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Validation And Adaptation Of The Tepica Instrument To Assess Knowledge And Eating Habits In The Chilean Adolescent Population

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Abstract

Validated measurement instruments are necessary for a permanent knowledge of eating habits and knowledge. The objective of this article is to Whereby the objective of this article is to adapt and validate the TEPICA instrument to assess knowledge and eating habits of the Chilean adolescent population. Based on the questionnaire validated by Cuervo in 2016. The instrument was applied to a sample in two phases, in the first one 306 schoolchildren have participated, of a second phase replicating the study with a sample of 3172 students. Once the surveys were completed, we proceeded to their analysis, constructing the data matrix with distribution and dispersion tests, the mean, standard deviation, skewness, kurtosis and range, using the IBM SPSS.27 statistical program. Subsequently, the dimensionality of the scale was studied by applying an exploratory or semi-confirmatory factor analysis (AFE or AFSC) using the FACTOR program in its version 11 updated in 2021. It can be concluded that the TEPICA.Ch instrument provides a type of measurement that is valid, reliable, simple to apply and adapted to adolescents in the Chilean context, making it possible to evaluate knowledge about food and eating habits in school adolescents, the data indicate that it complies with the validation and reliability processes to be used.

Keywords: Adaptation; Adolescents; Adolescent; Food habits; Nutritional survey; Food habits; Validation.

Introduction

Adolescence is the transitional period between childhood and adulthood in which major changes in growth and development occur (Altay et al., 2018). It is the stage in which young people acquire behavioral autonomy regarding their eating habits and establish preferences about eating habits that will last throughout their lives (Fismen et al., 2022). However, the prevalence and incidence of diet-related diseases in schoolchildren has increased alarmingly and overweight and obesity in children and adolescents is growing exponentially according to the World Health Organization (WHO, 2020).

Psychosomatic disorders such as stress, depression, social anxiety, body image distortion, or self-esteem deficits can lead to eating disorders and inadequate intake during adolescence (Arslan & Aydemir, 2019; Bell et al., 2019). Peer influences, unhealthy eating habits, and lack of physical activity can lead to

overweight, obesity, and other health risk factors (Kalkan et al., 2019). Also, at this stage of development, there is an excessive use of social networks as a way to achieve self-image approval, abnormal eating attitudes and body satisfaction (Restrepo & Quirama, 2020). However, Ronto et al. (2016) indicate that adolescents are aware of the importance of good nutrition for health and disease prevention, but do not apply this knowledge in their daily lives.

In the Chilean context, there are few instruments that assess eating habits in the educational stage (Méndiz et al., 2017). Such as the validation of an instrument to assess consumption, habits and food practices in schoolchildren aged 8 to 11 years (Vio del Rio et al., 2015), in which part of the team of the National Institute and Food Technology (INTA) measures changes in knowledge, consumption, culinary skills, habits and expenditures in children aged 8 to 11 years, in public schools in Chile.

On the other hand, the Chilean Ministry of Health (MINSAL, 2014) created the National Food Consumption Survey that aims to identify the patterns of eating behaviors and habits of the Chilean population. Carrasco et al. (2020) created and validated a questionnaire that allows the assessment of dietary behaviors at risk of excess malnutrition in Chilean adolescents. Méndiz et al. (2013) designed a scale of attitude towards healthy eating, which was later adapted to generate another brief scale to measure attitudes towards healthy eating in preadolescent school population (Méndiz et al., 2017).

Likewise, some research have adapted to the Chilean context the KIDSCREEN-27 quality of life questionnaire in adolescents (Urzua et al., 2009) and the KIDSCREEN-52 in children and adolescents (Sepúlveda et al., 2013), and subsequently they have been used in other research (Vilugrón et al., 2020; Molina et al., 2014). Also Del Valle et al. (2022) adapted the Comprehensive Feeding Practices Questionnaire (CFPQ) applied to parents to Spanish. In addition, there are other school research on parental eating habits (Schnettler et al., 2017), eating habits and quality of life (Kovalskys et al., 2022; Peña et al., 2021; Vilugrón et al., 2020), eating habits related to academic performance (Gaete et al., 2021; Ibarra et al., 2019); comparison of nutritional status, habitual food consumption and physical activity habits in schoolchildren (Rivera et al., 2020); and eating habits during COVID-19 (Enriquez et al., 2021; Ruiz-Ruso et al., 2020).

As can be observed, there are studies on eating habits from different perspectives, although very few have specifically addressed the adequate or erroneous knowledge of Chilean adolescents on eating, except for Pino et al. (2010). The study did not inquire about adolescents, but generated an instrument for 9-year-olds on dietary knowledge that was subsequently used by Ruiz de la Fuente et al. (2016). Crovetto et al. (2010) conducted another research on the same topic, also in young children (4 to 7 years old) through interviews, as well as the one conducted in the university setting on healthy eating knowledge (Reyes & Oyola, 2020).

In relation to instruments that help assess eating habits and knowledge, Benarroch et al. (2010) designed the TEPICA questionnaire (Test de Evaluación de Preferencias, Intenciones de Conducta y Consumos Alimenticios) to measure these concepts related to the eating habits of adolescents aged 15 to 16 years in diverse sociocultural settings. This instrument consists of three blocks: (I) to inquire about food references; (II) made up of 48 items, of the initial 92, it deals with knowledge and beliefs associated with food; (III) it seeks to find out about eating behaviors. It was validated by administering it to 160

students from Melilla in the 3rd year of ESO, and analyzed by multivariate statistical techniques. The final version of the questionnaire continued with the three initial blocks, but in a smaller format.

The TEPICA was again validated by Benarroch et al. (2011) in adolescents aged 14 to 17 years with the same characteristics as the pilot study (culturally diverse Melillenses), applied to three samples (n=300, n=163, n=591). The questionnaire in its final version continued with the three initial blocks, but smaller: (I) 15 closed-response items about personal and family characteristics and food and religious preferences; (II) 45 items with a Likert-type response scale and options ranging from 1 (strongly disagree) to 5 (strongly agree). This block provides information on the factors influencing the eating behavior of adolescents, composed of 8 factors; (III) consisting of a questionnaire of consumption frequencies of 28 food groups, which allows us to know them in a more specific way.

Subsequently, Cuervo (2016) adapted a part of the TEPICA questionnaire to adolescent ages (12 to 18 years) in a city in northern Spain. The items used, on one hand, the personal and family items (sex, socioeconomic level of the family, parents' studies and number of daily meals and their preparation), and on the other hand the items corresponding to block II, excluding questions related to religion. The validation and reliability process began with an exploratory factor analysis (EFA) and continued with a confirmatory factor analysis (CFA). In the AFE, Bartlett's statistic [7224.9 (df = 496; P = 0.000010) and the Kaiser-Meyer-Olkin test (KMO) = .94 showed a very good fit of the data. The Goodness of Fit Index (GFI) was very good, .99 and the Root Mean Square Error (RMSE) .036. The data obtained revealed a good fit in the two-dimensional structure. For the CFA, we used the M-Plus program, first with the whole sample and then replicated the analyses by groups classified by males, females, pre-adolescents and adolescents, in order to check whether the readjustments were met in all groups. The results obtained were sufficiently powerful to be considered scientifically adequate, being the value obtained in the RMREA .039, in the Comparative Fit Index (CFI) = .937 and in the Tucker-Lewis Index (TLI) = .932. These results determine the exclusion of variables, adjusted in 30 items rotating two factors, adequate knowledge (CON.ADE.) with a total of 10 items and myths and errors (MIT.ERR.) with 20 items, with responses on a Likert scale from 1 to 5 points according to the degree of agreement or disagreement with each of the phrases that compose it.

The objective of this research is to adapt and validate the TEPICA instrument to assess the knowledge and eating habits of the Chilean adolescent population and subsequently to apply it to obtain reliable results.

Material and Method

Since the TEPICA has been developed and used outside our borders, an instrumental research was carried out (Ato et al., 2013; Montero & León., 2007) in which the dimensionality and reliability of the scale were studied in order to ensure that the instrument complies with minimum scientific properties that guarantee the reliability and validity of the data used. The Ethical Committee that endorsed the study and its reference code: JUN.23/0 TES.

Participants

The study to test the suitability of the TEPICA scale for the Chilean population of the Los Lagos region was carried out with children between 10 and 20 years of age from different types of educational establishments (public, subsidized and private).

The research was carried out in two phases. The first phase involved 306 schoolchildren, of whom 171 were males and 135 females, whose ages were grouped into pre-adolescents (10-13 years, n=130) and adolescents (14-20 years, n=176). In view of the results obtained, a second phase was carried out, replicating the study with a sample of 3172 students from the same region, of whom 1432 were female and 1740 male, figures that are fairly balanced in terms of sex and age, with an average of 14.29 years, distributed among 1184 (37.3%) pre-adolescents aged 10-13 years, 1988 (62.7%) adolescents aged 14-20 years.

Instruments

To describe eating habits in adolescents, we used the version adapted by Cuervo (2016) of the TEPICA, which in turn had been validated by Benarroch et al. (2011).

Procedure

First, contact was made with the management of the centers, selected for convenience, to explain the objective of the research and request their collaboration. Once the permissions and the confirmation of the parents by means of informed consent were obtained, the questionnaire was prepared for its application. During the data collection process, the students were informed of their anonymity, the objectives of the study and that their participation was relevant and essential. Finally, they were informed of the exclusivity of the data for research purposes and subsequent scientific dissemination of the results in compliance with the Helsinki declaration in 1975 and its update in Brazil in 2013. The Ethical Committee that has favorably endorsed the study and its reference code JUN.23/0 TES

The questionnaires were administered by the principal investigator of this study, who was trained for this purpose, according to the availability and coordination of each school. During the implementation, which lasted one 20-minute session per group, a teacher from the school was always present.

Statistical análisis

Once the surveys were completed, we proceeded to their analysis, constructing the data matrix with distribution and dispersion tests, mean, standard deviation, skewness, kurtosis and range, using the IBM SPSS.27 statistical program (IBM Corp., Armonk, NY, USA). Subsequently, the dimensionality of the scale was studied by applying an exploratory or semi-confirmatory factor analysis (AFE or AFSC) (Lloret-Segura et al., 2014) using the FACTOR program created by Lorenzo-Seva and Ferrando of the Psychology Department of the Rovira i Virgili University of Tarragona in 2006, in its version 11 updated in 2021.

Results

The adaptation and validation of the questionnaire in Chilean adolescents was carried out in two phases, first an AFSC to the group of n=306 in order to identify the factors or latent variables, necessary to explain the common variance of all the items analyzed. It was then replicated with n=3172 subjects, to corroborate whether the scale used is adequate to be applied with guaranteed success (Lloret-Segura et al., 2014).

With the first phase of the sample of 306 subjects, carried out to check whether the data distribution of the scale is adequate for the population under study described above, distribution and dispersion tests were applied to the 30 items of the questionnaire. Upon checking the results obtained (Table 1), it was decided to disregard item 1 because it presented a poor sampling distribution, reaching values ≥ .200 in skewness and kurtosis (Bandalos & Finney, 2010; Muthén & Kaplan, 1992).

To analyze the dimensionality of the scale, the optimal implementation method of parallel analysis proposed by Timmerman & Lorenzo (2011) was used by means of 10,000 resamples. We proceeded to apply Bartlett's statistic of the 29 resulting items which gives a value of 2222.00 (df = 406; p < .001), and the Kaiser-Meyer-Olkin test (KMO) = .86408, indicating a sufficient adequacy of the data to be subjected to factor analysis (Table 3). An AFSC was performed, as indicated by Garcia et al. (1998), of the two predicted factors, using the unweighted least squares factorization method and the Promin method of rotation (Ferrando & Lorenzo, 2014). The two extracted factors explain 26% of the total variance and a Cronbach's Alpha for F1 (CON.ADE.) of .729 and for F2 (MIT.ERR.) of .704. The CFI = .986, the GFI = .982 and the RMSEA = .043. When rotating the two factors, 6 items 8, 11, 20, 21, 22 and 27 have been eliminated because they reached values below .300 (García et al., 1998). All these data indicate a good fit of the two-dimensional structure for these 23 items (Tables 1 and 3).

A replication was then performed with the 3172 participants. Bartlett's statistic of the resulting 23 items yielded a value of 12589.30 (df = 253; p <.001), and the Kaiser-Meyer-Olkin test (KMO) = .84093, indicating a good fit of the data (Table 3). In view of the data, an AFSC of the two factors was performed. The extracted factors explain 30% of the total variance and a Cronbach's Alpha for F1 (CON.ADE.) = .721 and for F2 (MIT.ERR.) = .707. The CFI .98. The GFI was .97 and the RMSEA was .02 (Table 1).

Finally, the AFSC was replicated separately for adolescents, preadolescents, males and females of the 3172 participants. Tables 3 and 4 show the values obtained in the aforementioned groups, proving that the values obtained in each group were in accordance with those obtained in the entire sample.

These results conclude the validation and adaptation of the questionnaire to the Chilean adolescent population (TEPICA.Ch) for its successful application to the entire population.

Table 1. Tests of distribution, dispersion, rotated factorial matrix and Cronbach's alpha

	n = 306				n = 3172				Matriz factorial rotada n = 306		Matriz factorial rotada n = 3172	
Variables	**M**	**DT**	**Asim.**	**Curt.**	**M**	**DT**	**Asim.**	**Curt.**	**F1**	**F2**	**F1**	**F2**
V1	1.46	.962	2.306	4.780								
V2	1.62	1.145	1.882	2.515	1.67	1,184	1.741	1.860	-.134	.360	-.049	.436
V3	1.75	1.067	1.406	1.231	1.77	1,111	1.420	1.165	-.140	.410	-.142	.443
V4	2.93	1.202	-.021	-.654	2.90	1,247	.006	-.795	.342	.148	.303	.158
V5	1.99	1.122	.895	.050	2.00	1,151	.929	.027	-.074	.540	-.017	.505
V6	1.80	1.108	1.196	.492	1.90	1,149	1.057	.195	-.082	.500	-.004	.567
V7	2.20	1.193	.688	-.384	2.22	1,176	.536	-.591	.014	.431	.071	.430
V8	2.78	1.133	.133	-.722	2.79	1,143	.120	-.675	.270	.262	.565	-.013
V9	3.64	1.368	-.615	-.850	3.71	1,308	-.687	-.647	.621	.011	.560	-.123
V10	4.03	1.212	-1.210	.531	4.05	1,264	-1.203	.302	.551	-.155	.002	.472
V11	2.47	1.281	.488	-.776	2.41	1,320	.542	-.837	-.024	.272	.452	.019
V12	2.05	1.157	.850	-.050	2.15	1,199	.706	-.437	-.187	.353	-.137	.582
V13	3.55	1.538	-.530	-1.236	3.53	1,535	-.533	-1.218	.333	-.076	.086	.442
V14	1.78	1.128	1.225	.439	1.84	1,171	1.213	.460	-.261	.660	.175	.337
V15	2.20	1.294	.757	-.593	2.22	1,297	.732	-.588	.102	.424	-.021	.367
V16	242	1.391	.522	-1.048	2.50	1,406	.445	-1.095	.292	.327	-.003	.484
V17	2.28	1.423	.724	-.866	2.21	1,422	.791	-.766	.022	.310	-.007	.338
V18	2.09	1.207	.842	-.305	2.03	1,164	.925	-.070	-.087	.487	.564	-.061
V19	2.13	1.416	.856	-.714	2.12	1,351	.862	-.579	.047	.394	.558	.024
V20	2.43	1.339	.487	-.904	2.40	1,274	.498	-.782	.187	.155	.598	.013
V21	2.86	1.309	.086	-1.097	2.81	1,316	.118	-1.086	.266	.214	.546	.044
V22	2.53	1.431	.427	-1.169	2.66	1,463	.284	-1.295	.241	.252	.012	.358
V23	3.41	1.391	-.399	-1.096	3.55	1,403	-.539	-1.008	.564	-.170	.096	.336
V24	3.50	1.429	-.506	-1.056	3.51	1,432	-.491	-1.084	.489	.031	.537	.106
V25	3.32	1.338	-.405	-.922	3.34	1,351	-.342	-1.030	.622	-.111	-.049	.436
V26	3.25	1.425	-.267	-1.205	3.21	1,377	-.212	-1.140	.634	-.109	-.142	.443
V27	2.48	1.223	.392	-.770	2.48	1,278	.421	-.831	.115	.157	.303	.158
V28	2.24	1.249	.709	-.502	2.26	1,278	.685	-.619	.015	.412	-.017	.505
V29	2.23	1.301	.703	-.636	2.27	1,326	.654	-.780	.029	.446	-.004	.567
V30	3.24	1.310	-.229	-.994	3.32	1,303	-.301	-.913	.495	.016	.071	.430
Alfa de Cronbach									**.729**	**.704**	**.721**	**.707**

Table 2. Rotated load matrix with loads less than .300 omitted and values sorted in descending order.

	n=3172	
Variables	**F1**	**F2**
19. I believe I have sufficient knowledge about the beneficial effects of eating a balanced diet.	.598	

7. Adequate nutrition during adolescence prevents the onset of some pathologies in adulthood.	.565	
17. I have easy access to a variety of fruits and vegetables.	.564	
8. Eat fruit and vegetables every day	.560	
18. I believe that the daily intake of foods rich in fats and sugars is detrimental to health.	.558	
20. Foods high in fat, cholesterol, added sugars and salt can be distinguished from those that are not.	.546	
23. In order to have a balanced diet, it is advisable to follow the indications of the food pyramid.	.537	
10. Extreme thinness is fashionable, but does not equate to good health	.452	
3. Consumption of oily fish protects the heart from cardiovascular disease	.303	
11. I eat very little fruit because that is not the norm among my colleagues.		.582
5. I believe that wine before meals whets the appetite and gives strength.		.567
21. I rarely see my parents eat fruits or vegetables.		.537
22. My father loves to watch TV while eating snacks and drinking, for example, a coke.		.537
4. Fruits eaten after meals produce fermentations that are detrimental to health and fattening.		.505
15. In my house we always eat ready-made food or a sandwich.		.484
9. It is better to eat what others eat and not stand out.		.472
2. Hamburgers, pizzas and the like feed more than home-cooked meals		.443
12. TV commercials always feature very thin guys/girls because that's the way we should all be.		.442
1. Alcohol is an energy nutrient that should be consumed in moderation in a balanced diet.		.436
6. Children should only eat white fish		.430
14. At home we lack the financial resources to buy fish, fruits and vegetables.		.367
16. In my house we almost never eat together		.338
13. I feel that food controls my life		.337

Table 3. Values achieved in the different adjustment indexes (initial group, replication with the whole and values by groups).

	Varianza	**Estadístico de Bartlett**	**KMO**	**RMSE**	**CFI**	**GFI**
1ª fase (n=306)	26%	2222.0 (df = 406; p = 0.000010)	.86408	.043	.986	.982
2ª fase (n=3172)	30%	12589.3 (df = 253; p = 0.000010)	.84093	.022	.985	.973
Adolescents (n=1988)	31%	8998.6 (df = 253; p = 0.000010)	.83980	.037	.965	.935
Pre adolescents (n=1184)	28%	4308.7 (df = 253; p = 0.000010)	.80088	.038	.949	.890

Man (n=1740)	32%	8118.3 (df = 253; p = 0.000010)	.84778	.038	.966	.937
Woman (n=1432)	28%	5124.3 (df = 253; p = 0.000010)	.79304	.037	.950	.896

Nota conceptos. KMO: Kaiser-Meyer-Olkin; RMSEA: Error cuadrático medio de aproximación; CFI: Índice de ajuste comparativo; GFI: Índice de bondad de ajuste.

Table 4. Matrix of rotated loadings omitting loadings below .300 and with values sorted in descending order, differentiated by adolescents, preadolescents, males and females.

	Adoles. (n = 1988)		**Preadoles. (n =1184)**		**Man (n = 1740)**		**Woman (n = 1432)**	
Variables	**F1**	**F2**	**F1**	**F2**	**F1**	**F2**	**F1**	**F2**
19. I believe I have sufficient knowledge about the beneficial effects of eating a balanced diet.	.619		.557		.645		.544	
7. Adequate nutrition during adolescence prevents the onset of some pathologies in adulthood.	.609		.484		.600		.520	
8. Eat fruit and vegetables every day	.597		.496		.571		.540	
17. I have easy access to a variety of fruits and vegetables.	.580		.543		.588		.525	
18. I believe that the daily intake of foods rich in fats and sugars is detrimental to health.	.570		.539		.532		.590	
20. Foods high in fat, cholesterol, added sugars and salt can be distinguished from those that are not.	.567		.508		.575		.510	
23. In order to have a balanced diet, it is advisable to follow the indications of the food pyramid.	.554		.510		.559		.507	
10. Extreme thinness is fashionable, but does not equate to good health	.496		.372		.480		.407	
3. Consumption of oily fish protects the heart from cardiovascular disease	.301		.306		.342		.302	
11. I eat very little fruit because that is not the norm among my colleagues.		.607		.541		.639		.504
5. I believe that wine before meals whets the appetite and gives strength.		.583		.540		.589		.528
9. It is better to eat what others eat and not stand out.		.510		.408		.508		.422
15. In my house we always eat ready-made food or a sandwich.		.500		.458		.488		.481

4. Fruits eaten after meals produce fermentations that are detrimental to health and fattening	.479	.551	.524	.475
6. Children should only eat white fish	.446	.402	.454	.397
12. TV commercials always feature very thin guys/girls because that's the way we should all be	.437	.451	.463	.419
14. At home we lack the financial resources to buy fish, fruits and vegetables	.435	.307	.426	.308
1. Alcohol is an energy nutrient that should be consumed in moderation in a balanced diet	.429	.450	.450	.415
2. Hamburgers, pizzas and the like feed more than home-cooked meals	.423	.476	.463	.446
21. I rarely see my parents eat fruits or vegetables	.376	.330	.366	.365
13. I feel that food controls my life	.349	.324	.363	.302
16. In my house we almost never eat together	.339	.348	.345	.331
22. My father loves to watch TV while eating snacks and drinking, for example, a coke	.327	.359	.359	.316

Discussion and conclusions

The objective of this research was the validation and adaptation of the TEPICA questionnaire to the Chilean context. The results are successfully concluded with the adaptation of the questionnaire (TEPICA.Ch) with 23 items and rotating two factors, for its application with guaranteed success to the entire population.

In response to this objective, it is necessary to have instruments that measure the habits and basic knowledge of adolescents about food, which are necessary to consume a healthy diet (Brown et al., 2021). The prevalence of inadequate eating habits and low level of knowledge about food and nutrition is observed (Reyes & Oyola, 2020), in their results on the level of knowledge on healthy eating indicate that the vast majority (41.2%) of university students have a medium level of knowledge, 38.2% a low and 20.6% high. Similar results were observed by Brown et al. (2021), for whom adolescents indicate that knowledge is, on average, relatively low, with a mean score of 54.6% and partial mean scores of 59.8% for food knowledge and 52.2% for nutrition knowledge.

In this same context, in the research of Cuervo et al. (2018) it has been observed as adolescents that myths and erroneous beliefs or knowledge about food are widespread in society, regardless of sex, age. In turn, the participants whose father lacks studies score lower in the factors of "Knowledge" and "Interest in food", when it is the respondents themselves who take care of cooking they achieve higher scores in the factor of "Myths" and less in "Knowledge". As for the "Myths" factor, the highest scores were obtained by those subjects whose mother or both parents work alone.

In this context, Cuervo et al. (2018) observe how myths, beliefs or erroneous knowledge about food are widespread in society, regardless of gender and age. Likewise, participants whose father lacks education score lower on the factors "knowledge" and "interest in food". When it is the respondents themselves who do the cooking, they score higher on the "myths" factor and lower on the "knowledge" factor. As for the "myths" factor, the highest scores were achieved by subjects whose parents or only the mother works.

In relation to validated and/or appropriate instruments for the Chilean context, there are few that assess eating habits in the educational stage (Méndiz et al., 2017). Neither have they specifically addressed the adequate or erroneous knowledge of Chilean adolescents on eating, except for that of Pino et al. (2010) who generated an instrument for 9-year-old children on eating knowledge. This instrument was later used by Ruiz-de la Fuente et al. (2015).

Crovetto et al. (2010), analyzed children from 4 to 7 years old through interviews and Reyes et al. (2020) also carried out a study at the university level about the knowledge of healthy eating. But there are no studies applied to adolescents. For this reason, it is necessary to deepen the knowledge, beliefs and/or myths about the diet that adolescents currently have in the country.

Although the instrument has already been validated and complies with the stated reliability and trustworthiness, it is now applied to a large part of the adolescent stage (between 10 and 20 years of age), in order to validate it in this age group and the Chilean context. The questionnaire used is the TEPICA of Cuervo's (2016) version, specifically it was applied to block II that assesses the correct-positive or adequate knowledge (CON.ADE.) and myths and bad eating-wrong knowledge (MIT.ERR.). The demonstration of internal consistency is a key step in the psychometric validation of the questionnaire. This obtained good results both in the AFE in the score clearly identifying the two factors raised by Cuervo (2016) between both teachers (n=306 and n=3172) giving a Cronbach's Alpha in the envelope ≥ .700, as in the original version with a Cronbach's Alpha.

The first phase of the validation process was to check the distribution of the scale data and the distribution and dispersion tests of the 30 items of the questionnaire, to see if it is appropriate for the population under study. When checking the results obtained, it was decided to eliminate item 1 because it had a poor sampling distribution, reaching values ≥ .200 in skewness and kurtosis (Bandalos & Finney, 2010; Muthén & Kaplan, 1992). Similarly, after rotating the two factors, 6 items have been eliminated for reaching values below .300 (García et al., 1998). This is interpreted as meaning that the answers given by the students to these questions do not provide information in relation to the confidence given to the data obtained with the questionnaire, so they can be disregarded when measuring the student's difficulties in learning recursion, they do not pose any difficulty for the student, so these questions can be ignored. All these data indicate a good fit of the two-dimensional structure for these 23 items.

As in the validation of Sepúlveda et al. (2013) in the Cross-cultural adaptation and validation of a health-related quality of life instrument in Chilean adolescents, when going through the processes of reliability and item correlations, some of the items found were lower than the recommended values, remaining with 23 items of the original 52 of the KIDSCREEN-52 questionnaire (Ravens-Sieberer et al., 2005). This instrument was applied simultaneously in

13 European countries and has been adapted and validated in Spanish-speaking countries (Ravens-Sieberer et al., 2008). In addition, the same team that leads it recommends the use of the guide of instruments for the evaluation of health status and quality of life: Attributes and criteria (Lohr, 2002). In turn, similar results occurred in the adaptation of the TEPICA questionnaire version of Cuevas (2016) when adapting and validating the original version of Benarroch et al. (2011), extending the age in its validation (12 to 18 years) and remaining from 45 to 30 items, in this case the factors were also adjusted from 8 to 2.

It is clear that, when applied in another territory, in another historical moment, other cultural characteristics, as indicated by Carvajal et al. (2011) that the validation of an instrument is a continuous and dynamic process and that it becomes more consistent as more psychometric properties have been measured in different cultures, with different populations and subjects. The validity of an instrument is not categorical, the validity of an instrument is not tested categorically (yes or no) but it can accumulate data that clarify and expand the meaning of what we measure by seeing what other variables are related (Morales, 2011). Although the instruments are validated, it is important to consider that cross-cultural adaptation involves the evaluation of linguistic and conceptual equivalence and measurement properties.

It can be concluded that the TEPICA.Ch instrument provides a type of measurement that is valid, reliable, simple to apply and adapted to adolescents in the Chilean context, making it possible to assess knowledge about food and eating habits in school adolescents, and the data indicate that it complies with the validation and reliability processes for use. The Chilean version of the instrument (TEPICA.Ch) can become a tool of great help in the planning and specific interventions focused on knowledge of eating habits and thus help to improve the health-related quality of life of adolescents.

References

Altay, M., Cabar, H.D., & Altay, B. (2018). Adolesan döneminde beslenme ve okul sağlığı. Sinop Üniversitesi Sosyal Bilimler. Dergisi, 2(1), 173-180. https://doi.org/10.30561/sinopusd.414093

Arslan, M. & Aydemir, I. (2019). Relationship between emotional appetite, eating attitudes, sleep quality, and body mass index in healthcare workers: a multi-centre study. Psychiatry and Clinical Psychopharmacology, 29(3), 346-353. https://doi.org/10.1080/24750573.2019.1627694

Ato, M., López-García, J.J., & Benavente, A. (2013). Un sistema de clasificación de los diseños de investigación en psicología. Anales de Psicología, 29(3), 1038-1059. https://doi.org/10.6018/analesps.29.3.178511

Bandalos, D.L. & Finney, S.J. (2010). Factor analysis: Exploratory and confirmatory. In G.R. Hancock & R.O. Mueller (Eds.), The reviewer's guide to quantitative methods in the Social Sciences (pp. 93-114). Routledge.

Benarroch, A., Cabo, J.M., Pérez-Vadillo, S., Ferrero, M.T., López, C.G., & Arzola de la Rosa, L. (2010). Una investigación sobre la alimentación en adolescentes melillenses desde una perspectiva multicultural. A 'CiDd: II Congrés Internacional de

Didàctiques 2010'. Girona: Universitat [Consulta 28 marzo 2023]. Disponible en http://hdl.handle.net/10256/2881

Benarroch, A., Pérez, S., & Perales, J. (2011). Factores que influyen en las conductas alimentarias de los adolescentes: Aplicación y validación de un instrumento diagnóstico. Electronic Journal of Research in Educational Psychology, 9(3), 1219-1244.

Brown, R., Seabrook, J.A., Stranges, S., Clark, A.F., Haines, J., O'Connor, C., Doherty, S., & Gilliland, J.A. (2021). Examining the correlates of adolescent food and nutrition knowledge. Nutrients, 13(6), 2044. https://doi.org/10.3390/nu13062044

Carrasco, F., Pérez-Villalobos, C., & Cruzat, C. (2020). Cuestionario para medir conductas alimentarias de riesgo de malnutrición por exceso en adolescentes. Nutrición Hospitalaria, 37(1), 37-45. https://dx.doi.org/10.20960/nh.02666

Carvajal, A., Centeno, C., Watson, R., Martínez, M., & Sanz, A. (2011). ¿Cómo validar un instrumento de medida de la salud? Anales del Sistema Sanitario de Navarra, 34(1), 63-72. http://dx.doi.org/10.4321/S1137-66272011000100007

Crovetto, M., Zamorano, N., & Medinelli, A. (2010). Estado nutricional, conocimientos y conductas en escolares de kínder y primer año básico en 3 escuelas focalizadas por obesidad infantil en la comuna de Valparaíso, Chile. Revista chilena de nutrición, 37(3), 309-320. http://dx.doi.org/10.4067/S0717-75182010000300006

Cuervo, C. (2016). Relación entre la imagen corporal, los hábitos alimentarios, el autoconcepto y la cantidad de práctica deportiva en jóvenes de 12 a 18 años. Tesis doctoral. Universidad de Jaén. http://hdl.handle.net/10953/748

Cuervo, C., Zagalaz, J., Sánchez, M., & González de Mesa, C. (2018). Conocimientos e intereses sobre hábitos alimentarios saludables y práctica de actividad física. Un estudio con población adolescente. Aula abierta, 47(2), 211-220. https://doi.org/10.17811/rifie.47.2.2018.211-220

De Helsinki, D. (2013). Principios éticos para la investigación médica en humanos. 64 a Asamblea General de la Asociación Médica Mundial. Brasil: Forteza. https://www.wma.net/es/policies-post/declaracion-de-helsinki-de-la-amm-principios-eticos-para-las-investigaciones-medicas-en-seres-humanos/

De Helsinki, D. & World Medical Association. (1975). Declaración de Helsinki. Principios éticos para las investigaciones médicas en seres humanos. Tokio-Japón: Asociación Médica Mundial. https://lospacientes.webcindario.com/declaraciondehelsinki.pdf

Del Valle, C., Miranda, H., Orellana, L., Grunert, K.G., & Schnettler, B. (2022). Measurement invariance of the comprehensive feeding practices questionnaire in dual-earner parents with adolescent children in

Chile. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1031391

Enríquez, O.G., Martins, M.C., Pereira, T.S., Pacheco, S.O., Pacheco, F.J., López, K.V., Huancahuire-Vega, S., Silva, D., Mora-Urda, A., Rodríguez-Vásquez, M., Montero-López, P., & Molina, M.C. (2021). Diet and lifestyle changes during the COVID-19 pandemic in Ibero-American countries: Argentina, Brazil, Mexico, Peru, and Spain. Frontiers in Nutrition, 8. https://doi.org/10.3389/fnut.2021.671004

Ferrando, P.J. & Lorenzo, U. (2014). El análisis factorial exploratorio de los ítems: algunas consideraciones adicionales. Anales De Psicología, 30(3), 1170-1175. https://doi.org/10.6018/analesps.30.3.199991

Fismen, A.S., Galler, M., Klepp, K.I., Chatelan, A., Residori, C., Ojala, K., Dzielska, A., Kelly, C., Melkumova, M., Milanović, S.M., Nardone, P., Štefanová, E., Flodgren, G., Bakke, T., Ercan, O., Samdal, O., & Helleve, A. (2022). Weight status and mental well-being among adolescents: The mediating role of self-perceived body weight. A Cross-National Survey. Journal of Adolescent Health, 71(2), 187-195. https://doi.org/10.1016/j.jadohealth.2022.02.010

Gaete, D., Olea, M., Meléndez, L., Granfeldt, G., Sáez, K., Zapata, R., & Cigarroa, I. (2021). Hábitos alimentarios y rendimiento académico en escolares chilenos de quinto a octavo año básico. Revista chilena de nutrición, 48(1), 41-50. http://dx.doi.org/10.4067/S0717-75182021000100041

García, E., Gallo, P., & Miranda, R. (1998). Bondad de ajuste en el análisis factorial confirmatorio. Psicothema, 10(3), 717-724.

Ibarra, J., Hernández, C.M., & Ventura, C. (2019). Hábitos alimentarios y rendimiento académico en escolares adolescentes de Chile. Revista española de nutrición humana y dietética, 23(4), 292-301. https://dx.doi.org/10.14306/renhyd.23.4.804

JUNAEB (2021). Informe Mapa Nutricional 2020. Chile. https://www.junaeb.cl/wp-content/uploads/2018/12/Informe-Mapa-Nutricional-2020.pdf.

Jones-Bell M., Zeiler M., Herrero, R., Kuso, S., Nitsch, M., Etchemendy E., Fonseca-Baeza, S., Oliver, E., Adammcik, T., Karwautz, A., Wagner, G., Baños, R., Botella, Cr., Görlich, D., Jacobi, C., & Waldherr K. (2019). Healthy Teens @ School: Evaluating and disseminating transdiagnostic preventive interventions for eating disorders and obesity for adolescents in school settings. Internet Interventions, 16, 65-75. https://doi.org/10.1016/j.invent.2018.02.007

Kalkan, I. (2019). The impact of nutrition literacy on the food habits among young adults in Turkey. Nutrition research and practice, 13(4), 352-357. https://doi.org/10.4162/nrp.2019.13.4.352

Kovalskys, I., Fisberg, M., Nogueira-Previdelli, A., Lopes-Pereira, J.L., Zalcman Zimberg, I., Guajardo, V., Fisberg, R., Ferrari, G., Gómez, G., Rigotti, A., Cortés-Sanabria, L.Y., Yépez-García, M.C., Herrera-Cuenca, M., Liria-Domínguez, M.R., & Elans Study Group (2022). Breakfast in Latin America: evaluation of nutrient and food group intake toward a nutrient-based recommendation. Journal of the Academy of Nutrition and Dietetics, 122(6), 1099-1113. https://doi.org/10.1016/j.jand.2021.11.012

Lloret, S., Ferreres, A., Hernández, A., & Tomás, I. (2014). El análisis factorial exploratorio de los ítems: una guía práctica, revisada y actualizada. Anales de psicología, 30(3), 1151-1169. https://doi.org/10.6018/analesps.30.3.199361

Lohr, K.N. (2002). Assessing health status and quality-of-life instruments: attributes and review criteria. Quality of life research, 11, 193-205.

Méndiz, H., Ferrer, R., Urzua, A., & Aguaded, I. (2017). Development of a brief scale to measure attitudes towards a healthy food in a school population of pre-adolescents. Revista Chilena de Nutrición, 44(2), 177-182. http://dx.doi.org/10.4067/S0717-75182021000100041

Méndiz, H., Urzua, M., Álvarez, R., Arce, M., Vallejos, S., & Zamorano, P. (2013). Efficacy of radio capsules in promoting healthy eating. Revista Chilena de Nutrición, 40(4), 364-368.

Ministerio de Salud de Chile, MINSAL (2014). Encuesta Nacional de Consumo Alimentario. https://www.minsal.cl/sites/default/files/ENCA_FINAL_DIC_2014.pdf

Ministerio de Salud, Chile, MINSAL (2019). Actualización de la situación de la salud en adolescentes. Programa Nacional de Salud integral de adolescentes y jóvenes. https://diprece.minsal.cl/wp-content/uploads/2021/06/ACTUALIZACION-SITUACION-DE-SALUD-DE-ADOLESCENTES-PROGRAMA-NACIONAL-DE-SALUD-INTEGRAL-DE-ADOLESCENTES-Y-JOVENES.pdf

Molina, T., Montaño, R., González, E., Sepúlveda, R., Hidalgo-Rasmussen, C., Martínez, V., Molina, R., & George, M. (2014). Propiedades psicométricas del cuestionario de calidad de vida relacionada con la salud KIDSCREEN-27 en adolescentes chilenos. Revista médica de Chile, 142(11), 1415-1421. http://dx.doi.org/10.4067/S0034-98872014001100008

Montero, I. & León, O.G. (2007). Guía para nombrar los estudios de investigación en Psicología. International Journal of Clinical and Health Psychology, 7(3), 847-862.

Morales, P. (2011). Guía para construir cuestionarios y escalas de actitudes. Guatemala: Universidad Rafael Landívar. http://www.upcomillas.es/personal/peter/otrosdocumentos/Guiaparaconstruirescalasdeactitudes.pdf

Muthén, B. & Kaplan, D. A. (1992). Comparison of some methodologies for the factor analysis

of non-normal Likert variables: A note on the size of the mode, British Journal of Mathematical and Statistical Psychology, 45(1), 19-30. https://doi.org/10.1111/j.2044-8317.1992.tb00975.x

Organización Mundial de la Salud, OMS (2020). Nuevas amenazas para la salud de los niños y los adolescentes. https://www.who.int/es/news-room/fact-sheets/detail/children-new-threats-to-health

Peña, H., Campos, V., Sadarangani, K.P., Ferrari, G., Jorquera, C., & Cristi, C. (2021). Breakfast: a crucial meal for adolescents' cognitive performance according to their nutritional status. The cogni-action project. Nutrients, 13(4), 1320. https://doi.org/10.3390/nu13041320

Pino, J.L., López, M.A., Cofre, M.I., González, C., & Reyes, L. (2010). Conocimientos alimentario-nutricionales y estado nutricional de estudiantes de cuarto año básico según establecimientos particulares y subvencionados de la ciudad de Talca. Revista chilena de nutrición, 37(4), 418-426. http://dx.doi.org/10.4067/S0717-75182010000400002

Ravens-Sieberer, U., Gosch, A., Rajmil, L., Erhart, M., Bruil, J., Duer, W., Auquier, M., Power, P., Abel, T., Czemy, L., Mazur, J., Czimbalmos, A., Tountas, Y., Hagquist, C., Kilroe, J., & European KIDSCREEN Group (2005). KIDSCREEN-52 quality-of-life measure for children and adolescents. Expert review of pharmacoeconomics & outcomes research, 5(3), 353-364. https://doi.org/10.1586/14737167.5.3.353

Ravens-Sieberer, U., Gosch, A., Rajmil, L., Erhart, M., Bruil, J., Power, M., Duer, W., Auquier, P., Cloetta, B., Czemy, L., Czimbalmos, A., Tountas, Y., Tountas, C., Kilroe, J., & Kidscreen Group. (2008). The KIDSCREEN-52 quality of life measure for children and adolescents: psychometric results from a cross-cultural survey in 13 European countries. Value in health, 11(4), 645-658.645-58. https://doi.org/10.1111/j.1524-4733.2007.00291.x

Restrepo, J.E. & Quirama, T.C. (2020). Riesgo de trastorno de la conducta alimentaria y uso de redes sociales en usuarias de gimnasios de la ciudad de Medellín, Colombia. Revista Colombiana de Psiquiatría, 49(3), 162-169. https://doi.org/10.1016/j.rcp.2018.08.003

Reyes-Narváez, S. & Canto, M.O. (2020). Conocimientos sobre alimentación saludable en estudiantes de una universidad pública. Revista chilena de nutrición, 47(1), 67-72. http://dx.doi.org/10.4067/S0717-75182020000100067

Rivera, M., Solari, G., Solari, B., Wall, A., & Peralta, M. (2020). Comparación del estado nutricional, consumo habitual de alimentos y hábitos de actividad física en escolares de primero básico-primero medio de la ciudad de Taltal, Chile. Revista chilena de nutrición, 47(2), 264-271. http://dx.doi.org/10.4067/S0717-75182020000200264

Ronto, R., Ball, L., Pendergast, D., & Harris, N. (2016). Adolescents' perspectives on food literacy and its impact on their dietary behaviours. Appetite, 107, 549-557. https://doi.org/10.1016/j.appet.2016.09.006

Ruiz de la Fuente, M., Torres-Caro, A., Lara-Quezada, C., Torres-Muñoz, F., Rodríguez-Fernández, A., & Parra-Flores, J. (2016). Estado nutricional de escolares de 4. año de enseñanza básica y su relación con el ingreso económico, conocimiento en alimentación saludable, nutrición y percepción de sus madres. Perspectivas en Nutrición Humana, 18(2), 143-153. https://doi.org/10.17533/udea.penh.v18n2a02

Ruiz-Roso, M.B., de Carvalho-Padilha, P., Mantilla-Escalante, D.C., Ulloa, N., Brun, P., Acevedo-Correa, D., Ferreira, W., Martorel, M., Tschoepke, M., Oliverira, L., Carrasco-Marín, F., Paternina-Sierra, K., Rodríguez-Meza, J.E., Montero, P.M., Bernabé, G., Pauletto, A., Taci, X., Visioli, F., & Dávalos, A. (2020). Covid-19 confinement and changes of adolescent's dietary trends in Italy, Spain, Chile, Colombia and Brazil. Nutrients, 12(6), 1807. https://doi.org/10.3390/nu12061807

Schnettler, B., Miranda, E., Grunert, K.G., Lobos, G., Denegri, M., & Hueche, C. (2018). Weight fluctuation and diet concern negatively affect food-related life satisfaction in Chilean male and female adolescents. Frontiers in Psychology, 9, 1013. https://doi.org/10.3389/fpsyg.2018.01013

Sepúlveda, R., Molina, T., Molina, R., Martínez, V., González, E., Montaño, R., & Hidalgo-Rasmussen, C. (2013). Adaptación transcultural y validación de un instrumento de calidad de vida relacionada con la salud en adolescentes chilenos. Revista médica de Chile, 141(10), 1283-1292. http://dx.doi.org/10.4067/S0034-98872013001000007

Timmerman, M.E. & Lorenzo, U. (2011). Dimensionality assessment of ordered polytomous items with parallel analysis. Psychological Methods, 16(2), 209. https://psycnet.apa.org/doi/10.1037/a0023353

Urzúa, A., Cortés, E., Vega, S., Prieto, L., & Tapia, K. (2009). Propiedades psicométricas del cuestionario de auto reporte de la calidad de vida KIDSCREEN-27 en adolescentes chilenos. Terapia psicológica, 27(1), 83-92. http://dx.doi.org/10.4067/S0718-48082009000100008

Vilugrón, F., Molina, T., Gras, M.E., & Font-Mayolas, S. (2020). Hábitos alimentarios, obesidad y calidad de vida relacionada con la salud en adolescentes chilenos. Revista médica de Chile, 148(7), 921-929. http://dx.doi.org/10.4067/S0034-98872020000700921

Vio del R io, F., Lera, L., González, C.G., Yáñez, M., Fretes, G., Montenegro, E., & Salinas, J. (2015). Consumo, hábitos alimentarios y habilidades culinarias en alumnos de 3º a 5º año básico y sus padres. Revista chilena

de Nutrición, 42(4), 374-382. http://dx.doi.org/10.4067/S0717-75182015000400009