Rev Bras Cineantropom Desempenho Hum

original article

https://doi.org/10.1590/1980-0037.2025v27e107686

Transcultural validation of the Canadian Assessment of Physical Literacy (CAPL-2) in Brazilian schoolchildren: a pilot study

Validação transcultural da Avaliação Canadense da Literacia Física (CAPL-2) em escolares brasileiros: um estudo-piloto

Brayan E. Patiño-Palma[1,2]
https ://orcid.org/0000-0002-6932-0980
Kauana Possamai[3]
https ://orcid.org/0000-0002-5643-4559
Silvia Simoni[3]
https ://orcid.org/0009-0008-8672-0944
Juarez Vieira do Nascimento[3]
https ://orcid.org/0000-0003-0989-949X
José Armando Vidarte-Claros[1]
https ://orcid.org/0000-0002-7982-3848

1 Universidad Autónoma de Manizales. Doctorado Ciencias de la Salud. Manizales. Colombia.
2 Fundación Universitaria del Área Andina. Grupo de investigación ZIPATEFI. Pereira. Colombia.
3 Universidade Federal de Santa Catarina – UFSC. Florianópolis, SC. Brasil.

Received: June 28, 2025
Accepted: September 17, 2025

How to cite this article
Patiño-Palma BE, Possamai K, Simoni S, Nascimento JV, Vidarte-Claros JA. Transcultural validation of the Canadian Assessment of Physical Literacy (CAPL-2) in Brazilian schoolchildren: a pilot study. Rev Bras Cineantropom Desempenho Hum 2025, 27:e107686. DOI: https://doi.org/10.1590/1980-0037.2025v27e107686

Corresponding author:
Brayan Patiño-Palma

Doctorado Ciencias de la Salud, Universidad Autónoma de Manizales

Antigua Estación del Ferrocarril, Manizales, Caldas, Colombia
E-mail: brayan.patinop@autonoma.edu.co

Scientific Editor:
Diego Augusto Santos Silva

Abstract – The aim of this study was to translate and culturally adapt the questionnaires of the Canadian Assessment of Physical Literacy – second edition (CAPL-2) to Brazilian Portuguese, and to evaluate their semantic, conceptual, and cultural equivalence in a school-aged population. A cross-cultural adaptation study was conducted following internationally accepted guidelines. The process involved forward translation, expert consensus, back-translation, expert panel validation, and pilot testing. A panel of six experts evaluated the adapted questionnaires in terms of clarity, theoretical relevance, and practical applicability. The pilot phase included 25 Brazilian schoolchildren aged 8 to 12 years. Statistical analyses included descriptive measures and Kendall's coefficient of concordance. The expert panel showed a high level of agreement across dimensions, with low variability (CV = 1.6% for practical applicability). Qualitative suggestions led to linguistic and cultural refinements in the final version. In the pilot study, 96% of participants found the questionnaire easy to complete and 92% reported full understanding. In the motivation and confidence domain, 76% of children were classified as "excelling" and 24% as "achieving." The knowledge and understanding domain showed greater variability, with 24% of participants classified as "excelling," 32% as "achieving," 36% as "progressing," and 8% as "beginning". The Brazilian Portuguese version of the CAPL-2 questionnaires demonstrates strong acceptability, cultural relevance, and potential for use in educational and public health contexts. These findings support the instrument's continued validation and implementation in Brazil.

Key words: Physical literacy; Cultural adaptation; Questionnaires; Psychometrics; Pediatric assessment.

Resumo – *O objetivo deste estudo foi traduzir e adaptar culturalmente os questionários da Canadian Assessment of Physical Literacy – second edition (CAPL-2) para o português do Brasil, bem como avaliar sua equivalência semântica, conceitual e cultural em uma população em idade escolar. Um estudo de adaptação transcultural foi conduzido seguindo diretrizes internacionalmente aceitas. O processo envolveu tradução direta, consenso entre especialistas, retrotradução, validação por painel de especialistas e teste-piloto. Um painel de seis especialistas avaliou os questionários adaptados quanto à clareza, relevância teórica e aplicabilidade prática. A fase-piloto incluiu 25 escolares brasileiros com idades entre 8 e 12 anos. As análises estatísticas incluíram medidas descritivas e o coeficiente de concordância de Kendall. O painel de especialistas apresentou alto nível de concordância entre as dimensões, com baixa variabilidade (CV = 1,6% para aplicabilidade prática). Sugestões qualitativas resultaram em ajustes linguísticos e culturais na versão final. No estudo-piloto, 96% dos participantes consideraram o questionário fácil de responder e 92% relataram compreensão total. No domínio de motivação e confiança, 76% das crianças foram classificadas como "excelentes" (excelling) e 24% como "atingindo a meta" (achieving). O domínio de conhecimento e compreensão apresentou maior variabilidade, com 24% classificados como "excelentes", 32% como "atingindo a meta", 36% como "em progresso" (progressing) e 8% como "iniciantes" (beginning). A versão em português do Brasil dos questionários do CAPL-2 demonstra forte aceitabilidade, relevância cultural e potencial de uso em contextos educacionais e de saúde pública. Esses achados apoiam a continuidade do processo de validação e implementação do instrumento no Brasil.*

Palavras-chave: *Literacia física; Adaptação cultural; Questionários; Psicometria; Avaliação pediátrica.*

INTRODUCTION

Physical literacy is a multidimensional construct encompassing motor skills, motivation, confidence, knowledge, and understanding—all essential for lifelong engagement in physical activity[1,2]. This comprehensive view recognizes that long-term participation depends not only on physical competence but also on affective and cognitive factors that influence autonomy, adherence, and well-being[3,4].

To assess this construct systematically, the Canadian Assessment of Physical Literacy (CAPL) was developed and is now in its second edition (CAPL-2), evaluating four core domains: physical competence, daily behavior, motivation and confidence, and knowledge and understanding[3]. Unlike tools focused solely on physical performance, CAPL-2 enables both individual-level assessment and population surveillance in children aged 8 to 12.

Cross-cultural adaptations of CAPL-2 in several countries have confirmed its utility in diverse educational settings[5–8]. These adaptations emphasize the need to address not only language but also cultural and curricular alignment, particularly in the affective and cognitive domains. European validations, for instance, have reported strong reliability in motivational measures, while knowledge scores have shown greater variability due to pedagogical differences in physical education[7,9,10].

In Brazil, the growing public health concern over physical inactivity—especially among children and adolescents—has highlighted the importance of promoting physical literacy-based strategies[11]. Data show that 47% of Brazilians do not meet recommended activity levels, with inactivity more prevalent among females (53.3%) than males (40.4%)[12]. This reinforces the need for culturally appropriate tools to support early intervention.

Despite international advances, Latin American research on physical literacy remains limited. Currently, there is no culturally validated instrument to assess this construct in the region's school population[13]. This gap hinders the ability of educators and health professionals to develop evidence-based interventions tailored to local needs, and this holistic construct, which integrates physical, cognitive, emotional, and social dimensions, may be fundamental for promoting an active and healthy lifestyle[14].

Accordingly, this study aimed to translate and culturally adapt the CAPL-2 questionnaires into Brazilian Portuguese and to evaluate their linguistic and conceptual equivalence in a school-aged population.

METHODS

A validation study was conducted using an empirical-analytical approach aimed at the transcultural adaptation of the questionnaires from the second edition of the Canadian Assessment of Physical Literacy (CAPL-2).

Instrument

The CAPL-2 was developed by the Healthy Active Living and Obesity (HALO) research group in 2008 and validated with over 10,000 Canadian children in 2018[3,15]. The current version, reduced from 25 to 14 items, reflects a refined structure based on rigorous validation[16].

Confirmatory factor analysis (CFA) confirmed four interrelated domains: physical competence, daily behavior, motivation and confidence, and knowledge and understanding[16]. Reliability was high for the motivation and confidence domain ($\alpha = 0.90$, $p < 0.001$), and lower for the knowledge and understanding domain ($\alpha = 0.52$, $p < 0.05$)[16]. Test-retest reliability of the CAMSA showed strong results (ICC = 0.99), though skill scores varied by interval (ICC = 0.46 to 0.74)[15]. The CAPL-2's validity has been confirmed in multiple international studies, with good fit indices across diverse populations (CFI = 0.95, TLI = 0.94, RMSEA = 0.05)[13].

Each domain has a defined score: physical competence (30 points), daily behavior (30 points), motivation and confidence (30 points), and knowledge and understanding (10 points)[4]. Assessments include physical tests (plank, PACER, CAMSA), questionnaires on motivation and knowledge, and pedometer-based activity tracking. However, since this study focused on transcultural validation, only the motivation and confidence and knowledge and understanding domains were analyzed, excluding physical tests and behavioral monitoring.

Procedure

The adaptation process was conducted in accordance with the guidelines proposed by Beaton et al.[17] (Figure 1). Prior to initiating the process, authorization was obtained from the research group responsible for the original CAPL-2 version. The first phase of the study involved the translation of the questionnaires and the quick reference guide by two Brazilian translator's researchers and experts in Sport and Physical Activity Sciences with proficiency in English.

In the second phase, following the completion of individual versions by each translator, a consensus meeting was held to develop a unified translation and culturally adapted version of the questionnaires and the CAPL-2 quick reference guide. During this meeting, linguistic discrepancies were discussed, leading to the development of the initial version of the questionnaires adapted to Brazilian Portuguese.

In the third phase, a back-translation process was carried out. This involved translating the Brazilian Portuguese version of the questionnaires and the quick reference guide back into the original language (English). The translation was performed by a native English speaker fluent in Brazilian Portuguese. Once the back-translation was completed, it was compared with the original version in English to assess the semantic and conceptual equivalence of the items. Discrepancies were identified and corrected to ensure that the translated version retained the same intent and meaning as the original. As a result, a properly translated and culturally adapted version of the questionnaire in Brazilian Portuguese was obtained.

In the fourth phase, the adapted instruments were submitted for evaluation by a panel of experts via email, allowing a period of 10 days for their responses. The process was conducted anonymously, and each expert provided prior informed consent to participate. The experts reviewed the instruments using a predefined evaluation form, rating each item in terms of clarity, relevance, and appropriateness, thereby contributing to the face validity assessment of the preliminary version. Rather than proposing modifications, the primary objective of this expert review was to validate whether the theoretical construct of the instrument could be meaningfully adapted to the Brazilian school context.

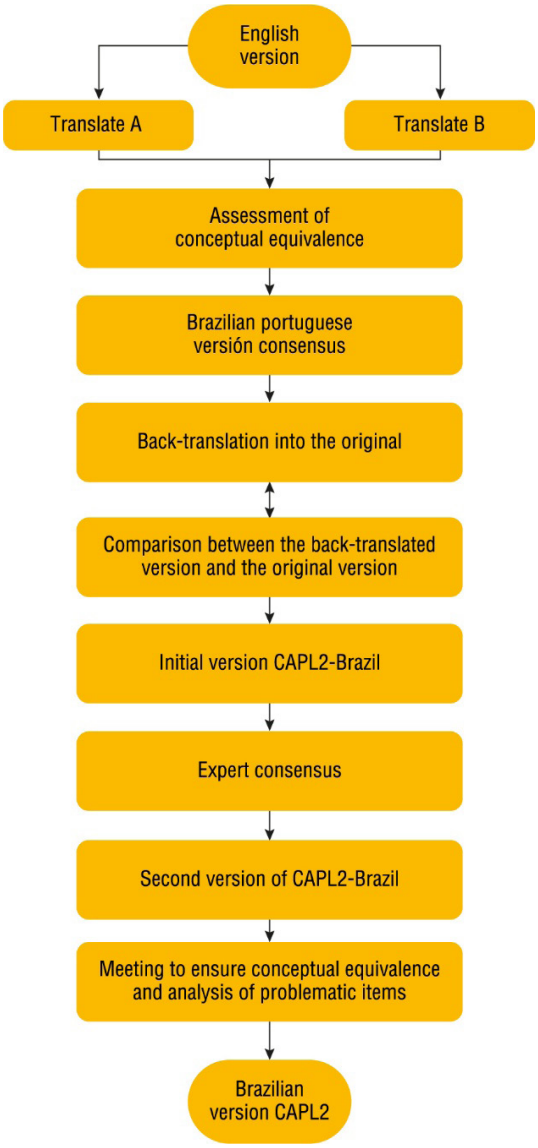

Figure 1. Phases of cross-cultural validation. Note: Graphic representation of the stages of Transcultural Adaptation (Adapted from Beaton et al.[17]).

Finally, the questionnaires were administered to a group of 25 Brazilian schoolchildren from diverse backgrounds and ages (ranging from 8 to 12 years) in order to identify potential issues related to comprehension and cultural adaptation. Based on the findings, minor adjustments were made to ensure the clarity of the instrument and to address any culturally sensitive aspects.

Statistical analysis

During the translation and back-translation phases, an analysis of semantic, cultural, and conceptual equivalence was conducted to ensure that the adapted versions maintained the original intent and meaning of the instrument. In the expert consensus stage, the evaluations received were analyzed both quantitatively and qualitatively, and relevant linguistic and cultural adjustments were made based on expert recommendations. Subsequently, the Kendall's coefficient of concordance was calculated to assess the level of agreement among experts.

Finally, for the pilot phase, the collected data were compiled into a database specifically designed for this study, ensuring strict confidentiality and anonymity of all participants. Data processing was performed using the R programming language (version 4.3.2). Scoring and interpretation of the CAPL-2 questionnaires were conducted using the official capl package (version 1.4.2), developed by the Healthy Active Living and Obesity (HALO) research group[18]. The questionnaire responses were coded in accordance with the official protocol of the instrument and subsequently analyzed to obtain domain-specific scores and interpretations. To ensure reproducibility and traceability, the complete processing script including variable renaming structure, scoring algorithm execution, and results export has been made available in Supplementary Material 1.

RESULTS

The initial phase of the transcultural adaptation involved translating the original CAPL-2 instrument from English into Brazilian Portuguese. Two native Brazilian translators—both with postgraduate training in education and physical activity, and fluent in English—independently produced preliminary versions. A consensus meeting was then held to resolve terminological differences and produce a unified version aligned with semantic and cultural equivalence.

Subsequently, a back-translation was carried out by a native English speaker with expertise in academic translation and proficiency in Portuguese. The back-translated version was systematically compared with the original to identify potential semantic or conceptual inconsistencies (Table 1). Only minor lexical and grammatical differences were noted, such as variation in contractions (e.g., "don't" vs. "do not") and wording preferences (e.g., "kids" vs. "children"), none of which altered the original meaning.

Table 1. Comparative analysis between the original and back-translated versions of the CAPL-2 questionnaire.

Original Version	Back-translated Version	Observed Differences	Proposed Solutions
What Do You Think About Physical Activity?	What do you think about physical activity?	Difference in capitalization	Keep back-translated version for consistency
When we ask you about physical activity, we mean when you are moving around, playing, or exercising. Physical activity is any activity that makes your heart beat faster or makes you get out of breath some of the time.	When we ask about physical activity, we mean when you are moving, playing, or exercising. Physical activity is any activity that makes your heart beat faster or makes you feel out of breath sometimes.	Simplified expressions ("moving around" vs. "moving"; "get out of breath" vs. "feel out of breath")	Maintain back-translation; meaning is preserved
Why are we asking you these questions? We want to know what kids, like you, think about physical activity, sports, and exercise.	Why are we asking you these questions? We want to know what children, like you, think about physical activity, sports, and exercise.	"Kids" changed to "children"	Keep back-translated version

Table 1. Continued...

Original Version	Back-translated Version	Observed Differences	Proposed Solutions
Please Remember: There are no right or wrong answers! We only want to know what you think. If you do not know an answer, please write your best guess. There is no time limit, so please take all of the time you need.	Please remember: There are no right or wrong answers! We just want to know what you think. If you don't know the answer, write your best guess. There is no time limit, so take as much time as you need.	Changes in style: capitalization, contractions ("don't"), and vocabulary ("just")	Keep back-translation; tone is appropriate
What's Most Like Me? For each question, you have to read two sentences and then circle the sentence you think is MORE LIKE YOU.	What is most like me? For each question, you should read two statements and then circle the one that you think is MOST LIKE YOU.	"What's" changed to "What is"; "sentences" to "statements"; "have to" to "should"	Avoid contractions and improve formality
Try the following SAMPLE QUESTION: Some kids have one nose on their face BUT Other kids have three noses on their face	Try the following EXAMPLE QUESTION Some children have one nose on their face, BUT other children have three noses on their face.	"Sample" changed to "example"; "kids" to "children"	Keep version; clearer terminology
Once you have circled the sentence that is more like you, then you have to decide if it is REALLY TRUE for you or SORT OF TRUE for you.	After you circle the statement that is most like you, then you have to decide if it is REALLY TRUE for you or SORT OF TRUE for you.	"Once you have circled" to "After you circle"; "sentence" to "statement"	Keep version; structure improved
Here is another sample question for you to try. Remember, to answer the question you need to do two things: 1) First, circle the sentence that is more like you. 2) Then, put a check in the correct box if it is REALLY TRUE or SORT OF TRUE for you.	Here is another example question for you to practice. Remember, to answer the question you need to do two things: First, circle the statement that is most like you. Then, check the correct box if it is REALLY TRUE or SORT OF TRUE for you.	"Sample" to "example"; "try" to "practice"; "sentence" to "statement"; rephrasing	Keep version; meaning is preserved
Sample Question #2 Some kids like to play with computers BUT Other kids don't like playing with computers □ REALLY TRUE for me □ SORT OF TRUE for me □ REALLY TRUE for me □ SORT OF TRUE for me	Example Question #2 Some children like to play with computers BUT Other children do not like to play with computers □ REALLY TRUE for me □ SORT OF TRUE for me □ REALLY TRUE for me □ SORT OF TRUE for me	"Sample" to "Example"; "kids" to "children"; contractions avoided	Keep version for tone consistency
BE SURE TO FILL IN EACH PAGE!	MAKE SURE TO FILL OUT EVERY PAGE!	"FILL IN" changed to "FILL OUT"; "EACH" to "EVERY"	Keep version; instruction remains clear
Some kids don't have much fun playing sports BUT Other kids have a good time playing sports	Some children do not enjoy playing sports BUT Other children enjoy playing sports	Lexical variation ("don't have much fun" to "do not enjoy"; "have a good time" to "enjoy")	Keep version; meaning is unchanged

The instrument was evaluated by a panel of six experts with postgraduate education and professional backgrounds in Physical Education. All held doctoral degrees, and most had international research experience. Five were faculty at public universities, and one worked in the federal basic and technical education system. Two had completed postdoctoral training.

Experts assessed each questionnaire item in terms of language clarity, theoretical relevance, and practical applicability using a 5-point Likert scale. Kendall's coefficient of concordance (W) was calculated to determine inter-rater agreement. The results are summarized in Table 2.

Table 2. Kendall's concordance index (W) by dimension.

Dimension	Kendall's W	*p*-value	Interpretation
Clarity	0.421	0.0011	Moderate, significant agreement
Relevance	0.385	0.0024	Moderate, significant agreement
Practical applicability	0.467	0.0004	Moderate, significant agreement

Note: Kendall's W was calculated using the Friedman test to assess inter-rater agreement. A W value close to 1 indicates greater agreement. All results were statistically significant ($p < 0.05$).

The results indicated a moderate and statistically significant level of agreement across all dimensions, suggesting a relatively homogeneous evaluation by the experts regarding the ranking of items within each category analyzed. In addition, descriptive statistics were calculated for each dimension, including the mean, standard deviation, coefficient of variation (CV%), and agreement index (defined as the proportion of items rated ≥4 by all evaluators). The results are summarized in Table 3.

Table 3. Descriptive statistics by dimension.

Dimension	Mean	Standard deviation	CV (%)	Agreement index (%)
Clarity	4.60	0.47	10.1	53.7
Relevance	4.77	0.57	12.0	50.0
Practical applicability	4.97	0.08	1.6	55.6

Note: Mean, standard deviation (SD), coefficient of variation (CV%), and percentage of agreement (items rated ≥4 by all experts) calculated by dimension. Lower CV values indicate greater homogeneity; an agreement index ≥50% suggests general acceptability.

Average scores across the three dimensions indicated strong content acceptability, with low variability in practical applicability (CV = 1.6%), reflecting consistent expert evaluations. Qualitative feedback highlighted the need to improve clarity, standardize response formats, and replace unfamiliar expressions. Experts also suggested simplifying some statements and using everyday examples for technical terms. All suggestions were considered in the final version of the questionnaire, which is available in Supplementary Material 2.

For pilot testing, only the questionnaire components were applied to 25 Brazilian schoolchildren (mean age = 10.2 years; 52% girls). The aim was to evaluate the comprehensibility and cultural relevance of the motivation and confidence, and knowledge and understanding domains.

Results showed strong performance in motivation and confidence (mean = 27.1 ± 3.8/30), with 26% classified as "excelling" and 24% as "achieving."

Knowledge and understanding scores were more variable (mean = 6.68 ± 1.86/10), with 24% "excelling," 32% "achieving," 36% "progressing," and 8% "beginning." Most participants (96%) found the questionnaire easy to complete and 92% considered it clearly understandable. Figure 2 graphically illustrates the distribution of physical literacy levels in the two evaluated domains.

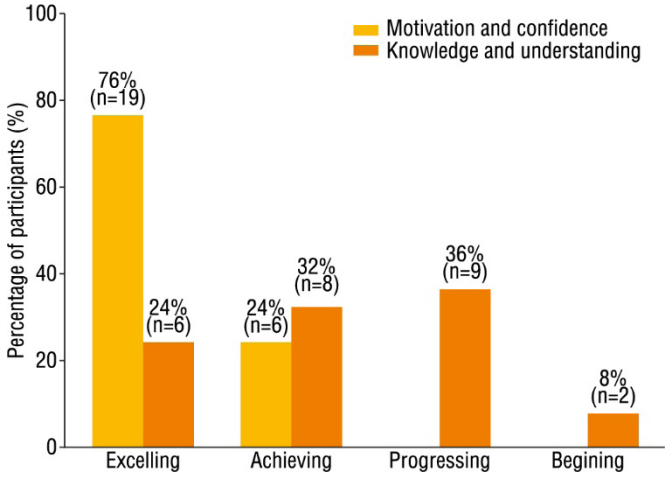

Figure 2. Distribution of CAPL-2 interpretation levels across two domains.

DISCUSSION

This study provides preliminary evidence of the transcultural validity, acceptability, and feasibility of the CAPL-2 questionnaires among Brazilian schoolchildren. The translation and back-translation process followed standardized cross-cultural adaptation protocols, ensuring semantic and conceptual equivalence[17]. Expert review contributed culturally appropriate refinements, with acceptable agreement levels reflected in Kendall's W, in line with findings from similar studies in Portugal[7], Denmark[8], and Spain[9].

The pilot sample had a balanced sex distribution and a mean age of 10.2 years, consistent with other validation studies[7,9] enabling appropriate cross-cultural comparisons. Participant acceptance was high: 96% found the instrument easy to complete and 92% reported clear understanding. These findings confirm the linguistic and cultural suitability of the Brazilian Portuguese version for use in school settings.

Motivation and confidence scores were notably high, with 76% of children classified as "excelling" and 24% as "achieving." This result aligns with findings from Denmark[8], and Spain[9] where affective domains consistently showed high internal consistency and robust performance. Similarly, validations conducted in Iran[19] and Pakistan[20] reported stable outcomes in motivational components, suggesting greater cross-cultural invariance in this domain.

In contrast, the knowledge and understanding domain showed more variability: 36% of children were classified as "progressing" and 8% as "beginning." Similar trends have been reported in China[6] and Greece[5] and other non-Western contexts, where cognitive components exhibited greater sensitivity to pedagogical and curricular differences. This reinforces the notion that while motivational constructs are broadly consistent across cultures, knowledge-based components require deeper alignment with local educational frameworks.

A relevant comparison can be made with the Portuguese validation study[7]. Despite the shared language, differences in knowledge scores suggest that educational context may exert a stronger influence than linguistic similarity. In Portugal, physical literacy is framed within a formative and holistic model, whereas in Brazil, physical education still follows more traditional, sport-centered approaches, with less emphasis on conceptual content[21]. This curricular divergence may partly explain the heterogeneity observed in the cognitive domain.

One of the methodological strengths of this study was the use of a reproducible and transparent analysis process based on R programming. The use of the official CAPL package ensured adherence to the original scoring protocol[18] and the analysis script is available to support replication in future studies. This approach minimizes bias and facilitates methodological standardization, key elements in contemporary validation research.

Despite promising results, certain limitations should be acknowledged. First, the sample size (n = 25) was small, limiting the generalizability of findings. However, this is consistent with early-stage validation designs, as seen in the initial Spanish CAPL-2 study[9]. Second, the study focused solely on questionnaire components, excluding physical tests and behavioral monitoring. While intentional, this choice restricts full interpretation of physical literacy levels. Nevertheless, focusing on the affective and cognitive domains was appropriate, given their greater susceptibility to cultural and linguistic influences.

CONCLUSIONS

This study represents a significant step forward in the cross-cultural adaptation of the CAPL-2 instrument to the Brazilian context. The results from the pilot phase indicate that the Brazilian Portuguese version demonstrates high levels of comprehensibility and acceptability among children aged 8 to 12, particularly in the motivation and confidence domain, which showed strong and consistent performance in line with findings from other countries.

Finally, to support standardized implementation in similar educational contexts, the Brazilian Portuguese version of the adapted CAPL-2 questionnaires (Supplementary Material 3) and the quick reference guide (Supplementary Material 4) are made available to the scientific community.

ACKNOWLEDGEMENTS

The authors would like to express their sincere gratitude to the panel of experts for their valuable contributions to the cultural and linguistic adaptation of the instrument, as well as to the students who participated in the pilot testing. Special thanks are extended to the Universidad Federal de Santa Catarina (UFSC) for supporting the development of this research during the academic exchange period, and to the LAPE/NUPPE research group for their methodological guidance and collaborative support throughout the validation process.

Compliance with ethical standards

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors. This study was funded by the authors.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author, upon reasonable request.

Ethical approval

Ethical approval was obtained from the Human Research Ethics Committee CEIBIC-UAM (Comité de Ética, Bioética e Integridad Científica de la Universidad Autónoma de Manizales), and the protocol (no. 257-191, February 26, 2025) was written in accordance with the standards set by the Declaration of Helsinki.

Conflict of interest statement

The authors have no conflict of interests to declare.

Author Contributions

Conceived and designed the experiments: BPP, KP, SS, JVN, JAVC; Performed the experiments: BPP, KP, SS; Analyzed the data: BPP, KP, SS, JVN; Contributed reagents/materials/analysis tools: JAVC, JVN; Wrote the paper: BPP, KP, SS, JVN, JAVC.

References

1. Whitehead M. Physical literacy – a debate [Internet]. Thessaloniki: Pre-Olympic Congress; International Physical Literacy Association; 2015 [cited 2025 Sep 21]. Available from: https://www.physical-literacy.org.uk/library/physical-literacy-a-debate/
2. Edwards LC, Bryant AS, Keegan RJ, Morgan K, Jones AM. Definitions, foundations and associations of physical literacy: a systematic review. Sports Med. 2017;47(1):113-26. http://doi.org/10.1007/s40279-016-0560-7. PMid:27365029.
3. Longmuir PE, Gunnell KE, Barnes JD, Belanger K, Leduc G, Woodruff SJ, et al. Canadian Assessment of Physical Literacy Second Edition: a streamlined assessment of the capacity for physical activity among children 8 to 12 years of age. BMC Public Health. 2018;18(2):1047. http://doi.org/10.1186/s12889-018-5902-y.
4. Cairney J, Dudley D, Kwan M, Bulten R, Kriellaars D. Physical literacy, physical activity and health: toward an evidence-informed conceptual model. Sports Med. 2019;49(3): 371-83. http://doi.org/10.1007/s40279-019-01063-3. PMid:30747375.
5. Dania A, Kaioglou V, Venetsanou F. Validation of the Canadian Assessment of Physical Literacy for Greek children: understanding assessment in response to culture and pedagogy. Eur Phys Educ Rev. 2020;26(4):903-19. http://doi.org/10.1177/1356336X20904079.
6. Li MH, Sum RKW, Tremblay M, Sit CHP, Ha ASC, Wong SHS. Cross-validation of the Canadian Assessment of Physical Literacy second edition (CAPL-2): the case of a Chinese population. J Sports Sci. 2020;38(24):2850-7. http://doi.org/10.1080/02640414.2020.1803016. PMid:32787646.
7. Mendoza-Muñoz M, Carlos-Vivas J, Castillo-Paredes A, Parraca JA, Raimundo A, Alegrete J, et al. Portuguese translation and validation of the questionnaires from the Canadian Physical Literacy Assessment-2: a pilot study. Front Psychol. 2023;14:1244566. http://doi.org/10.3389/fpsyg.2023.1244566. PMid:38046115.
8. Elsborg P, Melby PS, Kurtzhals M, Tremblay MS, Nielsen G, Bentsen P. Translation and validation of the Canadian assessment of physical literacy-2 in a Danish sample. BMC Public Health. 2021;21(1):2236. http://doi.org/10.1186/s12889-021-12301-7. PMid:34886833.

9. Pastor-Cisneros R, Carlos-Vivas J, Adsuar JC, Barrios-Fernández S, Rojo-Ramos J, Vega-Muñoz A, et al. Spanish translation and cultural adaptation of the Canadian Assessment of Physical Literacy-2 (CAPL-2) questionnaires. Int J Environ Res Public Health. 2022;19(14):8850. http://doi.org/10.3390/ijerph19148850. PMid:35886701.

10. Dania A, Kaioglou V, Venetsanou F. Validation of the Canadian Assessment of Physical Literacy for Greek children: Understanding assessment in response to culture and pedagogy. Eur Phys Educ Rev. 2020;26(4):903-19. http://doi.org/10.1177/1356336X20904079.

11. Victo ER, Ferrari G, da Silva DRP, Ferrero-Hernández P, Valenzuela CF, Solé D. Opportunities for physical activity in the school environment and their association with physical activity and sedentary behavior in Brazilian adolescents. Sci Rep. 2025;15(1):9386. http://doi.org/10.1038/s41598-025-94174-z. PMid:40102660.

12. Lima MG, Malta DC, Monteiro CN, Sousa NFS, Stopa SR, Medina LPB, et al. Leisure-time physical activity and sports in the Brazilian population: a social disparity analysis. PLoS One. 2019;14(12):e0225940. http://doi.org/10.1371/journal.pone.0225940. PMid:31794582.

13. Patiño-Palma BE, Vidarte-Claros J. Evaluación canadiense de alfabetización física-2 (CAPL-2) como herramienta de evaluación objetiva de la alfabetización física en escolares de 8 a 12 años: Scoping review. Retos. 2024;60(60):918-25.

14. Patiño-Palma BE, Gómez-Rodas A, Vidarte-Claros J. Exploring the relationship between cardiorespiratory fitness and physical literacy: a scoping review. Journal of Health Literacy. 2023;9:9-30.

15. Tremblay MS, Longmuir PE, Barnes JD, Belanger K, Anderson KD, Bruner B, et al. Physical literacy levels of Canadian children aged 8-12 years: Descriptive and normative results from the RBC Learn to Play-CAPL project. BMC Public Health. 2018;18 (Suppl 2):1036. http://doi.org/10.1186/s12889-018-5891-x. PMid:30285693.

16. Gunnell KE, Longmuir PE, Barnes JD, Belanger K, Tremblay MS. Refining the Canadian Assessment of Physical Literacy based on theory and factor analyses. BMC Public Health. 2018;18(Suppl 2):1044. http://doi.org/10.1186/s12889-018-5899-2. PMid:30285682.

17. Beaton DE, Bombardier C, Guillemin F, Ferraz MB. Guidelines for the process of cross-cultural adaptation of self-report measures. Spine. 2000;25(24):3186-91. http://doi.org/10.1097/00007632-200012150-00014. PMid:11124735.

18. Barnes JD, Guerrero MD. An R package for Computing Canadian Assessment of Physical Literacy (CAPL) scores and interpretations from raw data. PLoS One. 2021;16(2):e0243841. http://doi.org/10.1371/journal.pone.0243841. PMid:33617576.

19. Valadi S, Cairney J. The Canadian assessment of physical literacy: a valid tool in determining the Iranian children capacity for an active and healthy lifestyle. Sport Sci Health. 2023;19(2):637-47. http://doi.org/10.1007/s11332-022-00933-0.

20. Hadier SG, Liu Y, Long L, Hamdani SMZH, Khurram H, Hamdani SD, et al. Assessment of physical literacy in 8- to 12-year-old Pakistani school children: reliability and cross-validation of the Canadian assessment of physical literacy-2 (CAPL-2) in South Punjab, Pakistan. BMC Public Health. 2024;24(1):1-16. http://doi.org/10.1186/s12889-024-19185-3.

21. Flôres FS, Rodrigues LP, Luz C, Cordovil R. Cross-cultural comparisons of motor competence in southern Brazilian and Portuguese schoolchildren. Motriz. 2021;27:e10210018420. http://doi.org/10.1590/s1980-657420210018420.

Supplementary Material

Supplementary material accompanies this paper
Supplementary Material 1: Free access in https://osf.io/py7rg/
Supplementary Material 2: Free access in https://osf.io/py7rg/
Supplementary Material 3: Free access in https://osf.io/py7rg/
Supplementary Material 4: Free access in https://osf.io/py7rg/