

ASSESSMENT QUESTIONNAIRES FOR PHYSICAL ACTIVITY LEVELS IN BRAZILIAN CHILDREN AND YOUTH: A BIBLIOGRAPHIC REVIEW**CUESTIONARIOS DE EVALUACIÓN DE LOS NIVELES DE ACTIVIDAD FÍSICA EN NIÑOS Y JÓVENES BRASILEÑOS: UNA REVISIÓN BIBLIOGRÁFICA****QUESTIONÁRIOS DE AVALIAÇÃO DOS NÍVEIS DE ATIVIDADE FÍSICA EM CRIANÇAS E JOVENS BRASILEIROS: UMA REVISÃO BIBLIOGRÁFICA**

10.56238/revgeov17n1-014

Ronei Nunes Freire¹, Viviane Soares², Erica Aparecida Vaz Rocha³, Jairo Teixeira Junior⁴, Patricia Espíndola Mota Venâncio⁵

ABSTRACT

This study aimed to conduct a literature review on instruments for assessing physical activity in Brazilian children and adolescents. The research included academic publications addressing the improvement, validation, and application of various measurement instruments. International questionnaires adapted to the Brazilian context were identified, such as the IPAQ, PAQ-C, PAQ-A, and C-PAQ, in addition to instruments developed in Brazil, such as the questionnaire by Florindo et al. (2006) and the SAYCARE. The analysis of the research reveals a variety of instruments used, which compromises the comparability of results between studies. It is suggested that a single instrument be standardized or that questionnaires with proven validation and reproducibility be adopted for the Brazilian population, with the aim of strengthening the scientific evidence on the level of physical activity of children and young people in the country.

Keywords: Physical Activity. Assessment. Questionnaires. Youth.

RESUMO

Este estudo teve como objetivo realizar uma revisão da literatura sobre instrumentos para avaliação da atividade física em crianças e adolescentes brasileiros. A pesquisa incluiu publicações acadêmicas que abordam o aprimoramento, a validação e a aplicação de diversos instrumentos de mensuração. Foram identificados questionários internacionais adaptados ao contexto brasileiro, como o IPAQ, PAQ-C, PAQ-A e C-PAQ, além de instrumentos desenvolvidos no Brasil, como o questionário de Florindo et al. (2006) e o

¹ Student. Instituto Federal de Educação, Ciência e Tecnologia Goiano.

E-mail: roneysantostnunesfreire09@gmail.com

² Dr. in Health Sciences. Instituto Federal de Educação, Ciência e Tecnologia Goiano.

E-mail: ftviviane@gmail.com

³ Director of Education. Instituto Federal de Educação, Ciência e Tecnologia Goiano.

E-mail: erica.vaz@ifgoiano.edu.br

⁴ Dr. in Physical Education. Escola Superior de Educação Física e Fisioterapia de Goiás (Eseffego).

Email: jairojuniorteixeira@hotmail.com

⁵ Dr. in Physical Education. Instituto Federal de Educação, Ciência e Tecnologia Goiano.

E-mail: patricia.venancio@ifgoiano.edu.br



SAYCARE. A análise da literatura revela uma variedade de instrumentos utilizados, o que compromete a comparabilidade dos resultados entre os estudos. Sugere-se a padronização de um único instrumento ou a adoção de questionários com validação e reprodutibilidade comprovadas para a população brasileira, com o objetivo de fortalecer as evidências científicas sobre o nível de atividade física de crianças e jovens no país.

Palavras-chave: Atividade Física. Avaliação. Questionários. Juventude.

RESUMEN

Este estudio tuvo como objetivo realizar una revisión bibliográfica sobre instrumentos para evaluar la actividad física en niños y adolescentes brasileños. La investigación incluyó publicaciones académicas que abordan el perfeccionamiento, la validación y la aplicación de diversos instrumentos de medición. Se identificaron cuestionarios internacionales adaptados al contexto brasileño, como el IPAQ, el PAQ-C, el PAQ-A y el C-PAQ, además de instrumentos desarrollados en Brasil, como el cuestionario de Florindo et al. (2006) y el SAYCARE. El análisis de la investigación revela la diversidad de instrumentos utilizados, lo que dificulta la comparabilidad de los resultados entre estudios. Se sugiere la estandarización de un único instrumento o la adopción de cuestionarios con validación y reproducibilidad comprobadas para la población brasileña, con el fin de fortalecer la evidencia científica sobre el nivel de actividad física de niños y jóvenes en el país.

Palabras clave: Actividad Física. Evaluación. Cuestionarios. Juventud.



1 INTRODUCTION

Frequent physical exercise during childhood and adolescence is necessary for healthy growth, favoring the prevention of non-communicable chronic diseases in adulthood, such as type 2 diabetes mellitus, hypertension, cardiovascular diseases, and obesity (Anderson; Durstine, 2019; Hallal, *et al.*, 2006). In addition to physical benefits, the habitual practice of physical activities is related to improvements in mental health, school performance, and social progress in children and adolescents (Souza, *et.al.*, 2019).

Despite the recognized importance of physical activity, there is a global trend of increasing sedentary behavior among children and adolescents, motivated by lifestyle changes, such as increased screen time and reduced active play (OMS, 2020). In Brazil, the reality is similar, with research showing an increase in the occurrence of sedentary behavior in this population (IBGE, 2021).

In this scenario, assessing the level of physical activity in children and adolescents becomes fundamental for monitoring trends, detecting vulnerable groups, and developing effective planning. Several procedures can be employed for this purpose, ranging from objective approaches, such as accelerometry and direct observation, to subjective approaches, such as self-report questionnaires (Sylvia, *et.al.*, 2014).

Questionnaires, for their part, offer benefits such as low cost, ease of large-scale application, and the ability to collect data on the environment in which physical activity is performed. However, the selection of the assessment instrument represents a challenge, as the validity and reproducibility of the questionnaires can vary according to the population and the cultural context in which they are used (Terwee, *et. al.*, 2007).

In Brazil, various questionnaires have been used to measure the level of physical activity in children and adolescents, including both adapted international instruments and questionnaires developed in the country. This diversity of measures, despite the great effort of the scientific community to investigate the topic, can complicate the comparison of results between studies and the consolidation of a national view on the practice of physical activities in childhood and adolescence (Lima, *et.al.*, 2019).

In this sense, the present study aims to conduct a bibliographic review on the questionnaires for assessing the level of physical activity in Brazilian children and adolescents, identifying the main instruments used, their characteristics, psychometric properties, and the context of their use. The expectation is that this research will promote a reflection on the relevance of standardizing measures and selecting tools addressed in future investigations in the field.



2 METHODOLOGY

The present research is characterized as a narrative bibliographic review, conducted through a systematic search of scientific articles in the SciELO (Scientific Electronic Library Online), PubMed, and Google Scholar databases. The study was carried out in October 2025, with an emphasis on investigations that explored the development, validation, and use of questionnaires aimed at assessing the level of physical activity in Brazilian children and youth.

The terms used in the search, both in Portuguese and English, were: "physical activity questionnaire", "children", "adolescents", "Brazil", "validation", "reproducibility", "physical activity questionnaire", "children", "adolescents", "Brazil", "validation", and "reproducibility". Review articles, validation investigations, and epidemiological studies that used questionnaires to measure physical activity in children and adolescents in Brazil were included.

The selected articles were examined regarding the following criteria: (1) type of questionnaire used (international adapted or modified in Brazil); (2) target audience (age group); (3) psychometric characteristics (validity, reproducibility, and internal consistency); and (4) context of use. The data from the articles were systematized and summarized for the preparation of this study.

3 RESULTS

An analysis of the literature allowed the identification of a diversity of questionnaires used in the assessment of physical activity levels among Brazilian children and adolescents. These instruments can be classified into two main categories: international questionnaires adjusted for the Brazilian context and questionnaires developed in Brazil.

3.1 ADAPTED INTERNATIONAL QUESTIONNAIRES

Among the adapted international questionnaires, the International Physical Activity Questionnaire (IPAQ), the Physical Activity Questionnaire for Children (PAQ-C), the Physical Activity Questionnaire for Adolescents (PAQ-A), and the Children's Physical Activity Questionnaire (C-PAQ) stand out.

The IPAQ, in its short version, is the most frequently used questionnaire in studies with Brazilian adolescents, corresponding to 28% of the articles analyzed in a systematic review (Lima, *et.al.*, 2019). Its validation for Brazilian adolescents was carried out by Guedes et al. (2005), who concluded that the instrument presents acceptable measurement properties for youth over 14 years old (Guedes; Lopes; Guedes, 2005).



The PAQ-C and PAQ-A, originating from Canada, were translated and validated for Brazil by Guedes et al. (2015). The PAQ-C is intended for children aged 8 to 13, while the PAQ-A is aimed at adolescents. Both presented satisfactory psychometric properties, enabling their application in studies in Brazil (Guedes; Guedes, 2015).

The C-PAQ had its translation and cultural adaptation to Brazilian Portuguese carried out by Miranda et al. (2021), resulting in the C-PAQ.PT version. The adaptation process involved replacing activities uncommon in Brazil with more frequent ones, making the instrument more suitable for the country's cultural reality (Miranda, *et al.* 2021)

3.2 QUESTIONNAIRES DEVELOPED IN BRAZIL

In addition to the adapted instruments, questionnaires developed specifically for the Brazilian population were identified. An example is the questionnaire proposed by Florindo et al. (2006), consisting of 17 questions about the habitual activities of adolescents aged 11 to 16. The instrument showed evidence of validity and reproducibility, being recommended for epidemiological studies (Florindo, *et al.* 2021).

Another prominent instrument is the SAYCARE questionnaire, developed within the scope of a multicenter study in South America. Validated by Ferreira (2018), SAYCARE assesses not only physical activity but also sedentary behavior and sleep habits of children and adolescents aged 3 to 18, being the first questionnaire with these characteristics validated for the South American pediatric population (Ferreira, 2018).

3.3 PSYCHOMETRIC PROPERTIES

The psychometric properties of the identified questionnaires are presented in the tables below:

Table 1

Reproducibility of Questionnaires

Questionnaire	Population	Coefficient	Interval
IPAQ	Adolescents (girls)	Rs = 0.49-0.70	2 weeks
IPAQ	Adolescents (boys)	Rs = 0.56-0.83	2 weeks
PAQ-C	Children/adolescents	ICC = 0.68-0.88	1 week
PAQ-A	Adolescents	ICC = 0.68-0.88	1 week
Florindo et al. (weekly)	Adolescents	r = 0.61	15 days



Questionnaire	Population	Coefficient	Interval
Florindo et al. (annual)	Adolescents	$r = 0.68$	15 days
SAYCARE (PA)	Children	$\rho = 0.56$	15 days
SAYCARE (PA)	Adolescents	$\rho = 0.60$	15 days

Source: Author's own work.

Table 2

Validity of Questionnaires

Questionnaire	Population	Reference Method	Coefficient
IPAQ	Adolescents	R-24h	$r = 0.09-0.51$
PAQ-C	Children/adolescents	Accelerometer (Total PA)	$\rho = 0.40$
PAQ-C	Children/adolescents	Accelerometer (MVPA)	$\rho = 0.48$
PAQ-A	Adolescents	Accelerometer (Total PA)	$\rho = 0.50$
PAQ-A	Adolescents	Accelerometer (MVPA)	$\rho = 0.54$
Florindo et al. (weekly)	Adolescents	Shuttle run test	$r = 0.17-0.20$
Florindo et al. (annual)	Adolescents	Shuttle run test	$r = 0.22-0.30$
SAYCARE (PA)	Children	Accelerometer	$\rho = 0.44$
SAYCARE (PA)	Adolescents	Accelerometer	$\rho = 0.88$

Source: Author's own work.

Table 3

Internal Consistency of Questionnaires

Questionnaire	Population	Cronbach's Alpha
PAQ-C	Children/adolescents	$\alpha = 0.71$
PAQ-A	Adolescents	$\alpha = 0.76$

Source: Author's own work.



4 DISCUSSION

The present bibliographic review highlights the existence of multiple questionnaires for assessing the level of physical activity in Brazilian children and youth. The diversity of instruments, which includes both adaptations of international questionnaires and tools developed in Brazil, reflects the complexity of measuring a multifaceted behavior such as physical activity in a heterogeneous population.

The predominance of the use of IPAQ in studies with adolescents, as pointed out by Lima et al. (2019), can be attributed to its wide dissemination and the fact that it is an internationally standardized instrument, which facilitates global comparisons. However, the IPAQ validation study itself for Brazilian adolescents suggests caution in its use with youth under 14, indicating that cognitive maturation may influence the accuracy of responses (Guedes; Lopes; Guedes, 2005). This reinforces the need to choose specific instruments for each age group.

The validation of questionnaires such as PAQ-C and PAQ-A for the Brazilian population represents a significant advance, as it offers alternatives to IPAQ with good psychometric properties (Guedes; Guedes, 2015). The cultural adaptation of C-PAQ, which resulted in the C-PAQ.PT version, is another highlight, as it demonstrates the importance of considering the cultural and lifestyle particularities of the target population to ensure the relevance and understanding of the instrument (Miranda, *et al.* 2021).

The development of questionnaires in Brazil, such as that by Florindo et al. (2006) and SAYCARE, is equally relevant (Florindo, *et al.* 2006; Ferreira, 2018). SAYCARE, in particular, represents a current trend in the area, by addressing physical activity, sedentary behavior, and sleep in an integrated manner. This multidimensional approach is fundamental, as these behaviors are interrelated and jointly influence health (CHAPUT, *et. al.*, 2020) 24-Hour movement behaviors and spiritual health: a new concept to be explored?. Journa (CHAPUT, *et. al.*, 2020).

The analysis of psychometric properties reveals that, in general, the questionnaires show moderate to good reproducibility. Validity, in turn, tends to be low to moderate, which is a common characteristic of self-report questionnaires, which are susceptible to memory and social desirability biases. It is notable that the validity of SAYCARE for adolescents ($\rho = 0.88$) proved to be quite high, which may be an indication of the quality of the instrument (Ferreira, 2018).

The main implication of the diversity of questionnaires is the difficulty in comparing results between different studies, which limits the construction of a consolidated overview of the level of physical activity of children and youth in Brazil. The recommendation by Lima et



al. (2019) for the adoption of a single questionnaire is pertinent, but the choice of this instrument must be judicious, considering the specificities of different age groups and regions of the country (Lima, 2018).

5 CONCLUSION

This bibliographic survey on the questionnaires for assessing the level of physical activity in Brazilian children and youth allowed the identification of the main instruments used in national research, their characteristics, and psychometric properties. The analysis revealed a scenario of diversity, with the coexistence of adapted international questionnaires and instruments developed in Brazil, each with its particularities and indications.

The choice of the appropriate questionnaire must take into account the age group of the target audience, the cultural context, and the measurement properties of the instrument. The validation and cultural adaptation of questionnaires are fundamental processes to ensure the quality of the collected data and the reliability of research results.

The main limitation identified in the literature is the difficulty of comparison between studies due to the lack of standardization of instruments. The adoption of a reference questionnaire or a set of recommended instruments for different age groups could strengthen scientific production in the area and more robustly support the development of public policies for the promotion of physical activity.

It is recommended, for future research, the continuation of questionnaire validation studies in different regions and sociocultural contexts of Brazil, as well as the development of instruments that comprehensively cover the different domains of physical activity and sedentary behavior. The search for increasingly precise instruments suitable for the Brazilian reality is an essential step for the advancement of knowledge and for the promotion of a more active and healthy lifestyle for new generations.

REFERENCES

- Anderson, E., & Durstine, J. L. (2019). Physical activity, exercise, and chronic diseases: A brief review. *Sports Medicine and Health Science*, 1(1), 3–10. <https://doi.org/10.1016/j.smhs.2019.08.006>
- Chaput, J. P., et al. (2020). 24-Hour movement behaviors and spiritual health: A new concept to be explored? *Journal of Clinical Medicine*, 9(1), Article 229. <https://doi.org/10.3390/jcm9010229>
- Ferreira, M. V. N. (2018). Mensuração de níveis de gasto energético em crianças e adolescentes: Validação de métodos para estudos epidemiológicos multicêntricos [Tese de doutorado, Universidade de São Paulo]. <https://doi.org/10.11606/T.5.2018.tde-07112018-100009>



- Florindo, A. A., et al. (2006). Desenvolvimento e validação de um questionário de avaliação da atividade física para adolescentes. *Revista Brasileira de Epidemiologia*, 9(4), 481–490. <https://doi.org/10.1590/S1415-790X2006000400012>
- Guedes, D. P., & Guedes, J. E. R. P. (2015). Physical Activity Questionnaire for Children and Adolescents: Reproducibility and validity in Brazilian children and adolescents. *Revista Brasileira de Cineantropometria & Desempenho Humano*, 17(1), 1–11. <https://doi.org/10.5007/1980-0037.2015v17n1p1>
- Guedes, D. P., Lopes, C. C., & Guedes, J. E. R. P. (2005). Reprodutibilidade e validade do Questionário Internacional de Atividade Física em adolescentes. *Revista Brasileira de Medicina do Esporte*, 11(5), 275–284. <https://doi.org/10.1590/S1517-86922005000500005>
- Hallal, P. C., et al. (2006). Physical activity in adolescents from an urban area of Southern Brazil: Prevalence and associated factors. *Journal of Physical Activity and Health*, 3(2), 235–244.
- Instituto Brasileiro de Geografia e Estatística. (2021). Pesquisa Nacional de Saúde do Escolar (PeNSE) 2021. <https://www.ibge.gov.br/estatisticas/sociais/saude/9134-pesquisa-nacional-de-saude-do-escolar.html>
- Lima, T. R., et al. (2019). Questionários de avaliação da atividade física em adolescentes brasileiros: Revisão sistemática. *Revista Brasileira de Cineantropometria & Desempenho Humano*, 21, Article e58597. <https://doi.org/10.1590/1980-0037.2019v21e58597>
- Miranda, J. G. V., et al. (2021). Cultural adaptation and validation of the Children's Physical Activity Questionnaire (C-PAQ) for Brazilian children. *Revista Paulista de Pediatria*, 39, Article e2020057. <https://doi.org/10.1590/1984-019720212020057>
- Organização Mundial da Saúde. (2020). Guidelines on physical activity and sedentary behaviour. World Health Organization.
- Souza, M. C., et al. (2019). Physical activity and mental health in adolescents: A systematic review. *Revista Brasileira de Atividade Física & Saúde*, 24, 1–10. <https://doi.org/10.12820/rbafs.24e0000>
- Sylvia, C., et al. (2014). Assessment of physical activity in children and adolescents: A systematic review. *Revista Paulista de Pediatria*, 32(4), 399–407. <https://doi.org/10.1590/0103-0582201432412>
- Terwee, C. B., et al. (2007). Quality criteria were proposed for measurement properties of health status questionnaires. *Journal of Clinical Epidemiology*, 60(1), 34–42. <https://doi.org/10.1016/j.jclinepi.2006.03.012>

