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PHYSICAL ACTIVITY, HEALTH AND EXERCISE

Reliability, reproducibility, and feasibility of youth activity profile (YAP) questionnaire in Chilean children and adolescents

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ABSTRACT

This study aimed to evaluate the reliability, reproducibility, and feasibility of the Youth Activity Profile Questionnaire (YAP-SL) in the Chilean version (YAP-C) in a sample of children and adolescents. This cross-sectional study included 160 youth, 59 children (5–11 years old), and 101 adolescents (12–17 years old) from the city of Viña del Mar (Chile). The YAP-SL is a 15-item self-report instrument which was administered twice at an interval of 7 days apart. This questionnaire was designed to capture physical activity (PA) and sedentary behaviour in youths in the last week, categorizing them into three domains: PA at school, PA out-of-school, and sedentary habits. Cronbach's α coefficients were calculated to evaluate the internal consistency (reliability), and the reproducibility was determined by test-retest and Kendall's tau b coefficients. Concerning the total YAP-C score, results indicated moderate-to-high reliability in the total sample (0.71), boys (0.76) and girls (0.66), as well as for children (0.73) and adolescents (0.70). The results also revealed variations in reliability and reproducibility across the three domains. In conclusion, the YAP-SL questionnaire presents moderate-to-high reliability in Chilean children and adolescents. However, the reliability and consistency of the YAP varied across the domains.

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Physical activity; sedentary behaviour; psychometric properties; youth

Introduction

A healthy lifestyle, characterized by regular engagement in physical activity and limited sedentary behaviour, has been associated with numerous health benefits for children and adolescents (Aljahdali et al., 2022; García-Hermoso et al., 2021). High levels of physical activity (PA) are associated with better health-related quality of life, cardiometabolic health, and bone mineral density in children and adolescents (Wu et al., 2017). On the other hand, a longer period of sedentary behaviour is associated with unfavourable body composition, cardiometabolic risk, lower physical condition and self-esteem in the young population (Carson, Hunter, et al., 2016; Carson, Tremblay, et al., 2016). Recent international guidelines recommend >60 min of moderate to vigorous physical activity (MVPA) on average per day, reducing sedentary behaviours (SB), <2 h of recreational screen time per day, and regular muscle-strengthening activities to achieve optimal health benefits (Bull et al., 2020; Sampasa-Kanyinga et al., 2020).

Unfortunately, Chilean children and adolescents are in fifth place among the least active nations, according to the latest report from the Active Healthy Kids Global Alliance (AHKGA) (Tremblay et al., 2022). Thus, it is crucial to carry out research to increase the PA levels in this population. For this reason, it is necessary to regularly quantify MVPA and sedentary time to evaluate the health status of Chilean children and adolescents (Gu et al., 2016). This is essential for comprehending the current epidemiological landscape, devising educational strategies for promoting physical activity practice, preventing sedentary behaviour and consequently, mitigating the risk of future cardiovascular diseases (Lehtovirta et al., 2023). Children and adolescents are pivotal in this context, as the healthy habits established during this period often persist into adulthood, influencing long-term health outcomes by reducing the risk of chronic diseases and supporting lifelong physical and mental well-being (Howie et al., 2020; Kaseva et al., 2023)

Accelerometers are considered one of the most reliable and accurate methods to quantify MVPA and sedentary time. However, these tools do not provide domain-specific PA/SB information, require substantial expertise for handling the data generated from these devices, and have significant associated costs for PA/SB assessments (Migueles et al., 2017). PA questionnaires turn out to be an affordable method for measuring MVPA and sedentary time. Although the questionnaires are based on the interpretation and memory capacity of children and adolescents, they have a lower cost and are easy to use, useful especially in large-scale studies or applied in more vulnerable contexts, such as Chile (Hallal et al., 2012; T. Wu et al., 2023). However, the examinations of PA patterns at the population level are still limited by the lack of feasible and reliable PA/SB assessment instruments that can capture youth

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activity in various domains and across cultures (i.e., multiple countries) (Ekelund et al., 2011).

To measure PA in children and adolescents, the Youth Activity Profile Questionnaire (YAP), a 7-day PA recall, is a simple, low-cost and educationally sound method to accurately estimate youth MVPA and sedentary behaviour (Saint-Maurice et al., 2015). This questionnaire was tested for feasibility and reliability in a sample of Spanish children and adolescents (YAP-S) (Segura-Díaz et al., 2021). The main findings of the Spanish version showed moderate to substantial test–retest reliability, with a kappa ranging between 0.52 and 0.79 and the intraclass correlation coefficient (ICC) between 0.79 and 0.87 (Segura-Díaz et al., 2021). However, it is recommended that questionnaires be adapted and applied to specific samples (Oyeyemi et al., 2016; Robbins et al., 2017). Even though the YAP-S has already been validated in Spanish (Segura-Díaz et al., 2021) and adapted into Latin American Spanish language (YAP-SL) (The Youth Activity Profile YAP-SL, 2024), it is crucial to acknowledge that Chile has its cultural nuances and idiomatic identity, requiring a specific mathematical validation procedure. Therefore, the present study aimed to evaluate the reliability, reproducibility, and feasibility of the YAP-SL in the Chilean version (YAP-C) in a sample of children and adolescents.

Materials and methods

Study design and sample

This is a cross-sectional study with a total sample of 160 youth, 59 children (5–11 years old) and 101 adolescents (12–17 years old) from the city of Viña del Mar (Chile). Viña del Mar is a coastal city located in the Valparaiso Region of Chile. This reliability, reproducibility, and feasibility study were part of the "ACTIBESE Project" - Active Behaviour in School Education: Ecological Model Application on school physical education to improve active behaviours in schoolchildren, whose main objective is to determine the school, interpersonal and personal factors that influence the active behaviour of schoolchildren, considering the ecological theory as a model of interaction at school and in the physical education.

Data collection

Participants were recruited from two schools by convenience, one subsidised ($n = 130$) and another private dependency ($n = 30$), both located in an urban environment and from a medium socio-economic level. Out of the 160 evaluated, there were some sample losses due to not completing the questionnaire in full or missing data. Initially, a meeting was held with the school directors to explain the objectives and procedures of the study and invite them to participate. Both schools agreed to participate in the study. Subsequently, two research team members attended the parent meetings to explain the objectives and procedures of the study. Participants answered the YAP-SL questionnaire twice, seven days apart, between August – September 2023 (Spring session) and in the morning. The questionnaires were answered on the same day and at the same hour, in their classroom during physical education classes and were carried out in the company of the teacher and the same two project members. The time to answer the questionnaire ranged between 20 and 40 minutes. The project members were previously trained in fictional situations and answered the instruments to resolve any questions related to the questionnaire.

Ethical procedures

Before the data collection, parents and students were informed about the characteristics of the questionnaire, the study purpose, and the confidentiality of the results. All questionnaires were answered voluntarily and with parents' or legal guardians' consent signed. Furthermore, all participants signed an informed consent accepting their participation in the study. This study was approved by the Ethics Committee of the Pontificia Universidad Católica de Valparaíso (Code: BIOPUCV-H 638–2023) and was carried out following the rules by the guidelines for ethical procedures with human beings in line with the Declaration of Helsinki (World Medical Association, 2013).

Youth activity profile

The YAP is a self-report questionnaire created to assess PA and sedentary behaviour in children and adolescents from 8 to 17 years old (grades 4–12) (Saint-Maurice & Welk, 2014). A Spanish translation was carried out at the University of Granada, Spain, naming the version YAP-S (Supplementary file 1). Later, a team of researchers from that university (Profith Group) and the Pontificia Universidad Católica de Valparaíso, Chile (IRyS Group), adapted the questionnaire to Latin American Spanish by changing words such as ("andar" to "caminar"; "comer" to "almuerzo"; "ordenador" to "computador", among others). This version was called YAP-SL (Supplementary file 2). For the validation procedures of the present study, it was used the version of the YAP for Latin America (The Youth Activity Profile (YAP-SL) (The Youth Activity Profile YAP-SL, 2024). This tool employs a 7-day recall format, capturing data on the previous week's activities, categorizing it into three sections: 1) PA in school, 2) PA out-of-school, and 3) sedentary habits. Items in the section of PA at school involve PA enjoyment, physical education class enjoyment, movement during physical education class, movement during recess, and movement during lunch break. Out-of-school PA section includes PA before school, PA after school, PA in the afternoon, and PA at the weekend. Sedentary habits include watching TV, playing video games, using the computer and using a cell phone. All questions use a 5-point Likert scale. The questions of the original questionnaire related to "walking or biking to school" and "time spent sitting or lying down while awake in a typical week" were not included in the analysis due to their qualitative nature, concentrating the analysis on variables that could be quantified and analysed consistently across all respondents.

Theoretical approach for analysis

In the present study, we conducted an analysis using three key statistical concepts to validate the questionnaire mathematically, following previous evidence (García-Hernández &

González-Ramírez, 2018; Hawkins et al., 2020; Krieglstein et al., 2023):

Reliability (Pre- and Post-Test): This involves assessing the internal consistency of the questionnaire results at two different time points. By comparing response agreements, we can determine the stability and reliability of the questionnaire items.

Reproducibility: This concept evaluates the consistency of results when the same questionnaire is administered under similar conditions. By comparing pre-test and post-test results, we assess the questionnaire's reproducibility, ensuring it yields similar outcomes across different administrations.

Feasibility: This refers to the extent to which the questionnaire measures what it is intended to measure. In this study, feasibility is interpreted through the relationships between all items of the YAP (Youth Activity Profile) questionnaire, which should theoretically be consistent. This includes analysing and discussing the reliability and reproducibility results, as well as incorporating a robust network analysis to confirm the multiple relationships among all questionnaire items (Hevey, 2018).

Statistical analysis

An exploratory network analysis was conducted to examine the interactions within the questionnaire, aiming to understand and verify the underlying structure of the data and the relationships between different questionnaire items. The analysis was performed using Jeffrey's Amazing Statistics Program (JASP) software, version 0.18.3 (Amsterdam, The Netherlands). In this case, was considered EBICglasso (Extended Bayesian Information Criterion – graphical least absolute shrinkage and selection operator), which is a statistical method used in network analysis to estimate covariance matrices in graphical models (Epskamp & Fried, 2018). In consequence, an estimation of partial correlations (PC) between all variables was calculated (Epskamp et al., 2012), to explain the coherence between the questions in the questionnaire and to assess the reproducibility and feasibility of the instrument.

Cronbach's α coefficients were calculated to test the internal consistency (reliability) of the three sections of the questionnaire. The α value considered to be of sufficient internal consistency ranges from 0.7 to 0.8 (Bland & Altman, 1997). To determine the test–retest reproducibility, Kendall's tau b coefficients for ordinal data were considered, representing the agreement between scores considering the degree of deviation (Bortz & 1943–2007, Lienert GA 1920–2001, Barskova T, et al, 2008). Kendall's tau b was classified as "negligible" (0.00 to 0.30/0.00 to −0.30), "low" (0.30 to 0.50/−0.30 to – 0.50), "moderate" (0.50 to 0.70/-0.50 to – 0.70), "high" (0.70 to 0.90/−0.70 to – 0.90), and "very high" (0.90 to 1.00/-0.90 to – 1.00) (Mukaka, 2012). Analyses were performed separately for YAP-S sections (i.e., PA in school, PA out-of-school and sedentary habits) and YAP items in children and adolescents and by sex. These analyses were performed using the Statistical Package for the Social Sciences (SPSS) v.25.0 program (Chicago, Illinois).

Results

Overall, 160 children and adolescents were evaluated (55% girls). The mean age was 12.94 ± 2.19 for the total sample, 10.66 ± 0.63 for children and 14.27 ± 1.57 for adolescents. Figures 1 and 2 show the relations between variables (nodes) for the first application (Test) using the EBICglasso. In orange are the nodes according to PA in school, in light blue nodes related to PA out-of-school and in green the nodes about sedentary habits.

Figure 1 shows the partial correlations between nodes of the questionnaire for boys and girls when stronger positive correlations are observed in each domain of the questionnaire, as well as, between different domains of the instrument. In the case of boys, a higher PC between PA afternoon and PA after school (PC = 0.49) was observed compared to girls was the lowest (PC = 0.34). However, in girls, there were stronger correlations between PA afternoon and at the weekend (PC = 0.33) and between PA in recess and lunch (PC = 0.46). In both, there was a high correlation between sedentary habits domains, as well as in boys playing

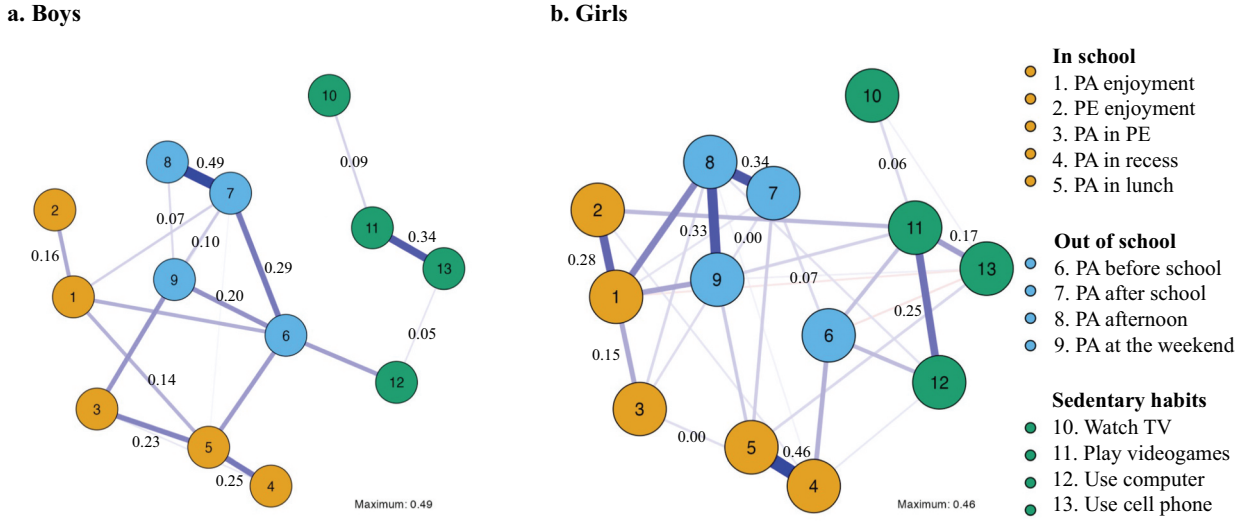

Figure 1. Network analysis of the instruments and the partial correlations into nodes of different domains for boys and girls. PA: physical activity; PE: physical education; TV: television.

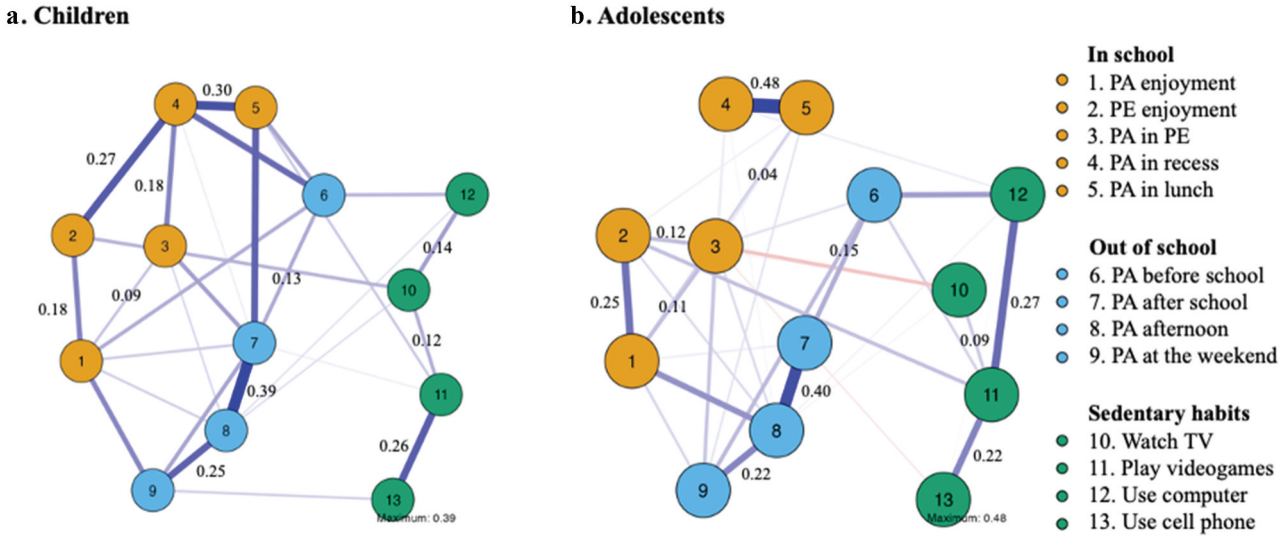

Figure 2. Network analysis of the instruments and the partial correlations into nodes of different domains for children and adolescents. PA: physical activity: PE; physical education; TV: television.

videogames with use cell phone (PC = 0.34) and in girls between play videogames with use computer (PC = 0.25).

Figure 2 shows the correlations in children and adolescents, where there exists a coherence between the nodes of each domain. The type correlations are different between the two groups. However, the connections in the nodes can explain the coherence between the questions (nodes) of the instrument, according to each domain.

This information made it possible to move more deeply to the next analysis step by question and domain.

Tables 1 and 2 present the internal consistency (reliability) of sections (constructs) of the YAP-SL by age groups and sex in the first evaluation (test) and second evaluation (retest). In Table 1, in the total sample, the results varied slightly across the three categories: PA in School, PA out of School, and Sedentary Habits, with Cronbach's Alpha values of 0.68, 0.70, and 0.46, respectively. When comparing children and adolescents, it was observed that children had a higher Cronbach's Alpha for Activity out of School (0.78), while adolescents had similar values for Activity at School and Activity out of School (0.66 and 0.63 respectively), but a lower value for Sedentary Habits (0.43). Regarding sex, boys had the highest Cronbach's Alpha for Activity out of School (0.73) and girls had similar values for PA in School and PA out of School (0.67 and 0.65 respectively), with both sexes showing a lower value for Sedentary Habits.

In the second evaluation (Table 2) of the YAP-SL, the total sample showed higher reliability (Cronbach's Alpha) for PA at school (0.80) than for PA out-of-school (0.70) and sedentary habits (0.48). Both children and adolescents showed higher reliability for PA in school compared to other sections. Boys

Table 1. Internal consistency (reliability) for sections of the youth activity profile by age groups and sex in the first evaluation (test).

	PA in-school		PA out-of-school		Sedentary Habits	
	n	Cronbach´s Alpha	n	Cronbach´s Alpha	n	Cronbach´s Alpha
Total	156	0.68	157	0.70	158	0.46
Children (9-11 y)	58	0.60	57	0.78	57	0.55
Adolescents (12-14 y)	98	0.66	100	0.63	101	0.43
Sex						
Boys	68	0.70	69	0.73	69	0.45
Girls	88	0.67	88	0.65	89	0.51

Table 2. Internal consistency (reliability) for sections of the youth activity profile by age groups and sex in the second evaluation (re-test).

	PA in-school		PA out-of-school		Sedentary habits	
	n	Cronbach´s Alpha	n	Cronbach´s Alpha	n	Cronbach´s Alpha
Total	158	0.80	158	0.70	160	0.48
Children	58	0.76	57	0.68	59	0.59
Adolescents	100	0.80	101	0.71	101	0.46
Sex						
Boys	69	0.81	70	0.72	71	0.58
Girls	89	0.78	88	0.67	89	0.46

PA: Physical activity; n = sample size.

Table 3. Test–retest (reproducibility) of the youth activity profile questionnaire in the total sample and among boys and girls.

	Total		Boys		Girls	
	n	Kendall´s tau-b	n	Kendall´s tau-b	n	Kendall´s tau-b
Questions about PA in school						
1. PA enjoyment	159	0.64	70	0.64	89	0.62
2. PE enjoyment	159	0.63	70	0.70	89	0.56
3. PA in PE	159	0.51	70	0.62	89	0.53
4. PA in recess	157	0.62	69	0.66	88	0.56
5. PA in lunch	156	0.61	67	0.64	89	0.69
Questions about PA out-of-school						
6. PA before school	158	0.49	69	0.47	89	0.50
7. PA after school	155	0.53	68	0.54	87	0.54
8. PA afternoon	157	0.57	69	0.54	88	0.60
9. PA at the weekend	159	0.44	70	0.50	89	0.39
Questions about Sedentary Habits						
10. Watch TV	160	0.53	71	0.45	89	0.59
11. Play videogames	158	0.61	69	0.55	89	0.66
12. Use computer	160	0.57	71	0.54	89	0.57
13. Use cell phone	160	0.71	71	0.56	89	0.79
Total YAP score	152	0.71	65	0.76	89	0.66

PA: physical activity; PE: physical education; n = sample size; Results of probability level is $p < 0.001$ for Kendall´s tau-b reliability test and re-test evaluations for all analyses.

showed higher reliability for PA in school (0.81) than girls (0.78), while girls showed similar reliability for PA in school and sedentary habits but lower for "PA out-of-school". These results indicate improved reliability in the second evaluation.

Test–retest reproducibility of the YAP-S (Table 2) questionnaire in the total sample and among boys and girls is presented in Table 3. The Kendall's tau b for the total sample was moderate (K = 0.51-0.64) in the PA in-school domain, varied from low to moderate in the PA out-of-school domain (K = 0.44–0.57), and moderate-to-high in the sedentary habits` domain (K = 0.53–0.71). Finally, the total YAP-SL score (which considered all the questions) indicates high reproducibility (K = 0.71). For boys, the PA in school domain presented moderate reliability (K = 0.62–0.70), while the PA out-of-school and the sedentary habits domains presented low to moderate reproducibility, with Kendall's tau b varying from 0.39 to 0.60. Nevertheless, the total YAP score for boys indicated a high reliability (K = 0.76). Data for girls indicated similar results concerning the three domains: PA in school, moderate reliability (K = 0.53–0.59), PA out-of-school low to moderate (K = 0.39-0.60), and sedentary habits moderate-to-high (K = 0.59 a 0.79). Finally, the total YAP-SL score was lower in girls than in boys (K = 0.66), which is considered a moderate reliability.

Kendall's tau b coefficients for test-retest reproducibility in children and adolescents are presented in Table 4. The total YAP-SL score for children showed high reproducibility (K = 0.73) compared to adolescents (K = 0.70), although both results are classified as high. Concerning the domains, results showed variation across age groups. In the PA in school domain data showed a moderate reproducibility for children with values ranging from 0.50 to 0.70, while for adolescents, it ranged from 0.46 to 0.67, indicating a low to moderate reproducibility. The PA out-of-school domain showed low to moderate reproducibility for both children (K = 0.43–0.53) and adolescents (K = 0.42–0.54). The sedentary habits domain indicates a low to high reproducibility for children (K = 0.43–0.73) and a moderate reproducibility for adolescents (K = 0.57–0.70).

Discussion

The present research aimed to describe the reliability, reproducibility, and feasibility of the Chilean version of the YAP-SL in

Table 4. Test–retest (reproducibility) of the youth activity profile questionnaire by children and adolescents.

	Children		Adolescents	
	n	Kendall´s tau-b	n	Kendall´s tau-b
Questions about PA in school				
1. PA enjoyment	59	0.58	100	0.67
2. PE enjoyment	59	0.50	100	0.65
3. PA in PE	58	0.56	101	0.46
4. PA in recess	58	0.70	99	0.53
5. PA in lunch	57	0.67	99	0.57
Questions about PA out-of-school				
6. PA before school	58	0.43	100	0.53
7. PA after school	55	0.53	100	0.54
8. PA afternoon	57	0.45	100	0.64
9. PA at the weekend	59	0.49	100	0.42
Questions about Sedentary Habits				
10. Watch TV	59	0.46	101	0.57
11. Play videogames	57	0.48	101	0.66
12. Use computer	59	0.57	101	0.57
13. Use cell phone	59	0.66	101	0.70
Total YAP score	59	0.73	101	0.70

PA: physical activity; PE: physical education; n = sample size; Results of probability level is $p < 0.001$ for Kendall´s tau-b reliability test and re-test evaluations for all analyses.

children and adolescents. Initially, our network analyses revealed robust positive correlations within each domain of the questionnaire and across questions for both boys and girls. Concerning adolescents, the interconnections among nodes elucidate the coherence observed among the instrument's questions. This preliminary analysis strengthens the justification of the questionnaire's feasibility by demonstrating that the interactions among the questionnaire items are consistent.

Concerning the mathematical validation procedures, the total YAP-SL score results indicated moderate-to-high reliability in the total sample (0.71), as well as for boys (0.76) and girls (0.66), children (0.73) and adolescents (0.70). In addition, the results revealed variations in reliability and reproducibility across three domains: PA at school, PA out of school, and sedentary habits. Significant differences were identified in how different demographic groups responded to the questionnaire. For instance, children demonstrated higher reproducibility for PA in-school, while adolescents showed similar values for both PA in-school and PA out-of-school. Both genders displayed a low-reliability value for sedentary habits. The low values in sedentary time may be because the instrument was not very precise in determining this item originally, as it was validated by accelerometry which is reinforced in this analysis (Saint-Maurice et al., 2015). Boys exhibited the highest reliability for PA in-school and girls showed comparable values for both PA in-school and PA out-of-school.

Upon the second evaluation of the YAP-SL, an improvement in reliability was observed, particularly for the PA in the school domain. This suggests that the questionnaire's reliability may be enhanced over time or with participants' familiarity with it, a common phenomenon shown in previous literature-based research and surveys such as the Spanish study (Segura-Díaz et al., 2021).

The variations observed across different questionnaire domains align with the YAP's design, which aims to capture different aspects of youth activity (Welk et al., 2021). Indeed, the effectiveness of the YAP may vary depending on the area of activity being assessed. Consistent with present findings, a study conducted in Brazilian children and adolescents also reported variability in reliability when evaluating different dimensions of PA (leisure, active commuting, and school) (Nascimento-Ferreira et al., 2018).

Significant differences in responses between different demographic groups, such as children versus adolescents and boys versus girls, have also been noted (Saint-Maurice et al., 2015). These differences could be attributed to various factors, including age-related changes in activity patterns and sex differences in PA and sedentary behaviours.

Other questionnaires that have been used to evaluate PA and sedentary habits have shown similar results. A study conducted in Brazil validated the International Physical Activity Questionnaire (IPAQ), an instrument proposed by the World Health Organization to determine the level of PA for adults at the population level. This questionnaire presents a similar coefficient of correlations/reliability of the present study, i.e., 0.70 (Spearman's Rho) (Matsudo et al., 2001). Similarly, the validation study of the Movement Behaviour Questionnaire (MBQ) in children during COVID-19 social distancing further indicated consistency and reliability values are superior to 0.70, and the internal matrix of correlations ranges from 0.271 to 0.783 (Lemes et al., 2020). Finally, a systematic review of PA questionnaires, conducted in a rigorous method, has shown findings that corroborate the present research. Following this review, the values of feasibility, reliability, and reproducibility vary significantly, ranging from 0.2 to 0.8 across different types of tests, including Pearson correlations, intraclass tests, Spearman rank correlation, Kendall's tau, Cronbach's alpha, etc. (Helmerhorst et al., 2012). All of this indicates that the present study holds strength as an important validation of the YAP in the Chilean context. Also, the network analysis enhances the validation of the questionnaire by illustrating the coherence among the questionnaire items.

Taken together, these studies emphasize the necessity for continuous research aimed at improving these measurement tools (Schröder et al., 2021). This reinforces the current research findings regarding the reliability of the YAP-SL questionnaire among children and adolescents. It also underscores the significance of measurement tools for evaluating PA in different contexts. Another crucial point to highlight is that adaptations of questionnaires, which respect population-specific characteristics, are always necessary. This is because social priorities and sociodemographic conditions are constantly evolving and changing as well as gender perspectives, development aims, etc.

Some limitations of the study should be taken into account. The present research revealed variations in reliability and reproducibility across three domains: PA in school, PA out of school, and sedentary habits. These variations suggest that the effectiveness of the YAP-SL may depend on the area of activity being assessed and it is expected to find variability as behaviours may change from week to week. Significant differences were identified in how different demographic groups responded to the questionnaire. Also, only participants from the fifth region of Chile were included in the sample, and only private and subsidized schools were considered, thereby limiting the generalizability of the results to the entire population.

The strengths of our study include the cross-cultural evaluation of a previously validated questionnaire that has proven effective in predicting PA and sedentary behaviour in children and adolescents. The YAP provides more detailed information in different domains that may help PA promotion in those settings by identifying areas or domains for improvement. In addition, to our knowledge, this is the first study to describe the reliability, reproducibility, and feasibility of the Chilean version of YAP, which could be used in future research as an adequate method for determining PA and sedentary behaviour.

Conclusion

The YAP-SL questionnaire presents moderate-to-high reliability in Chilean children and adolescents, boys and girls. However, considering the different domains of the questionnaire (PA in school, PA out-of-school, and sedentary habits) it was observed variable reliability and reproducibility, suggesting that the questionnaire may be more effective in some domains than others. In addition, the second evaluation of the YAP-S showed greater reliability for PA in School than for PA out-of-school and

sedentary habits, indicating that the reliability of the questionnaire may improve over time. Overall, the YAP-SL is a tool with demonstrated reliability, reproducibility, and feasibility for evaluating PA and sedentary behaviour in Chilean children and adolescents.

Availability of data and materials

The database used and analysed in the present study is not publicly available as its information may compromise the participants' privacy and consent involved in the research. However, the data are available from the corresponding author upon request.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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