated criteria of practical pertinence (0.93) and theoretical relevance (0.92). Table 2 presents the content validity indices for the practical practice and theoretical relevance criteria of the instrument items.

Table 2 – Content Validity Index of items and theoretical dimensions of the tool according to experts in the content analysis (n=7). Teresina, PI, Brazil, 2016

Item/Dimension	Practical pertinence	Theoretical relevance	Mean CVI
Food	**0.98**	**0.98**	**0.98**
1. Effect of foods on glucose level	1	1	**1**
2. Sources of carbohydrates, fats and proteins	1	1	**1**
3. Making healthy food choices	1	1	**1**
4. Adjusting the portion size	1	1	**1**
5. Reading the labels	1	1	**1**
6. Counting carbohydrates	0.86	0.86	**0.86**
7. Preparing meals	1	1	**1**
Staying active	**0.93**	**0.93**	**0.93**
8. Identifying barriers (physical, environmental, psychological and time)	0.86	0.86	**0.86**
9. Developing a physical activity plan considering food, medication and activity level (light, moderate and vigorous)	1	1	**1**
Monitoring	**0.97**	**0.97**	**0.97**
10. Instructing the patients about the choice and selection of glucose monitoring equipment	1	1	**1**
11. Time and frequency of glucose level measures	1	1	**1**
12. Interpretation and use of glucose levels	1	1	**1**
13. Teaching regular blood pressure evaluation	0.86	0.86	**0.86**
14. Teaching regular weight verification	1	1	**1**
Medication use	**0.90**	**0.90**	**0.90**
15. Teaching on each medication: action, adverse effects, efficacy, toxicity	0.86	0.86	**0.86**
16. Teaching on each medication: prescribed dose, time and administration frequency	0.86	0.86	**0.86**
17. Teaching on each medication: effect of dose omission or delay	0.86	0.86	**0.86**
18. Teaching on each medication: instructions on administration safety, storage and transportation	1	1	**1**
Risk reduction	**0.94**	**0.94**	**0.94**
19. Teaching on therapeutic recommendations to minimize risks	0.86	0.86	**0.86**
20. Setting objectives for risk reduction	0.86	0.86	**0.86**
21. Providing for the development of strategies to give up smoking	1	1	**1**
22. Providing for the development of foot inspection self-care skills	1	1	**1**
23. Providing for the development of blood pressure monitoring skills	1	1	**1**
24. Providing for the development of glucose self-monitoring skills	1	1	**1**
25. Providing for the development of the best possible level of personal care maintenance competences	0.86	0.86	**0.86**
Problem solving	**0.89**	**0.82**	**0.86**
26. Identifying physical difficulties	0.86	0.71	**0.80**
27. Identifying emotional difficulties	0.86	0.71	**0.80**
28. Identifying cognitive difficulties	0.86	0.71	**0.80**
29. Identifying financial difficulties	0.86	0.71	**0.80**
30. Encouraging the development of coping strategies (healthy lifestyle)	1.00	1.00	**1.00**
31. Identifying patient motivation for behavioral change	1	1	**1**
32. Helping the patient to reach achievable objectives	0.86	0.86	**0.86**
33.Analyzing difficulties and encouraging the development of coping competences	0.86	0.86	**0.86**
34. Assessing the patients' emotional conditions	0.86	0.86	**0.86**
Total CVI	**0.93**	**0.92**	**0.93**

Legend: CVI: Content Validity Index.

DISCUSSION

The cross-cultural adaptation process of the ETCAD for use in Brazil was carried out systematically and conducted in accordance with the recommendations in Pasquali's studies for the cross-cultural adaptation of measuring instruments[15-16]. The use of internationally accepted methodological norms for cross-cultural adaptation facilitates the reproducibility of results and permits comparisons between different populations[13,20].

The linguistic revision was carried out without variations of the Portuguese orthographic vocabulary, according to the norms of the New Orthographic Agreement of the Portuguese Language. Therefore, only four items were modified, and the meaning of each instrument item was maintained.

In this study, the adaptation process involved specialist nurses in the area of adaptation and validation of instruments and/or practical experience in self-care of diabetes mellitus patients. The composition of specialist nurses, Master's and Doctoral graduates with experience in the theme permitted an extensive and profound adaptation process, with pertinent and complementary observations[21].

During the eight experts (specialists and Master's) evaluation of the semantic, idiomatic, conceptual and cultural equivalences, changes were made to six instrument items, that is, some words or expressions were replaced for the sake of easier understanding. Despite the standardized writing between Portugal and Brazil, there are cultural peculiarities, using equal words to express different objects or words that are not used in the other country[20].

Subsequently, in order to verify that all items were comprehensible to all members of the target population, the experts' analysis or content analysis was carried out, based on the judgment of a group of experienced judges, who were responsible for analyzing if the content is appropriate to what it is intended to measure[21]. A content validity study can provide information on the representativeness and clarity of each item with the collaboration of experts, but there are limitations in the content validity studies that need to be observed, as expert analysis is subjective and, therefore, there may be distortions in the studies[22].

The brainstorming method used in this research was effective in evaluating the comprehension of the items. Divergences arose in the reproduction of 19 items from the ETCAD though, as the expert committee stated that they had a different understanding of what they were trying to understand, making it difficult to direct the instrument to the target population as Pasquali's study states[17]. Joining four items (identifying physical, emotional, cognitive and financial difficulties) was also suggested, but these were kept separate as the answer to one can be attributed to the four.

Research highlights that an appropriate adaptation of cultural equivalence is of fundamental importance for the terms used in the instrument to be consistent with the reality experienced by the target population, within its cultural context. If the cultural content lies beyond the context or the experience of that population, it should be modified[23].

During the cross-cultural adaptation process of the ETCAD, changes could be made that respected the particularities of the target population of the scale, with the intention that it be well understood. The ETCAD was translated, adapted and presented satisfactory content validity indices, based on the very high mean dimension or domain indices, as well as the practical pertinence and theoretical relevance.

The cross-cultural adaptation stages were successful and the semantic-idiomatic, cultural and conceptual equivalences were achieved. The expert judges concluded that the scale concepts are pertinent to the Brazilian culture and that the items are relevant to the domains evaluated by the instrument. Thus, the title of the instrument was maintained for the Brazilian version: "Therapeutic Education for Diabetes Self-Care Behavior Scale". In addition, none of the items in the original scale was eliminated. Instead, expressions were modified or words were inverted for the sake of an easier understanding.

The results demonstrate that the adapted version of the instrument was well understood and appropriate to verify its psychometric properties in the target population. The evaluation of the psychometric properties of the ETCAD - Brazilian version is underway. After completion of the process, the instrument will be available for use in primary health care services in Brazil.

Thus, the use of this scale by professionals will permit the identification of therapeutic education practices by nurses, with emphasis on self-care behaviors, in order to later identify the nurses' contribution to health gains. These interventions need monitoring though, in the sense of quality analysis, adjustment of care and review of goals to be achieved.

CONCLUSION

The cross-cultural adaptation and content validation of the ETCAD demonstrated that the items of the adapted instrument are pertinent to the Brazilian culture and evaluate aspects from the perspective of the original instrument. Therefore, the cross-cultural adaptation of the ETCAD permits contributing to the production of scientific knowledge of methodological studies in different cultural contexts, with a view to the semantic adaptation and validation.

In view of the research results, further studies are under development to evaluate the psychometric parameters of the adapted instrument with a view to its use in Brazil. The importance of evaluating therapeutic interventions for diabetes education should be kept in mind, opening doors for the partnership between teaching and service, in order to improve the self-management of patients with this important chronic health condition.

It is important to articulate the self-care practices of diabetes mellitus patients, developed by nurses, so that these practices are appropriate, in the sense of achieving better metabolic controls. It is expected that individuals with DM will acquire habits of good self-care practices and be monitored continuously by nurses and health professionals, avoiding and minimizing associated acute and chronic complications, which interfere in the conditions and quality of life of this population.

REFERENCES

1. International Diabetes Federation (IDF) Diabetes Atlas7. ed. Brussels: IDF. [Internet] 2015 [acesso em 8 jul 2017]. Disponível: https://www.idf.org/sites/default/files/EN_6E_Atlas_Full_0.pdf

2. Sociedade Brasileira de Diabetes (SBD). Diretrizes da Sociedade Brasileira de Diabetes (2015-2016). São Paulo: A. C. Farmacêutica; 2016.

3. American Diabetes Association (ADA). Diagnosis and classification of diabetes *mellitus*. American Diabetes Association. [Internet] 2016:37(Suppl 1) [acesso em 12 jul 2017]. Disponível: https://doi.org/10.2337/dc14-S081.

4. Borba AKOT, Marques APO, Leal MCC, Ramos RSPS. Práticas educativas em diabetes *Mellitus*: revisão integrativa da literatura. Rev Gaúcha Enferm.. [Internet] 2012;33(1) [acesso em 10 mai 2017]. Disponível: http://dx.doi.org/10.1590/S1983-14472012000100022.

5. de Melo LP, de Campos EA. "O grupo facilita tudo": significados atribuídos por pacientes portadores de diabetes *mellitus* tipo 2 a grupos de educação em saúde. Rev. Latino-Am. Enfermagem. [Internet]2014;22(6) [acesso em 8 jul 2017]. Disponível: http://dx.doi.org/10.1590/0104-1169.0056.2506.

6. Almeida CAPL, da Cruz JN, Fernandes DR, Silva LQ, de Lima CHR, Lago EC. Nurse training in primary care: educational actions with people living with diabetes *mellitus*. Acta Scientinarum. Health Sciences. [Internet] 2017;39(2) [acesso em 10 set 2017]. Disponível: http://dx.doi.org/10.4025/actascihealthsci.v39i2.33389.

7. Torres HC, Pereira FRL, Alexandre LR. Avaliação das ações educativas na promoção do autogerenciamento dos cuidados em diabetes *mellitus* tipo 2.Rev. esc. enferm. USP. [Internet] 2012;45(5) [acesso em 3 ago 2017]. Disponível: http://dx.doi.org/10.1590/S0080-62342011000500007.

8. Mendonça FF, Nunes EFPA. Avaliação de grupos de educação em saúde para pessoas com doenças crônicas.Trab. educ. saúde. [Internet] 2015;13(2) [acesso em 23 ago 2017]. Disponível: http://dx.doi.org/10.1590/1981-7746-sip00053.

9. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Estratégias para o cuidado da pessoa com doenças crônicas: diabetes *mellitus*. [Internet] Brasília: Ministério da Saúde; 2013 [acesso em 3 ago 2017]. Disponível:http://189.28.128.100/dab/docs/portaldab/publicacoes/caderno_36.pdf.

10. Imazu MFM, Faria BN, de Arruda GO, Sales CA, Marcon SS. Effectiveness of individual and group interventions for people with type 2 diabetes. Rev. Latino-Am. Enfermagem. [Internet] 2015;23(2) [acesso em 10 jul 2017]. Disponível: http://dx.doi.org/10.1590/0104-1169.0247.2543.

11. Hass L, Maryniuk M, Beck J, Cox CE, Duker P, Fisher EB et al. National standards for diabetes self-management education and support. Diabetes Care. [Internet] 2012;35(11) [acesso em 11 ago 2017]. Disponível: https://doi.org/10.2337/dc12-1707.

12. Klein HA, Jackson SM, Street K, Whitacre JC, Klein G. Diabetes self-management education: miles to go. Nurs Res Pract. [Internet] 2013;2013 [acesso em 24 jul 2017]. Disponível: http://dx.doi.org/10.1155/2013/581012.

13. Menino EPSG, Dixe MACR, Louro MCCM. Construção e validação da escala de educação terapêutica para o comportamento de autocuidado na diabetes. Revista de Enfermagem Referência. [Internet] 2016;4(8) [acesso em 24 ago 2017]. Disponível: http://dx.doi.org/10.12707/RIV15049.

14. Polit DF, Beck CT. Fundamentos da pesquisa em enfermagem: avaliação de evidências na prática de enfermagem.7 ed. Porto Alegre: Artmed; 2011.

15. Ministério da Educação (BR). Acordo ortográfico da língua portuguesa: atos internacionais e normas correlatas. [Internet] Brasília: Coordenação de Edições Técnicas; 2014 [acesso em 19 jul 2017]. Disponível: https://www2.senado.leg.br/bdsf/bitstream/handle/id/508145/000997415.pdf?sequence=1.

16. Pasquali L. Instrumentos psicológicos: manual prático de elaboração. Brasília: LabPAM/IBAPP; 1999.

17. Pasquali L. Instrumentação psicológica: fundamentos e práticas. Porto Alegre: Artmed; 2010.

18. Medeiros RKSM, Ferreira Junior MA, Pinto DPSR, Vitor AF, Santos VEP, Barichello E. Modelo de validação de conteúdo de Pasquali nas pesquisas em enfermagem. Revista de Enfermagem Referência. [Internet] 2015;4(4) [acesso em 19 jul 2017]. Disponível: http://dx.doi.org/10.12707/RIV14009.

19. Alexandre NMC, Coluci MZO. Validade de conteúdo nos processos de construção e adaptação de instrumentos de medidas. Ciênc saúde coletiva. [Internet] 2011;16(7) [acesso em 22 mai 2017]. Disponível: http://dx.doi.org/10.1590/S1413-81232011000800006.

20. Galdeano LE, Furuya RK, Delacio MCB, Dantas RAS, Rossi LA. Validação semântica do *CardiacPatients Learning NeedsInventory*para brasileiros e portugueses. Rev Gaúcha Enferm. [Internet] 2011;32(3) [acesso em 23 ago 2017]. Disponível: http://dx.doi.org/10.1590/S1983-14472011000300024.

21. de Mendonça SCB, Zanetti ML, Sawada NO, Barreto IDC, de Andrade JS, Otero LM. Construction and validation of the Self-care Assessment Instrument for patients with type 2 diabetes *mellitus*. Rev. Latino-Am. Enfermagem. [Internet] 2017;25 [acesso em 15 agosto 2017]. Disponível: http://dx.doi.org/10.1590/1518-8345.1533.2890.

22. Torres HC, Chaves FF, daSilva DDR, Bosco AA, Gabriel BD, Reis IA, et al. Translation, adaptation and validation the contents of the Diabetes Medical Management Plan for the Brazilian context. Rev. Latino-Am. Enfermagem. [Internet] 2016;24 [acesso em 22ago2017]. Disponível: http://dx.doi.org/10.1590/1518-8345.1138.2740.

23. Van der Heide I, Uiters E, Rademakers J, Struijs JN, Schuit AJ, Baan CA.Associations among health literacy, diabetes knowledge, and self-management behavior in adults with diabetes: results of a Dutch cross-sectional study. J Health Commun.[Internet]2014;19(Suppl2) [acesso em 26ago2017]. Disponível: http://dx.doi.org/10.1080/10810730.2014.936989