Cultural adaptation and reliability of the instrument "Five-part questionnaire on hypermobility" to the Peruvian context

Melissa Aranda-Sánchez, Marco Daniel Huaco, Sergio Bravo-Cucci*

[a] Universidad Peruana de Ciencias Aplicadas, Lima, Perú

*** Corresponding author**
pctfsbra@upc.edu.pe

Citation
Aranda-Sánchez M, Huaco MD, Bravo-Cucci S. Cultural adaptation and reliability of the instrument "Five-part questionnaire on hypermobility" to the Peruvian context. *Medwave* 2023;23(01):e2575

DOI
10.5867/medwave.2023.01.2575

Submission date
Feb 7, 2022
Acceptance date
Dec 11, 2022
Publication date
Jan 18, 2023

Keywords
Joint hypermobility, Diagnostic self-evaluation, Surveys and questionnaires, Translation

Postal address
Avenida Arequipa 4155 dpto. 503 Miraflores, Lima, , Perú

Abstract

Introduction

For the diagnosis of joint hypermobility, the Beighton test is commonly used; this requires a professional for the physical examination. The "Five-part questionnaire on hypermobility" is a self-administered tool that allows early identification of joint hypermobility.

Objective

To carry out the cultural adaptation and test-retest reliability of the "Five-part questionnaire on hypermobility" to the Peruvian context through translation into spanish, linguistic adaptation, and verification of test-retest reliability in students from 13 to 17 years of age and teachers/administrators from 24 to 60 years of age.

Methods

A translation and back-translation were performed with two translators and two back-translators, followed by a linguistic adaptation with ten experts. Once the adapted version of the questionnaire was obtained, a comprehensibility analysis was carried out with 50 subjects. Finally, test-retest reliability was estimated in two groups: adolescents aged 13 to 17 and adults aged 24 to 60.

Results

The translated version of the questionnaire was obtained and underwent a linguistic adaptation process in which ten experts performed a concordance analysis (Aiken's V coefficient = 1), and a comprehensibility analysis with a scale of zero to ten obtained an average of ten points. Subsequently, this version was back-translated and checked against the original. In the reliability analysis, the results of the test-retest application found high reliability between the total score of both applications for both the group of 65 adults (Kappa 0.795; 95% CI: 0.777 to 0.819) and the group of 71 adolescents (Kappa 0.946; 95% CI: 0.908 to 0.982).

Conclusions

The translated instrument "Five-part questionnaire (5pq) on hypermobility" was adapted to the Peruvian cultural context, and high reliability was found for the study groups 13 to 17 years and 24 to 60 years. Concurrent validation is recommended to consider its application in clinical and research settings.

Main messages

- The assessment of joint hyperlaxity is mainly performed by physical examination. A validated questionnaire has been developed in several languages, useful for screening this condition, but a translated or adapted version to the Peruvian context has not been found.
- This study achieved an adequate translation, linguistic adaptation, and back-translation of the questionnaire. In addition, high reliability was observed in applying the test-retest in the study population.
- This study has identified limitations centered on selection biases in those populations with linguistic and cultural variations from different regions of Peru or native populations whose second language is Spanish are not represented.

Introduction

Hyperlaxity is a hereditary disorder of the connective tissue, in which collagen is the affected component, increasing the elasticity of this tissue [1–3]. This alteration may be asymptomatic [4–8], but one or more joints may exceed the limit of the normal range of motion. On the other hand, there is symptomatic hyperlaxity [4,5,9,10], commonly known as joint hyperlaxity syndrome, in which, in addition to the excessive range of motion, other criteria are added: increased skin elasticity, weakness of support structures of internal organs [1,6,11], presence of pain and instability [4,12,13], frequent sprains or dislocations [14–16], and bleeding [17], among others.

The prevalence of hyperlaxity ranges from 10 to 20% in the western population, being more frequent in women; 1.2 times more than in men [18]. Similarly, studies conducted on children and adults between five and forty-five years of age in Peru showed that more than 50% of children under eight years of age suffered from joint hyperlaxity, being more frequent in women [19].

A physical examination of the person is required for diagnosing this pathology, and the Beighton test is commonly used as a clinical criterion [20,21]. This tool evaluates five joints with nine items, being positive if four to nine points are obtained [22]. It is also widely used by specialists due to its simplicity and ability to be used in large groups of people [18].

Although the Beighton scale is a valid and reliable instrument for diagnosing hyperlaxity [23,24], it is not suitable for self-assessment as it requires a physical examination by a healthcare professional. Additionally, it does not include common sites of hypermobility [2]. For this reason, in 2003, Grahame and Hakin presented the "Five-part questionnaire to identify the presence of generalized joint hypermobility". This questionnaire has five checklist items (yes, no) to identify current or past signs of hyperlaxity. The final score of the questionnaire is obtained from the sum of each item's score, being that each item is one point (yes: one, no: zero). Likewise, the category of hypermobility is determined by a final score greater than or equal to two points; thus, suggested as "hypermobile". The Grahame and Hakin questionnaire presents a sensitivity of 75 to 85% and a specificity of 89% in the original english version [18,25], the brazilian version obtained a sensitivity of 70.9% and a specificity of 77.4% [2]. The reliability for the swedish version for all items had an intraclass test-retest correlation coefficient of 0.92 [20]. Data from both versions were validated concurrently with the gold standard "Beighton test". Currently, there is no spanish version adapted to the Peruvian context.

The objective of this research was to translate into spanish, linguistically adapt and verify the test-retest reliability of the "Five-part questionnaire" in students aged 13 to 17 years and teachers/administrators aged 24 to 60 years.

Methods

The study was carried out in three stages:

1) Translation and back-translation, which looked for a spanish version equivalent to the english one.
2) Linguistic adaptation: the purpose was to verify whether the language was adapted to the targeted population. These first two stages were carried out by referencing a proposed guideline widely used internationally [26].
3) Evaluation of test-retest reliability to assess the temporal stability of the instrument using a two-stage application of the questionnaire (test-retest) and to compare concordance between the results of the two applications.

In order to carry out the study, authorization for the use of the instrument was requested through communication with one of the main authors, Dr. Alan Hakim, a rheumatologist and professor at the Platinum Medical Center Wellington Hospital in London, who gave authorization for the use of the questionnaire in the development of this research.

The translation and back-translation process began with the transcription into spanish by two translators. A third translator was asked to mediate if no agreement was reached. Once the final version of the translation process of the study instrument was obtained, the linguistic adaptation was carried out by analyzing the semantic equivalence to the Peruvian population, carried out by a group of spanish-speaking experts. This process was carried out under expert judgment. In this process, ten

experts were selected amongst education and health professionals who met the pre-established criteria: to be a university professional in health sciences and, to be a university professional in education sciences, for the health expert and the education expert, respectively. As general criteria for both experts, they were required to have at least five years of work experience in the educational or health field, as appropriate, at least five years of experience working with school populations (basic secondary education), and to have postgraduate studies at the specialty, masters, or higher level.

The experts had to evaluate each item of the questionnaire and reach a consensus on whether the language and terminology were understandable, objective, and adequate for the targeted population without generating confusion or ambiguity in the terms. The evaluation of each item by each specialist was rated using the Likert scale (1: total disagreement, 2: disagreement, 3: neutral, 4: agreement, 5: total agreement) and the comprehensibility scale from 0 (not understandable) to 10 points (very understandable). The next step was to ratify and make the relevant corrections and recommendations, among which it was proposed to include images to better describe the questions in the questionnaire.

Once the translated version was obtained, the phase of back-translation into the original language (english) was carried out by two back-translators, who would determine the approval of the similarity of both versions. In case of disagreement, a third translator would be asked to settle the dispute.

Once the final adapted version of the questionnaire had been prepared, a comprehensibility analysis was carried out on 50 people (ten people per item) from the population to be investigated to verify whether the appropriate interpretation of each question was achieved. For this purpose, the questionnaire tailored by the experts was used, asking them at the end of each item, "Did you have any difficulty in understanding the question and/or image?" with yes/no answer options and a space to identify the difficulty encountered. As a result, acceptance was obtained from all 50 participants, so we proceeded to perform the reliability analysis.

For the final step, the reliability analysis of the instrument, two population strata were considered, the first made up of schoolchildren and the second of teachers and administrators of an educational institution.

The inclusion criteria for the group of schoolchildren were: age between 13 and 17 years, students enrolled in the 2021 school year at the secondary level, informed consent, and assent.

For the group of adults: age between 24 and 60 years, being active teachers or administrators, and presenting informed consent.

The exclusion criteria were: previous medical diagnosis of diseases such as quadriplegia, hemiplegia, diplegia, arthrosis, and dislocations of less than six months.

A sample size calculation was performed to estimate the number of people needed to verify the test-retest reliability of the "Five-part questionnaire on hypermobility - Peruvian version", using Cohen's Kappa coefficient [27]. Considering the following parameters: Cohen's Kappa coefficient to detect 0.48 [2], 95% CI, and 90% power. The result was a minimum sample size of 62 subjects per group (62 students and 62 teachers/administrators). The sampling was non-probabilistic consecutive by invitation, i.e., all students and teachers of the institution were invited to participate. Only those who decided to participate and met the inclusion parameters were considered in the research.

Regarding the reliability analysis of the questionnaire, we used the final version adapted using the Google Forms survey format, which included consent for the adult group and informed assent for the adolescent group. In addition, general data were collected, including information on gender, age, education, cultural identification, and background. The time between the test and retest was seven days for each population group.

To perform the data analysis and to obtain expert agreement, we used the online Aiken's V coefficient calculator from Psychometricians.com [28]. A database was previously obtained in Microsoft Excel for comprehensibility and reliability analysis. This information was examined using STATA 16 statistical software (Stata Corp-Texas). The descriptive analysis of the sociodemographic characteristics of the sample of adults and adolescents was evaluated by test-retest. For the categorical variables, we used frequencies and percentages; for the numerical variables, mean and standard deviations or median and interquartile ranges, according to the distribution of the variables in question.

The Aiken V coefficient was used for the inter-judge agreement analysis, the mean and standard deviation for the comprehensibility analysis, and Cohen's Kappa coefficient for the test-retest reliability analysis for each item. The overall score was obtained from the sum of each participant's answers in the questionnaire; the category of "hypermobile" was given if a score greater than or equal to two was achieved in the questionnaire.

The research project was approved before data collection by the Research Ethics Committee of the Faculty of Health Sciences of the Universidad Peruana de Ciencias Aplicadas (FCS-CEI/144-03-21). The participants in this study were informed about the objective of this research. Likewise, in the group of underage students, they presented the informed consent signed by their parents or legal guardians, together with an informed consent form. Informed consent was required for the participation of teachers in this study. All information provided by the participants was kept in complete confidentiality. In addition, participants were free to withdraw from the study if they wished to do so.

Table 1. Structure of the "Five-part questionnaire" (5-PQ) of the translated version adapted to the Peruvian context.

	Description
Title	5-question questionnaire (5PQ in spanish) for joint hyperlaxity screening.
Indications	The following questions are designed to detect the presence of characteristics that may indicate joint hyperlaxity. This is defined as a condition in which there is an exaggerated increase in joint motion (such as elbow, shoulder, knee, etc.). Mark with an "X" if you agree with the alternative given.
Question 1	Can you (or could you ever) place your hands flat on the floor without bending your knees, as shown in the picture?
Question 2	Can you (or have you ever been able to) separate your thumb from your hand and bring it down, touching your forearm, as shown in the picture?
Question 3	When you were a child while playing, were you ever able to contort your body or spread your legs wide open, as shown in the picture?
Question 4	As a child, on one or more occasions, have you ever dislocated (or popped out of place) your shoulder or kneecap?
Question 5	Do you consider yourself very flexible or very elastic?
Acknowledgments	Thank you very much for your participation. If you have any questions about this questionnaire, please feel free to ask.
Qualification	If you marked two or more answers with "YES", this suggests joint hyperlaxity.

Source: Prepared by the authors based on the results from the study without figures.

RESULTS

The direct translation from english to spanish was carried out by two Peruvian translators whose native language is spanish. Both translators were certified in english, one of them a physician and the other with extensive experience in research work. Secondly, we reconciled the versions with both translators without success. Therefore, a third translator was summoned, with whom both translations were synthesized, obtaining the final translated version. Thirdly, the back-translation (from spanish to english) was carried out. Two native english-speaking translators carried out this phase with a mastery of spanish; additionally, one of them knew medical terminology. Subsequently, the final version in english, obtained from the synthesis of both translations, was prepared for the cultural adaptation process (Table 1). This final version was then compared to the original version of the study questionnaire, which was approved by the back-translators.

For the last questionnaire evaluation, experts were summoned through meetings via the ZOOM© platform. In this meeting, experts agreed on the need for a cultural adaptation by including images to complement the questions. The final version using images can be viewed at the following link: https://doi.org/10.6084/m9.figshare.19086743.v1; the latter obtained unanimous approval from the experts. The level of agreement of the experts for the semantic and cultural adaptation was made by calculating the Aiken V coefficient. This coefficient compared the initial translated version and the adapted version, corroborating that the concordance (linguistic accuracy, objectivity, and adequate vocabulary) and comprehensibility in the final format of the adapted version were approved by the experts (Table 2).

Secondarily, a comprehensibility analysis was applied to the targeted populations. Fifty subjects of both sexes participated 22 schoolchildren between 14 and 17 years of age and 28 adults

Table 2. Expert evaluation of the linguistic adaptation and comprehensibility of the "Short Questionnaire - 5PQ spanish version" (n = 10).

	Initial traduced version			Final adapted version		
	Concordance	Comprehensibility[1]		Concordance	Comprehensibility[1]	
Item	**Aiken's V1**	**X**	**SD**	**Aiken's V1**	**X**	**SD**
Title	0.93	9.6	0.84	1	10	0
Indication	0.96	9.6	0.96	1	10	0
Question 1	0.93	9.1	1.19	1	10	0
Question 2	0.76	7.8	1.75	1	10	0
Question 3	0.78	7.2	2.61	1	10	0
Question 4	0.92	8.5	1.5	1	10	0
Question 5	0.73	7.8	2.04	1	10	0
Acknowledgments	0.98	9.7	0.67	1	10	0
Qualification	1	9.4	0.96	1	10	0
Total	**0.89**	**8.7**	**0.95**	**1**	**10**	**0**

SD: standard deviation.X: mean.
[1]Rated on a score from 0 to 10. Data were obtained by applying Aiken's V to the linguistic rating of the experts.
Source: Prepared by the authors based on the results of the study.

Table 3. Sociodemographic characteristics of the adults and adolescents evaluated by test-retest.

Characteristics		Adults		Adolescents	
		n	%	n	%
Gender	Male	20	30.77	37	52.1
	Female	45	69.23	34	47.9
Children age group	12 to 13 years	NA	NA	15	21.1
	14 to 15 years	NA	NA	27	38
	16 to 17 years	NA	NA	29	40.9
Adult age group	24 to 40 years old	25	38.46	NA	NA
	41 to 60 years old	40	61.5	NA	NA
Cultural identification	Quechua	1	1.54	0	0
	Aimara	1	1.54	0	0
	Native or indigenous people of the Amazon region	0	0	1	1.4
	Other indigenous or native people	0	0	1	1.4
	Black. Brown. Zambo. Afro-descendant	4	6.15	0	0
	White	6	9.23	19	26.8
	Mestizo	52	80	47	66.2
	Other	1	1.54	3	4.2
Native language	Spanish	65	100	71	100

NA: not applicable. SD: standard deviation.X: mean.
Source: Prepared by the authors based on the results of the study.

between 18 and 62. All participants responded that they understood the items and images of the questionnaire (Aiken's V = 1); no problem or reason for difficulty in understanding any item of the questionnaire was reported.

Finally, for the test-retest reliability analysis, a total of 141 people were included in the study: 71 belonged to the adolescent group and 70 subjects to the adult group, from which five adults were excluded since they had a history of arthritis. The adolescent group comprised 37 males (52.1%) and 34 females (47.9%). The mean age was 14.7 years, with the group aged 16 to 17 being the most represented; 66.2% culturally identified themselves as mestizo. In the adult group, 69.2% of the participants were female, while 30.8% were male, of whom 80.0% regarded themselves as mestizos. The most frequent age group was 41 to 60 years old. In both groups, all of them were spanish native speakers (Table 3).

The comparison of the test-retest items was performed using Cohen's Kappa coefficient. We observed that in each question of the questionnaire, there was a high and very high concordance between the answers of both tests ($p < 0.0001$) (Table 4).

DISCUSSION

Since the creation of the Five-part questionnaire on hypermobility in English by Hakim AJ and Grahame R., which aims to synthesize Beighton's questionnaire to detect the presence of suggestive signs of joint hypermobility [25], it has been translated into two languages: portuguese [2] and swedish [20]. The portuguese translation and adaptation [2] involved a scientific translator and four Brazilian rheumatologists with official english language certification. Subsequently, the five versions obtained were discussed until a consensus was reached on the final portuguese version. The consensus version was back-translated by two scientific translators, one of whom was a native english speaker and the other non-native. The original and translated versions were compared, showing high similarity. Subsequently, it was applied to a pilot group, which suggested that images should be added to the five questions for a better understanding.

On the other hand, the translation of the questionnaire into Swedish [20] consisted of two translators, one with knowledge

Table 4. Test-retest reliability of the "Short Questionnaire - 5PQ spanish version".

	Adults		Adolescents	
Item	Kappa	95% CI	Kappa	95% CI
Question 1	0.9	0.790 to 1.000	0.962	0.888 to 1.000
Question 2	1,000	1.000 to 1.000	0.971	0.915 to 1.000
Question 3	0.963	0.892 to 1.000	0.969	0.908 to 1.000
Question 4	0.774	0.467 to 1.000	1,000	1.000 to 1.000
Question 5	0.68	0.368 to 0.973	1,000	1.000 to 1.000
Total score	0.795	0.777 to 0.819	0.946	0.908 to 0.982
Hypermobility category	0.902	0.794 to 1.000	0.94	0.859 to 1.000

CI: confidence interval.
Notes: Table note: Kappa: Cohen's Kappa coefficient.
Source: Prepared by the authors based on the results of the study.

of medical terminology and the other a Native American fluent in Swedish. Both discussed and agreed on the final version of the swedish translation. In the back-translation phase, two professional native english translators presented the back-translated version from swedish. Both versions were compared, showing a lack of equivalence to the term "double articulation"; however, it was considered an informal term with no implications on the interpretation and understanding of each item.

In contrast, in this study, translating the spanish version into the Peruvian context involved two native Peruvian translators with english language certification; additionally, one knew medical terminology. Subsequently, both versions were agreed upon, and a third translator was used to reconcile both translations. The cultural adaptation phase followed this, carried out by ten experts, and the final version of the questionnaire showed high concordance (Aiken's V = 1) and comprehensibility for each item. Finally, the back-translation phase was carried out by two translators: one a native Canadian and the second a Native American, who agreed that both back-translated versions were similar to the original version of the questionnaire.

In this study, the instrument's reliability translated and adapted to the Peruvian context in the adolescent and adult population was confirmed. All items corresponding to the questionnaire showed high test-retest reliability.

In the validation and reliability study of the self-assessment questionnaire under study, applied in the Swedish adult population, substantial and almost perfect reliability was found in four of the five questions according to the Kappa coefficient: item 1 (0.9), item 2 (0.8), item 3 (1.0), item 4 (not applicable) and item 5 (0.7), thus demonstrating the degree of reliability of the questionnaire [20]. For its part, the translation and validation study of the Brazilian 5-question short questionnaire obtained the following Kappa values: 1 (0.6), 2 (0.7), and 3 (0.7), while a moderate agreement was observed for questions 4 (0.6) and 5 (0.5), demonstrating overall good to moderate reliability [2].

Likewise, our research had similar results to the articles mentioned above. Using Cohen's Kappa, high and very high statistically significant values were obtained, which estimate the reliability of each questionnaire item in the Peruvian context. It is therefore recommended to perform concurrent validation of this self-applicable questionnaire, which will allow its use at the clinical level and for the early detection of hyperlaxity.

The study has identified limitations centered on selection biases in those populations with linguistic and cultural variations from different regions of Peru or native people whose second language is spanish are not represented, for which specific reliability studies are suggested. Something similar occurred with the adolescents who presented hypermobility: they had a higher rate of acceptance to the study than those who did not present this condition. Likewise, concerning age, subjects between 18 and 23 years of age have not been included in the reliability analysis, although we would not expect to find differences. In addition, it is suggested that an internal consistency analysis be carried out to verify the correlation between the instrument items.

Conclusions

We carried out the translation and back-translation of the spanish version of the "Five-part questionnaire on hypermobility" for the Peruvian population, showing an adequate semantic equivalence in both translations. Likewise, it was observed that the cultural adaptation carried out by a group of expert judges presented an excellent evaluation in the concordance and comprehensibility index. Similarly, it proved to be comprehensible in a sample of 50 subjects.

In the reliability phase, it was observed that the test-retest application showed a high level of reliability. Therefore, it is reported that the study instrument in spanish adapted for the Peruvian population is a reliable tool for detecting joint hyperlaxity. Still, it requires concurrent validation with the Beighton test.

Notes

Contributor roles

MRA, MDH: conceptualization, project development, data collection, data analysis, drafting, and preparation of the original and final manuscript. SDB: conceptualization, project development, data analysis, review, and approval of the final manuscript.

Acknowledgments

First, we thank God, who is the giver of knowledge. To Dr. Hakim for granting permission to use the questionnaire.

To the research department of the Universidad Peruana de Ciencias Aplicadas for the support provided to carry out this research work through the UPC-EXPOST-2022-2 incentive.

Conflictos de intereses

The authors declare that they have no conflicts of interest.

Funding

Universidad Peruana de Ciencias Aplicadas / UPC-EXPOST-2022- 2.

Ethics

The present study was conducted under the considerations regarding the care of clinical research participants included in the Declaration of Helsinki. It was approved before data collection by the Research Ethics Committee of the Faculty of Health Sciences of the Universidad Peruana de Ciencias Aplicadas. Given that part of the study was applied to minors, the informed consent procedures of the parents and the assent of the participating minors were followed.

Provenance and peer review

Not commissioned. Externally peer-reviewed by four reviewers, double-blind.

Language of submission

Spanish.

Data availability statement

The database for this study is available upon request.

References

1. Grahame R. Joint hypermobility syndrome pain. Curr Pain Headache Rep. 2009;13: 427–33. https://doi.org/10.1007/s11916-009-0070-5
2. de MD, Baptista CA, Crippa JAS, Louzada-Junior P. Translation into Brazilian Portuguese and validation of the five-part questionnaire for identifying hypermobility. Rev Bras Reumatol Engl Ed. 2011;51: 53–69. https://pubmed.ncbi.nlm.nih.gov/21412606/ https://doi.org/10.1590/S0482-50042011000100005
3. Carbonell-Bobadilla N, Rodríguez-Álvarez AA, Rojas-García G, Barragán-Garfias JA, Orrantia-Vertiz M, Rodríguez-Romo R. Joint hypermobility syndrome. Acta Ortop Mex. 2020;34: 441–449. https://pubmed.ncbi.nlm.nih.gov/34020527/
4. Kirk JA, Ansell BM, Bywaters EG. The hypermobility syndrome. Musculoskeletal complaints associated with generalized joint hypermobility. Ann Rheum Dis. 1967;26: 419–25. https://doi.org/10.1136/ard.26.5.419
5. Castori M, Hakim A. Contemporary approach to joint hypermobility and related disorders. Curr Opin Pediatr. 2017;29: 640–649. https://doi.org/10.1097/MOP.0000000000000541
6. Beckers AB, Keszthelyi D, Fikree A, Vork L, Masclee A, Farmer AD, et al. Gastrointestinal disorders in joint hypermobility syndrome/Ehlers-Danlos syndrome hypermobility type: A review for the gastroenterologist. Neurogastroenterol Motil. 2017;29: 1–10. https://doi.org/10.1111/nmo.13013
7. Pantoja Zarza L, Díez Morrondo C, Alexis D. Síndrome de Ehlers-Danlos hiperlaxo: ¿hipermovilidad benigna? Reumatología Clínica. 2014;10: 189–190. https://doi.org/10.1016/j.reuma.2013.06.001
8. Mariana Haro D, Mónica Morante R, Susana Lillo S. Síndrome de hiperlaxitud articular benigno en el niño. Revista Médica Clínica Las Condes. 2014;25: 255–264. https://doi.org/10.1016/S0716-8640(14)70036-7
9. Tinkle BT. Symptomatic joint hypermobility. Best Pract Res Clin Rheumatol. 2020;34: 101508. https://doi.org/10.1016/j.berh.2020.101508
10. Tinkle BT, Levy HP. Symptomatic Joint Hypermobility: The Hypermobile Type of Ehlers-Danlos Syndrome and the Hypermobility Spectrum Disorders. Med Clin North Am. 2019;103: 1021–1033. https://doi.org/10.1016/j.mcna.2019.08.002
11. Castori M, Morlino S, Pascolini G, Blundo C, Grammatico P. Gastrointestinal and nutritional issues in joint hypermobility syndrome/Ehlers-Danlos syndrome, hypermobility type. Am J Med Genet C Semin Med Genet. 2015;169C: 54–75. https://doi.org/10.1002/ajmg.c.31431
12. Kumar B, Lenert P. Joint Hypermobility Syndrome: Recognizing a Commonly Overlooked Cause of Chronic Pain. Am J Med. 2017;130: 640–647. https://doi.org/10.1016/j.amjmed.2017.02.013
13. Suárez Ayala DV, Valencia AM, Gómez Mora M del P. Relación entre hipermovilidad articular generalizada y dolor articular en niños de 4 a 17 años en Pasto, Colombia. Revista Colombiana de Reumatología. 2015;22: 210–216. https://doi.org/10.1016/j.rcreu.2015.10.005
14. Ottaviani S. Síndromes de hipermovilidad articular. EMC - Aparato Locomotor. 2020;53: 1–7. https://doi.org/10.1016/S1286-935X(20)43757-8
15. Castori M, Tinkle B, Levy H, Grahame R, Malfait F, Hakim A. A framework for the classification of joint hypermobility and related conditions. Am J Med Genet C Semin Med Genet. 2017;175: 148–157. https://doi.org/10.1002/ajmg.c.31539
16. Engelbert RHH, Juul-Kristensen B, Pacey V, de Wandele I, Smeenk S, Woinarosky N, et al. The evidence-based rationale for physical therapy treatment of children, adolescents, and adults diagnosed with joint hypermobility syndrome/hypermobile Ehlers Danlos syndrome. Am J Med Genet C Semin Med Genet. 2017;175: 158–167. https://doi.org/10.1002/ajmg.c.31545
17. Sanchez-Raya J, Altisent C, Martorell M, Vidal F, Crespo A. Patients with bleeding of unknown cause and joint hypermobility: Clinical assessment and genetic screening. Annals of Physical and Rehabilitation Medicine. 2018;61: e389–e390. https://doi.org/10.1016/j.rehab.2018.05.907
18. Bulbena A, Mallorquí-Bagué N, Pailhez G, Rosado S, González I, Blanch-Rubió J, et al. Self-reported screening questionnaire for the assessment of Joint Hypermobility Syndrome (SQ-CH), a collagen condition, in Spanish population. Eur J Psychiat. 2014;28: 17–26. https://doi.org/10.4321/S0213-61632014000100002
19. Tesen Torrejon EJ, Tuesta Gallegos J, Alfaro Fernández PR, Granados Carrera J. Frecuencia de las Caracteristicas de Hiperlaxitud Articular en edad escolar de 7 a 10 años Frequency. Rev Hered Rehabil. 2017;1: 68. https://doi.org/10.20453/rhr.v1i2.3207
20. Glans M, Humble MB, Elwin M, Bejerot S. Self-rated joint hypermobility: the five-part questionnaire evaluated in a Swedish non-clinical adult population. BMC Musculoskelet Disord. 2020;21. https://doi.org/10.1186/s12891-020-3067-1
21. Armstrong R, Greig DM. The Beighton score as a predictor of Brighton criteria in sport and dance. Phys Ther Sport. 2018;32: 145–154. https://doi.org/10.1016/j.ptsp.2018.04.016
22. Grahame R, Bird HA, Child A, Dolan AL, Edwards-Fowler A, Ferrell W. The revised (Brighton 1998) criteria for the diagnosis of benign joint hypermobility syndrome (BJHS). J Rheumatol. 2000;27: 1777–9. https://pubmed.ncbi.nlm.nih.gov/10914867/
23. Zurita Ortega F, Ruiz Rodríguez L, Martínez Martínez A, Fernández Sánchez M, Rodríguez Paiz C, López Liria R. Hiperlaxitud ligamentosa (test de Beighton) en la población escolar de 8 a 12 años de la provincia de Granada. Reumatología Clínica. 2010;6: 5–10. https://doi.org/10.1016/j.reuma.2009.01.008
24. Riveros J, González MaI, Rivas A, Roa P, Ramírez M, Ramírez M, et al. Joint hypermobility determined by the Beighton score in university students. Rev parag reumatol. 2019;5: 8–12. http://scielo.iics.una.py/scielo.php?script=sci_issuetoc&pid=2413-434120190001&lng=es&nrm=iso https://doi.org/10.18004/rpr/2019.05.01.8-12
25. Hakim AJ, Grahame R. A simple questionnaire to detect hypermobility: an adjunct to the assessment of patients with diffuse musculoskeletal pain. Int J Clin Pract. 2003;57: 163–6. https://pubmed.ncbi.nlm.nih.gov/12723715/
26. Guillemin F, Bombardier C, Beaton D. Cross-cultural adaptation of health-related quality of life measures: literature review and proposed guidelines. J Clin Epidemiol. 1993;46: 1417–32. https://doi.org/10.1016/0895-4356(93)90142-n
27. Bujang MA, Baharum N. Guidelines of the minimum sample size requirements for Kappa agreement test. Epidemiol Biostat Public Health. 2017;14. https://doi.org/10.2427/12267

28. Calculadora de coeficiente V de Aiken con intervalos de confianza al 95% y 99%. Accesado el 10/02/2022. https://www.psicometristas.com/calculadora-v-de-aiken/

Adaptación cultural y confiabilidad del instrumento *Five-part questionnaire on hypermobility* al contexto peruano

Resumen

Introducción

Para el diagnóstico de hiperlaxitud articular se emplea comúnmente el Test de Beighton que requiere de un profesional para la exploración física. Por su parte, el instrumento The Five-part questionnaire on hypermobility es una herramienta autoadministrada que permite identificar de forma temprana la presencia de hiperlaxitud articular.
Objetivo
Realizar la adaptación cultural y confiabilidad test-retest del instrumento The Five-part questionnaire on hypermobility al contexto peruano, por medio de la traducción al español, adaptación lingüística y verificación de la confiabilidad test – retest en estudiantes de 13 a 17 años y docentes/administrativos de 24 a 60 años.

Métodos

Se realizó una traducción-retrotraducción con dos traductores, dos retrotraductores y la adaptación lingüística con 10 expertos. Obtenida la versión adaptada del cuestionario, se aplicó un análisis de comprensibilidad a 50 sujetos. Finalmente se estimó la confiabilidad test-retest en dos grupos: en adolescentes de 13 a 17 años y en adultos de 24 a 60 años.

Resultados

Se obtuvo la versión traducida del cuestionario, el cual pasó por un proceso de adaptación lingüística donde 10 expertos realizaron un análisis de concordancia (Coeficiente V de Aiken = 1) y un análisis de comprensibilidad con una escala de 0 a 10 que obtuvo una media de 10 puntos. Posteriormente, esta versión fue retro traducida y cotejada con el original. En el análisis de confiabilidad, los resultados de la aplicación del test-retest encontraron una confiabilidad alta entre el puntaje total de ambas aplicaciones tanto para el grupo de 65 adultos (Kappa 0,795; intervalo de confianza al 95%: de 0,777 a 0,819) y el de 71 adolescentes (Kappa 0,946; intervalo de confianza al 95%: de 0,908 a 0,982).

Conclusiones

Se adaptó el instrumento traducido cuestionario corto The five-part questionnaire (5pq) on hypermobility al contexto cultural de Perú y se encontró alta confiabilidad para los grupos de estudio de 13 a 17 años y de 24 a 60 años. Se recomienda la validación concurrente para considerar su aplicación en clínica y en investigación.