Abstract

Background. The promotion of healthy behaviors is a relevant issue worldwide, and due to the gravity of the potential consequences, it has been deemed especially relevant to work with adolescent populations, since this is the point in development where most unhealthy behaviors become ingrained.

Purpose. The aim of this study was to analyze the psychometric properties of the Spanish version of the Adolescent Health Promotion Scale (AHPS) in a Chilean sample of early adolescents.

Methods. The sample comprised 1,156 adolescents aged 10 to 14 from schools of San Felipe, Chile. Item structure was assessed by an exploratory and confirmatory factory analyses; reliability was measured using Cronbach's alpha, and gender, age and socioeconomic status differences were established with ANOVA.

Results. The item structure analyses reveled the original six factors (Nutrition Behaviors, Health Responsibility, Social Support, Life Appreciation, Stress Management and Exercise Behavior), but 8 items did not fit well in the Chilean population, therefore the AHPS in Chile has 32 items. Reliability reached .95, while the alpha coefficients of the 6 subscales ranged from .76 to .94. In addition, female subjects performed better than males and individuals coming from high socioeconomic status scored higher than the middle and low groups. No differences were found across age.

Conclusions. The AHPS appears to have good psychometric properties regarding its item structure and reliability. Consistently with studies carried out in other countries, behavioral differences are observed in association with gender and SES. Therefore, it is an appropriate instrument to measure the health promotion behaviors of early adolescents in Chile and compare results from other countries.

Keywords: healthy behaviors, adolescents, AHPS, psychometric properties.

Introduction

In 2009, the World Health Organization explicitly stated that developing health-promoting behaviors are one of the great challenges of the century (World Health Organization, 2009). This statement is mainly based on the evidence that many of the causes of death and co-morbidities are directly related to modifiable behaviors such as overweight, obesity and unhealthy eating habits (Han, Lawlor, & Kimm, 2010), physical inactivity (Lee *et al*., 2012), and tobacco and alcohol use.

Worryingly, in the last decades, child and adolescent overweight and obesity have risen worldwide (Lobstein *et al.,* 2015). In high-income countries such as USA in a 4-year period of time, overweight (including obesity) and obesity among school children (12-17 years old) has risen by 6% (up to 35% in 2003-2004) and by 3% (up to 13% in 2003-2004), respectively (Lobstein & Jackson-Leach, 2007). This is also true for middle- and low-income countries. For example, in Mexico, among adolescents between 12 and 19 years old, the prevalence of overweight and obesity combined reached 35% in 2012 (Olaiz-Fernandez *et al*., 2006). In Chile, the prevalence of obesity among children and adolescents, between 5 and 17 years of age, is 27.1% in females and 28.6% in males (see Organization for Economic Cooperation and Development -OECD-, 2011).

There is good evidence of the beneficial effect of fruit and vegetables consumption against obesity, metabolic diseases (diabetes), and reducing the risk of cardiovascular illness (Vatanparast, Baxter-Jones, Faulkner, Bailey, & Whiting, 2005). However, the recommendation of having five or more servings of fruit and vegetables a day is not followed by the great majority of adolescents. For example, in USA just one in five 9th to 12th graders eat five or more servings of fruits and vegetables every day (Centers for Disease Control and Prevention, 2008).

Other global health problems are tobacco and alcohol use, especially among adolescents. A recent report places Chile at the top of the American continent with the highest tobacco use prevalence among 13 - 15 years old adolescents (32.8%), and in the third in the world (Page & Danielson, 2011). Regarding alcohol use, in 2013, 35.6% of Chilean adolescents recognized its consumption in the last month; prevalence that has been stable in the last decade (Servicio Nacional para la Prevención y Rehabilitación del consumo de drogas y alcohol - SENDA, 2013).

Most of these habits start early in life, especially during adolescence (Blum, McNeely, & Nonnemaker, 2002). Furthermore, their consolidation in this developmental period compromises health during adulthood (te Velde, Twisk, & Brug, 2007). Adolescence can be divided into two periods: early (10 to 14 years) and late (15 to 19 years) stages (Sawyer *et al.*, 2012). Each stage has their biological, cognitive, social and emotional challenges but early adolescents experience several stressors and changes in their daily lives at the personal and environmental levels that may need special consideration. In order to get the most reliable information from them, we need to take into account their cognitive development, their higher interest for the present time rather than for the future and the increasing peer pressure in their lives (Sawyer *et al*., 2012).

Given the evidence that the promotion of healthy behaviors in young populations may significantly reduce the prevalence of adult non-communicable diseases and lower the mortality and morbidity rate, it appears urgent to have an instrument capable of assessing health-promoting behaviors among early adolescents. The most widely used tests are the Health-Promoting Lifestyle Profile (HPLP) (Walker, Sechrist, & Pender, 1987), the Adolescent Lifestyle Questionnaire (ALQ) (Gillis, 1997), the Adolescent Lifestyle Profile (ALP) (Hendricks, Murdaugh, & Pender, 2006), and the Adolescent Health-Promotion Scale

(AHPS) (Chen, Wang, Yang, & Liou, 2003). The latter stands out because it has been translated into several languages and used in a number of cultures (for example, USA, Iran, Taiwan, Turkey, and Portugal) (Aghamolaei & Tavafian, 2013; Cardoso, Pina, & Rodrigues, 2015; Chen, James, & Wang, 2007; Musavian, Pasha, Rahebi, Atrkar Roushan, & Ghanbari, 2014; Temel, Basalan, Yildiz, & Yetim, 2011; Ortabag, Ozdemir, Bakir, & Tosun, 2011), aside from having been employed to assess the effects of health education (Hsiao *et al.*, 2005).

The AHPS (Chen *et al*., 2003) is a test designed to evaluate healthy practices in adolescents, and considers six healthy behavior dimensions: a) Nutrition Behaviors (NB), b) Social Support (SS), c) Life Appreciation (LA), d) Health Responsibility (HR), e) Stress Management (SM), and f) Exercise Behavior (EB). The AHPS is a self-report instrument, easy to use, and has proven to be highly reliable (.962) (Chen *et al*., 2003); thus, its application in countries such as Chile can be very useful. Nevertheless, some adaptations to Chilean culture may be necessary. As noted by the author of the scale in a study conducted with adolescents from Taiwan and the USA, there are relevant cultural differences that should be taken into account (Chen *et al*., 2007).

The objective of this study is to analyze the psychometric properties of the Adolescent Health Promotion Scale (AHPS) in a Chilean sample.

Methods

Design and sample

The sample comprises students from 5th to 8th grade, from seven schools in San Felipe, Chile (Region of Valparaiso), whose authorities agreed to participate. These schools were classified into three socioeconomic status (SES): Low, Middle, and High. This classification is based on criteria of the 2009 National System for the Measurement of Education Quality

(Ministerio de Educación, 2010), which is constructed according to family income and background information provided by students' parents. Three stratification variables (age, gender, and school SES) were used to select the participants.

Participants

A total of 1,156 students participated in this study: 625 male and 531 female, aged between 10 and 14, distributed into two age groups: 628 ≤12 (m=10.91; s.d.=.67) and 528 >12 (m=12.99; s.d.=.61). Most students (88.0%) do not work after school and 10.1% do so sporadically. Fathers had received education for 13.5 years on average, a figure that reached 13.0 years for mothers. It should be pointed out that 25% of students do not know the educational level achieved by their parents. Regarding their SES, a total of 514 (44.6%) students belonged to Low-SES, 382 (33.0%) from Middle-SES, and 260 (22.4%) from High-SES families. Based on the last available Chilean Census (2002), the socioeconomic distribution of the Chilean households may be stated as follows: 40.0%, Low-SES; 51.2%, Middle-SES; and 8.8%, High-SES (Instituto Nacional de Estadísticas, 2005). In this study, we oversampled most affluent families to assist with comparisons between students from different socioeconomic status.

Instrument

The Adolescent Health Promotion Scale (AHPS), developed by Chen *et al.* (2003; 2007), comprises 40 items with a 5-point format representing the frequency of the behaviors reported (1=never, 2=sometimes, 3=half of the times, 4=often, and 5= always). The total score was calculated by adding up the score of each item (40-200 points). The items in the scale are grouped into six subscales: Nutrition behavior, Social Support, Health Responsibility, Life Appreciation, Exercise behavior, and Stress Management. The Cronbach´s Alpha of the whole scale is .932, while it ranges between .76 and .88 for the

subscales (Chen *et al*., 2003).

Translation procedures

The original authors provided an English and Spanish version of the scale. The Spanish version provided was not culturally adapted to Latin America. Therefore, the Chilean team decided to ask to two professional translators to produce a new Spanish version, and then other two professionals back translated it into English. Both English versions were compared and discussed with three expert raters and some items were adapted with minor changes in wording in order to produce a better Spanish version.

Data Collection and ethical considerations

This study was approved by the Ethical Committee of Faculty of Education at Pontificia Universidad Católica de Chile (September 24th, 2011). After obtaining authorization from the Principal of the schools, we asked pupils' parents to sign and return to the research team an informed consent to give permission to their kids to participate in the survey. We also asked students for their assent before collecting any data.

The questionnaires were completed individually during a group session in each educational institution. At the beginning of the session, the person in charge informed the pupils about the study and noted that participation was voluntary. It took approximately 40 minutes for students to complete the questionnaire.

Data Analyses

SPSS v21 and R statistical packages were used to conduct the analysis.

Descriptive Statistical Analyses

Means, standard deviations, skewness, and kurtosis (Mardia, 1974) were calculated to assess the performance of the AHPS items.

Dimensionality

The analyses were conducted in 2 phases. In the first phase, an Exploratory Factor Analysis (EFA) was performed to determine the factor structure of the AHPS using the 40 items and the whole sample. Because the items in this scale are categorical and represent a gradation in a Likert-type scale, a polychoric correlation matrix was used. In order to assess the adequacy of the matrix for conducting an EFA, the Kaiser-Meyer-Olkin (KMO) test and Bartlett's sphericity test (Hair, Tatham, Anderson, Reviews, & Black, 2006) were calculated. For factor extraction, we used principal axis factoring with the promax oblique rotation method, because the variables were not normally distributed. The selection of the number of factors was based on eigenvalues >1.0. The selection of the items into each factor was based on having a factor loading over .32 (Costello, 2005). When variables loaded on more than one factor (cross-loading), they were carefully examined and theoretical meaningfulness was assessed before considering removal from further analyses (Simms & Watson, 2007). When the item loaded on more than one factor, with a larger loading being observed on the theoretical factor, the item was preserved, but when the loading was larger on a factor other than the theoretical one, the item was removed.

In the second phase, we conducted a Confirmatory Factor Analysis (CFA). We used the weighted least-squares method with mean and variance estimator. The techniques used to evaluate the fit of the common factor and confirmatory analyses were Comparative fit index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Residual (RMSEA), and Weighted Root Mean Square Residual (WRMR) (Hu & Bentler, 1999). The following cutoff values for good model fit have been suggested: CFI > .90, TLI > .90, RMSEA < .05, and WRMR < 1.0 (Hu & Bentler, 1999; Yu, 2002).

Reliability

The internal consistency of the instrument and sub-scales was established using Cronbach's

alpha.

Association

ANOVA was employed to determine possible associations with gender, age, SES, and their interaction effects in the full resulting scale and the subscales. The interaction effects analyzed were gender x age, gender x SES, age x SES and gender x age x SES.

Results

Descriptive Statistical Analyses

Descriptive statistics for all the AHPS items can be seen in Table 1.

Insert Table 1: General descriptives.

Dimensionality.

Phase 1: Exploratory Factor Analysis (EFA)

The Kaiser-Meyer-Olkin (KMO) value was .97, while Bartlett's sphericity test was significant (X^2= 564.7223; d.f. = 780; p < .000). The EFA displays a seven-factor solution with eigenvalues > 1.0. This solution explained 61% of the variance split into 15%, 10%, 9%, 7%, 7%, 7%, and 6%, respectively. Eight items were removed due to the following reasons: three items loaded on two factors and the highest loading was on an factor other than the theoretical one (6, 18, and 32); one item (10) did not display any high loadings (all loadings below .32); and four items displayed loadings on a single factor, other than the theoretical one (11, 12, 19, and 34). Afterwards, and with these 8 items removed, an EFA was run again, which resulted in a six-factor model (eigenvalues > 1.0) (whose indicators resemble the theoretical structure of the original instrument) with 32 items explaining 62% of the variance, which split into 19%, 11%, 9%, 9%, 8%, and 6%, respectively. In it, *Life Appreciation* (LA) explains 19% of the variance and comprises items 22, 23, 24, 25, 26, 27, 28, and 29; *Stress Management* (SM) explains 11% and is represented by items 35, 36, 37, 38, 39, and 40;

Social support (SS) explains 9% and comprises items 7, 8, 9, and 13; *Nutrition behavior* (NB) explains 9% and is represented by items 1, 2, 3, 4, and 5; *Health Responsibility* (HR) explains 8% and is represented by items 14, 15, 16, 17, 20, and 21; and *Exercise behavior* (EB) explains 6% and comprises items 30, 31, and 33. The distribution of the items in each factor is presented in Table 2.

Insert Table 2: Standardized weights for each factor of six-factor model with 32 items

The correlations between constructs ranged from .416 to .85 (see Table 3).

Insert Table 3. Estimated correlations between the six constructs of the AHPS based on the final model.

Phase 2: Confirmatory Factor Analysis (CFA)

The EFA revealed that the questionnaire was multidimensional (6 factors) and the best item-structure was with 32 items. Then, we performed a CFA to estimate the fit of the 6-factor model. Standardized factor loadings showed that all the items loaded well on each latent construct (see Table 2). The fit indices were good, considering the acceptance intervals of the CFI (.965), TLI (.961), RMSEA (.035), and WRMR (1.60) values (see Table 4).

Reliability

Internal consistency for the 32 items of the instrument with Cronbach's alpha was .95. The alpha coefficients of the six subscales originals keep the range from .75 to .94 (Table 5).

Descriptive statistical values of resulting scale

The full scale had a score ranging from 32 to 160. The total mean score was 112.58 (s.d.=45.59). The score of distributions in each subscale and the full instrument are close to a normal distribution (Table 5).

Insert Table 5. Descriptive data and Alpha's coefficient

Association

Gender: Differences were observed in the 32-item scale ($F_{(1147;\ 1)}$=5.065; $p < .05$), as the average of females (m=126.65, s.d.=29.99) is higher than that of males (m=121.78, s.d.= 30.68). The analysis of the subscales shows that, in some of them, the average of females is higher than that of males, with significant differences in Life Appreciation ($F_{(1147;\ 1)}$=7.063; $p < .05$; females: m=35.05, s.d.= 6.34; males: m=33.08, s.d.= 7.39), Health Responsibility ($F_{(1147;\ 1)}$=10.032; $p < .05$; females: m=19.06, s.d.=6.62; males: m=17.57, s.d.=6.67), and Social Support ($F_{(1147;\ 1)} = 21.604$; $p < .001$; females: m=16.74, s.d.=5.56; males: m=14.77, s.d.=5.70). In Exercise Behavior, males had a higher average than females ($F_{(1147;\ 1)} = 5.604$; $p < .05$; males: m=14.74, s.d.=4.52; females: m=14.04, s.d.=4.61). There are no differences in Nutrition Behavior ($F_{(1147;\ 1)} = .079$; $p = .779$) or Stress Management ($F_{(1147;\ 1)} = 1.391$; $p = .238$).

Socioeconomic status: differences were observed in the full scale ($F_{(1147;\ 2)}$=5.632; $p < .05$), with the high status group displaying the highest average (m=129.88 s.d.= 25.20). No significant differences are present between the other two levels (middle: m = 121.32, s.d. = 32.40; low: m = 123.048, s.d. = 31.02). Regarding the subscales, differences can be observed in Nutrition Behavior ($F_{(1147;\ 2)} = 4.775$; $p < .05$; High: m=17.14 s.d.= 8.73; Middle: m=13.63 s.d.=11.96; Low: m=14.85 s.d.= 11.028), Life Appreciation ($F_{(1147;\ 2)}$=4.408; $p < .05$; High: m=37.14 s.d.= 8.73; Middle: m=33.63 s.d.=11.96; Low: m=34.85 s.d.= 11.028), Social

Support ($F_{(1147;\ 2)}$=18.779; p < .001; High: m=27.14 s.d.= 8.73; Middle: m=23.63 s.d.=11.96; Low: m=24.85 s.d.= 11.028), and Exercise Behavior ($F_{(1147;\ 2)}$=5.451; p < .001; High: m=7.14 s.d.= 8.73; Middle: m=3.63 s.d.=11.96; Low: m=4.85 s.d.= 11.028). No differences can be observed in Health Responsibility ($F_{(1147;\ 2)}$=.918; p=.400 or Stress Management ($F_{(1147;\ 2)}$=1.846; p=.158).

Age: No differences can be observed in the average total scores regardless of participant age ($F_{(1211;\ 3)}$=1.367; p=.243). The analysis of the subscales reveals no differences between age groups in any of them.

Interaction Effects: No interaction effects were observed between the variables (gender x age, gender x SES, age x SES and gender x age x SES), either in the full scale or in the subscales with the 32-item model (p > .05).

Discussion

This study focuses on the psychometric properties of the Spanish version of the AHPS for Chilean adolescents and on its implications and limitations for clinical use.

The criteria for adequacy of exploratory factor analysis is similar to the original, with a KMO of .967 (Chen *et al.* KMO = .942) and a significant Bartlett's test of sphericity (p<.000 in both cases). In general, most items behave according to expectations in terms of comprehension and response categories; however, the grouping of the items observed in this study differs from that proposed by Chen *et al.* (2003) for Taiwan adolescent population. Initially, the grouping of the items with eigenvalues above 1 indicated the existence of 7 factors (accounting for 61% of the variance), results that differed from those published by Chen *et al.* (2003), who proposed six latent factors that explained 51.14% of the variance with 40 items. However, when removing 8 items due to inadequate performance (cross-loading and lack of theoretical meaningfulness), we found a six-factor model with 32 items explaining 62% of

the variance.

Few other studies have explored the item structure of the scale. For instance, in Portugal, Cardoso et al. 2015, among 1,213 adolescents, a factor analysis of the scale reveled a 6-factor structure using all 40 items, with a total variance of 45.6%. However, when we examined the factor loadings presented in that publication, several items did not load appropriately on some of the factors. For example, within the Nutrition Behavior factor, 4 out of 6 items (2, 3, 4, and 5) loaded under .32. Regarding the Social Support factor, 3 out of 8 (10, 11, and 12) have low factor loadings (<.32). It is interesting to note that 6 of the 8 items removed in the present study, conducted with a Chilean population sample, displayed very low loadings in the Portuguese study (10, 11, 12, 18, 19 and 34), which suggests that they perform poorly in several settings, therefore the consideration of removal is highly granted.

In all the countries where the scale has been used, the order of the factors differed from each other in terms of the amount of variance explained. This may be considered as one of the cultural differences: adolescents from different countries give importance to different aspects. For instance, in Taiwan, the main factor was Social Support (28.8%) and the least important one was Exercise Behavior (3.46%). In Chile, we found that the most important factor was Life Appreciation (19%) and the least important one was Exercise Behavior (6%). In Portugal, Life Appreciation (10.09%) and Nutrition Behavior (4.25%) were the most and least important factors, respectably. And in Turkey, the main factor was Life Appreciation (17%), while the least important one was Nutrition Behavior (3.43%). This is an aspect that we need to take into account when planning promotion interventions, adapting content according to the weight that some of these behavior have in the overall concept of health promotion among adolescents. It is also necessary to stress that, in all the studies mentioned, even in the original (Chen et al., 2003), the Life Appreciation factor explains a large

percentage of the variance. It appears to be a factor that must be regarded as essential for health promotion in adolescents, regardless of their culture.

When performing the EFA, we decided to use an oblique method for rotation assuming correlation between factors. We found support to this assumption considering that most of correlation coefficients for the six-factor model were higher than .5 (all with p values < .001). Two correlations had values over .8: Stress Management with Nutrition Behavior and Social Support with Exercise Behavior. The first association may be due to the fact that both factors involve making an effort to achieve daily routines. The second association may be connected to the fact that, at least in Chile, adolescents tend to prefer doing physical exercise as a group and social activity, rather than an individual and lonely activity. For example, playing football.

The reliability of the scale with 32 items displayed a Cronbach's alpha of .95, while the subscales ranged from .75 to .94, which is considered very good (Hogan, 2004). These values are higher than those reported by Chen *et al.* (2003). The internal consistency values for all subscales are good (over .75). The Social Support scale has remarkable internal consistency: with 4 items, its coefficient is .85; the Exercise Behavior scale is also noteworthy for this reason: with 3 items, its coefficient is .80.

With respect to the removed items, several reasons may explain the lack of association with the theoretical subscale. For example, item 6 of the Nutrition Behavior subscale, "Eat breakfast daily", may not be considered to be part of that factor because Chilean people may not think that breakfast is an important meal, unlike lunch. For items 10, 11, and 12, part of the Social Support subscale (10. Make an effort to smile or laugh every day; 11. Enjoy keeping in touch with relatives; 12. Make an effort to have good friendships), the reason may be that these three items may not indicate actual actions to the respondents as the other items

do, but a proposition for doing an effort to perform these actions. It is important to address that other studies, such as the one conducted in Portugal, found very low loadings on these 3 items. The opposite may be the case for items 18 and 19, originally associated with the Health Responsibility subscale (18. Brush my teeth and use dental floss after meals; 19. Wash hands before meals), where these items are the only two that refer to concrete every day actions. In addition, both actions are regarded as basic behavioral habits in Chile learned from an early age, and thus may not be considered to be a health responsibility matter, but instead one of good manners. In the case of items 32 and 34, associated with the Exercise Behavior subscale (32. Participate in physical fitness class at school weekly; 34. Make an effort to stand or sit up straight), different reasons may be involved. On the one hand, item 32, which loads on the theoretical factor, but also on another one (more on the latter), the reason may be that P. E. lessons do not depend on the student, and are often suspended because other academic activities are prioritized. On the other hand, in the case of item 34, pupils may not make a connection between paying attention to one's posture and one's exercise behaviors and stress management (the highest loading is on this factor), which suggests that this item may be a factor on its own, situation confirmed by the variability of loadings displayed by this item in the studies presented.

Regarding gender, differences can be observed in 3 of the 6 subscales in which the average is higher for females than for males. These results are consistent with the study conducted by Sjøberg & Schreiner (2010), which considered over 30 European and Asian countries, and which showed that adolescent girls are more interested in body and health issues than boys. Only Exercise Behavior displays higher scores for males. These results can be explained because girls may prefer not to exercise for misconceptions about the meaning of "femininity", or because sweat can spoil their look (Dwyer *et al*., 2006).

Differences also emerge when analyzing by SES. High-SES respondents present average scores, which are significantly higher than those from the other two groups in 4 of the 6 subscales. This could reflect their greater socio-cultural capital, which entails more awareness of their health and wellbeing, better access to knowledge, and more resources to adopt healthy behaviors, Therefore, it seems necessary to take this aspect into account when applying this scale and interpreting the results.

Finally, the age of the respondents does not seem to influence their answers. The age range of the participants of this study (10 to 14 years old) is more limited than that of Chen *et al.* (2003*)*, which included individuals aged 12 to 22, with an average age of 16. This results support the idea that early adolescents, as a group, have similar characteristics.

Responses on this scale reflect the behavior of a sample of students from central Chile, which could differ in the case of students from other parts of the country. Chen *et al.* (2007) showed differences between the behavior of Taiwanese and American adolescents, a situation which may also apply to regional differences in Chile.

This study presents some limitations. It is possible that we could find cultural differences between students from contrasting geographical regions in Chile. Our study was conducted in a small city in the center of Chile. Therefore, it is important to explore the performance of this scale in other parts of the country. Additionally, we did not perform a confirmatory factor analysis in a separate sample of adolescents, what is sometimes recommended, to test the hypotheses generated from the exploratory factor analyses. We also do not have information about how this scale performs in adolescents older than 14. Further research is recommended to address these limitations.

The strengths of this study include the addition of analyses that consider gender and SES differences, two variables that directly influence healthy behaviors in adolescents. In

addition, this study allows researchers to contrast their results with this reference point.

Conclusions and Recommendations

The AHPS is a valid and reliable instrument for measuring the health-promoting behaviors of Chilean adolescents. To keep the original six-factor structure (Nutrition Behaviors, Health Responsibility, Social Support, Life Appreciation, Stress Management, and Exercise Behavior) it was necessary to eliminate 8 items. This is a change with respect to the original scale, which could be explained by the prevalent perceptions of a cultural context that differ from those of the original test, and by the increasing knowledge of students about these issues. Finally, when interpreting test results, the sex and SES of the sample must be taken into account, in accordance with the results of studies conducted in several countries and cultures (for instance, see Chen *et al*., 2007; Sjøberg & Schreiner, 2010).

The promotion of healthy behaviors is a global need; therefore, the availability of an instrument adapted to a specific culture, in this case Spanish, and with psychometric indices consistent with the original scale makes it possible to obtain data from school-age adolescents in order to perform follow-up studies, focused interventions, diagnoses for defining public policies, etc. At the same time, an internationally valid and reliable instrument will make it possible to perform comparative studies.

Competing interests

The authors declare that they have no competing interests.

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