VOL 13. NÚMERO 1. ENERO 2022. 56 - 72.

ISSN: 2171-2069
https://doi.org/10.23923/j.rips.2022.01.054

REVISTA IBEROAMERICANA DE PSICOLOGÍA Y SALUD

Revista Oficial de la Federación Iberoamericana de Asociaciones de Psicología (FIAP)
[Official Journal of the Latin-American Federation of Psychological Associations]

Perceived social support and healthy eating self-efficacy on the well-being of children and adolescents

Joaquín Villaécija[1,2], Bárbara Luque[1,2], Sandra Martínez[1], Rosario Castillo-Mayén[1,2], Esther Cuadrado[1,2], Marta Domínguez-Escribano[1] y Carmen Tabernero[3,4]

[1]Universidad de Córdoba

[2]Instituto Maimónides de Investigación Biomédica de Córdoba (IMIBIC)

[3]Universidad de Salamanca

[4]Instituto de Neurociencias de Castilla y León (INCYL)

• Recibido: 08 - 09 - 2021 • Aceptado: 08 - 02 - 2022

ABSTRACT. Background: Unhealthy eating habits in children and adolescents and low personal judgment of efficacy in maintaining healthy eating behaviors have negative repercussions for health. These negative effects can have a differential affectation associated with psychosocial factors. Objectives/Method: The objectives were: to validate the Weight Efficacy Lifestyle (WEL) Questionnaire for Spanish children and adolescents; to analyze the relationship between well-being, socioeconomic level, body mass index, age, academic distress, social support for healthy and unhealthy eating, and self-efficacy; and to develop an explanatory model of well-being in children and adolescents based on their eating behaviors and other psychosocial behaviors. Results: Data were obtained from 299 children and adolescents (58.5% girls) aged from 9 to 18 years old (M_{age} = 12.92 years, *SD* = 2.74). Preliminary analysis showed adequate psychometric properties and results showed that perceived well-being was associated with lower academic distress and parent and peer social support for unhealthy eating, and with a better eating self-efficacy, parent support for healthy eating, and general weight management self-efficacy. Conclusions: Therefore, fostering confidence in children and adolescents about their weight management self-efficacy judgments may influence well-being, reduce body mass index, and prevent overweight and obesity.

KEYWORDS: Weight, Body mass index, Academic distress, Parent support, Peer support.

Apoyo social percibido y autoeficacia alimentaria saludable en el bienestar de niños y adolescentes

RESUMEN. Antecedentes: Los hábitos alimentarios poco saludables en niños y adolescentes y su bajo juicio para mantener conductas saludables tienen repercusiones negativas para la salud que podrían ir asociadas a factores psicosociales. Objetivos/Método: Los objetivos fueron: validar el Cuestionario de Eficacia en Peso y Estilo de Vida en niños y adolescentes españoles; analizar la relación entre bienestar, nivel socioeconómico, índice de masa corporal, edad, angustia académica, apoyo social a la alimentación saludable y no saludable, y autoeficacia; y desarrollar un modelo explicativo del bienestar en niños y adolescentes a partir de sus conductas alimentarias y otros comportamientos psicosociales. Resultados: Participaron 299 niños y adolescentes (58.5% chicas) de entre 9 y 18 años (M_{edad} = 12,92 años, *SD* = 2,74; 58,5% chicas). Los resultados revelaron que el bienestar percibido se asocia con menor angustia académica y menor apoyo social hacia una alimentación no saludable, y con mejor autoeficacia alimentaria, más apoyo de los padres para una alimentación saludable y mejor autoeficacia para controlar el peso. Conclusiones: Fomentar la confianza en niños y adolescentes sobre sus juicios de autoeficacia para el control del peso podría influir en el bienestar, reducir el índice de masa corporal y prevenir el sobrepeso y la obesidad.

PALABRAS CLAVE: Peso, Índice de masa corporal, Malestar académico, Apoyo parental, Apoyo de los iguales.

*Correspondencia: Bárbara Luque
Universidad de Córdoba, IMIBIC
Dirección: Departamento de Psicología Avda. San Alberto Magno s/n. 14004 Córdoba, España.
E-mail: bluque@uco.es

Citar como/Cite as: Villaécija, J., Luque, B., Martínez, S., Castillo-Mayén, R., Cuadrado, E., Domínguez-Escribano, M. & Tabernero, C. (2022). Perceived social support and healthy eating self-efficacy on the well-being of children and adolescents. *Revista Iberoamericana de Psicología y Salud, 13*(1), 56-72. https://doi.org/10.23923/j.rips.2022.01.054

Childhood overweight and obesity is a global trend that has not stopped growing in the last three decades (Capogrossi & You, 2017). The latest data worldwide reported that 340 million children and adolescents aged 5–19 are obese or overweight (World Health

Organization [WHO], 2020). Obesity is more prevalent in boys than in girls (Cordero & Cesani, 2019). This is due to the preference for eating unhealthy foods (Cooke & Wardle, 2005), not compatible with a healthy diet (Bargiota et al., 2013; Beaver et al., 2012; Kalavana et al., 2010). In contrast, girls choose healthier foods (Davison et al., 2020; Moreno-Maldonado et al., 2018), even though they are more dissatisfied with their bodies (Mäkinen et al., 2012). In Spain, the prevalence of overweight among the population aged 2–17 years was 10.40% in boys and 10.20% in girls, a higher incidence than in previous years (Coduras et al., 2019).

Childhood obesity, besides being a great predictor of obesity in adulthood (Kartiosuo et al., 2019), presents a global health problem that requires a multidisciplinary approach without neglecting the role of biomedical sciences. Childhood obesity is associated with a wide range of serious health complications and an increased risk of contracting diseases prematurely, including diabetes and heart diseases, as well as with psychosocial variables that influence the quality of life (WHO, 2016).

The presence of a high body mass index (BMI) in children and adolescents has been associated with a low quality of life (Wynne, Comiskey, & McGilloway, 2016) and a reduction in well-being (Halasi et al., 2018; Meixner et al., 2020). For its part, socioeconomic status (SES) also has a major impact on the well-being (Steinvoord & Junge, 2019). Even in relation to macroeconomic data, this trend occurs: excess weight in children and adolescents continues to increase in low- and middle-income countries, unlike high-income countries, where this increase has stagnated (Abarca-Gomez et al., 2017). Childhood vulnerability to inadequate nutrition caused by exposure to unhealthy foods (cheaper foods with lower nutritional quality) is a fact (WHO, 2020). Focusing on the family, a low socioeconomic status is associated with a high body mass index (BMI), mediated by a low quality-nutrition (O'Dea & Wilson, 2006). In this regard, the intake of fruits and vegetables in children from high-income families is higher (Davison et al., 2020); conversely, children living in low-income families are more likely to consume unhealthy food (De Pinho et al., 2014). In the school environment, the influence in relation to the socioeconomic level of the school has also been tested, resulting in poorer general wellbeing in those who attended a school with a lower level (Steinvoord & Junge, 2019).

•ACADEMIC DISTRESS, WEIGHT, AND WELL-BEING

Academic distress is understood as the state of psychological tension caused by academics demands (Chua et al., 2018). This tension affects the student's life and can provoke the appearance of anxious and depressive states, even leading to panic crises and school phobia in the child (Maturana & Vargas, 2014). The presence of high stress negatively affects the individual's body weight, hindering healthy behavior such as a balanced diet and exercise (Mignano et al., 2016).

On March 13, 2020, the WHO declared a pandemic situation due to the spread of COVID-19. Following this, on March 14, 2020, the government of Spain imposed home confinement. The data were collected during this period. The home confinement imposed due to the COVID-19 pandemic has been associated with stress and depression leading to an unhealthy diet and reduced physical activity (Mattioli et al., 2020). As previous research confirms, reduced social contact and changes in health is related to poorer wellbeing (Chen & Feeley, 2014). In this situation, children and their parents showed stressful symptoms due to social isolation (Cookeet al., 2020; Spinelli et al., 2020; Yueet al., 2020). In this pandemic period, research has shown the psychological effects of quarantine (Ozamiz et al., 2020). The stress associated with COVID-19 situation and its consequences in children have been studied in different countries (Cooke et al., 2020; Ghosh et al., 2020; Imran et al., 2020; Spinelli et al., 2020). According to Mochida et al. (2021), parental education and family income were associated with children's stress.

Moreover, eating habits and lifestyle have been modified during the quarantine (Di Renzo et al., 2020), showing a higher consumption of healthy foods and a decrease in processed foods (Rodríguez-Pérez et al., 2020). However, the increased amounts coupled with a significant decrease in the level of physical activity does not compensate for the improvement and has caused weight gain (Loaiza et al., 2020; López-Moreno et al., 2020).

• SOCIAL SUPPORT AND EATING BEHAVIORS

Parental and peer support for healthy or unhealthy eating influences children's dietary self-efficacy and, in turn, dietary outcomes (Ragelienè & Grønhøj, 2020). The negative influence of peers on eating behavior may increase energy consumption of low-nutrient foods (Gaspar de Matoset al., 2016; Watts et al., 2018). When peers support the intake of unhealthy foods, self-efficacy for eating control decreases and there is a higher intake of unhealthy products (Fitzgerald et al., 2013). Peer support can also be positive to promote healthy eating behaviors, mainly producing an improvement in healthy eating self-efficacy, although stronger peer support is given for unhealthy food intake (Fitzgerald et al., 2013; Salvy et al., 2017). The availability of healthy foods and parental support for healthy eating have been positively associated with children's eating patterns (Cutler et al., 2011). The opposite effect could result if the parents try to force them to some eating habits (Lessard et al., 2010).

• EATING SELF-EFFICACY AND HEALTH BEHAVIORS

According to Bandura (1977), self-efficacy is defined as the confidence that an individual has in their ability to carry out various behaviors or attitudes in challenging situations. Focusing on eating habits, the presence of high eating self-efficacy in children increases the intake of healthy food (Fitzgerald et al., 2013; Kulik et al., 2019). Also, a greater eating self-efficacy is associated with a better BMI (O'Dea & Wilson, 2006), while a low level in this variable is one of the difficulties in controlling weight (Clark et al., 2007). Ames, et al. (2015) showed that the presence of self-efficacy in children helps them to lead a healthy life in relation to food and physical activity. Finally, emotions may have a strong influence on eating self-efficacy, with results indicating more difficulties in resisting eating when people experience negative emotions, social pressure, or difficulties in terms of accessibility to food (Ames et al., 2015).

• CURRENT STUDY

The term *well-being* refers to quality of life in terms of material or social resources such as income, food, education or health (Western & Tomaszewski, 2016). In relation to food, there is evidence that eating habits predict children's well-being (Lindberg & Swanberg, 2006). It has been shown that the intake of unhealthy foods by adolescents and children was negatively correlated with physical well-being (Silva et al., 2020), while the intake of healthy food was positively correlated with psychological well-being. Sex and age also seem to be indicators of well-being (Cavallo et al., 2015; Michel et al., 2009; Silva et al., 2020). The main aims of this study were to validate the Weight Efficacy Lifestyle (WEL) Questionnaire for Spanish children and adolescents (Objective 1) and to analyze the relationship between well-being, socioeconomic level, BMI, age, sex, academic distress, social support for healthy and unhealthy eating, and self-efficacy (Objective 2). To this is added to create an explanatory model to explain well-being in children and adolescents based on their healthy eating behaviors, their beliefs on eating self-efficacy, and other psychosocial behaviors (Objective 3). The Weight Efficacy Lifestyle (WEL) Questionnaire was originally designed for the adult population. We intend to adapt it to a Spanish-speaking population of children and adolescents to measure food self-efficacy in different circumstances.

METHOD

• PARTICIPANTS

A total of 307 participants were initially recruited through an incidental sampling for accessibility. However, it was reduced because eight participants did not meet the age criteria. Therefore, a total of 299 subjects participated

(58.5% girls and 41.5% boys). The age range was between 9 and 18 years (M = 12.92, SD = 2.74; M_{boys} = 12.53, SD_{boys} = 2.68; M_{girls} = 13.20, SD_{girls} = 2.76). Organised in aged groups according to Spanish academic levels, the participants were distributed in the following age groups: 9 to 11 years (34.4%), 12 to 13 years (22.4%), 14 to 15 years (21.7%), and 16 to 18 years (21.4%).

In relation to BMI, 71.3% of the participants were at normal weight, 3.4% underweight, 14.5% overweight, and 10.8% obese. In terms of family socioeconomic level, 77.9% had a medium level, 7% low and 15.1% high.

•PROCEDURE

First, the items were double-back translated into Spanish and adapted by an expert panel so that children could easily understand the meaning and answer more accurately. Participants were recruited through an incidental sampling for accessibility. Following a pilot survey among educational networks and testing the reliability of the questionnaire, an online form was disseminated via instant messaging for data collection (the data collection date was between March and May 2020). The questionnaire was completed after agreeing to a clause that was inserted to obtain parental informed consent. They were informed of the objectives of the study as well as the confidentiality of the information obtained, only used for scientific purposes. This research was evaluated and accepted by the bioethics committee of the University of XXXX and satisfies the requirements of the Declaration of Helsinki.

•MEASUREMENT INSTRUMENTS

Sociodemographic information: The participants' parents provided socio-demographic data of their children: age, sex, weight, height and socioeconomic level. According to age, four groups were created considering Spanish academic levels: 9 to 11 years (primary school); 12 to 13 and 14 to 15 years (secondary school); and 16 to 18 years (high school). For greater precision, the BMI percentile was used, calculated considering age, weight, height, and sex. It was analysed using the "BMI Percentile Calculator for Child and Teen" located on the website of the Centers for Disease Control and Prevention (CDC). Body mass index percentile was organized into four categories: underweight (less than 5th percentile); normal weight (5th percentile to less than the 85th percentile); overweight (85th to less than 95th percentile); and obesity (equal to or greater than 95th percentile). Socioeconomic level was categorized into low, medium and high.

The academic distress's measure is composed of five items adapted from the Kindscreen scale (Aymerich et al., 2005), with a Likert scale (from 1 = *never* or *almost never*, to 5 = *always* or *every day*). Cronbach's alpha with the participants in the current study was.76 (> .70 in the original scale). Some examples of items are: "During the days I have been in quarantine at home, I feel that I need more time for my tasks" and "During the days that I have been in quarantine at home, I feel that I need more space at home to be alone".

The Social Support for Healthy and Unhealthy Eating Scale measures the social support obtained from both parents and peers for eating healthy and unhealthy food (Fitzgerald et al., 2013). Participants answered on a Likert-scale (from 1 = *never* or *almost never,* to 5 = *always* or *every day*). The scale is made up of 14 items, seven items referring to parents (four to healthy and three to unhealthy eating) and seven to peers (four to healthy and three to unhealthy eating). The Cronbach's alpha in our study was good with respect to parent social support for healthy (α =.78) and unhealthy eating (α =.64); .85 with respect to peer social support measure for healthy and .78 for unhealthy eating. In the work of Fitzgerald et al. (2013), Cronbach's alpha was .60 and .64 for the parent and peer support scale for unhealthy eating; and .73 and .78 for parent and peer support scale for healthy eating, respectively. Some examples of items are: "How often do my mother, father or carers tell me how to eat healthily", "How often do my friends and colleagues tell me how to eat healthily".

The General Weight Management (GWM) Self-efficacy questionnaire measures general self-efficacy beliefs related to weight. Three items were drawn from Ames et al. (2015), which were answered on a Likert-scale (from 1 = *never* or *hardly ever,* to 5 = *always* or *every day*). The Cronbach's alpha was acceptable (α =.70 in this study; .90 in the original scale). Some examples of items are as follows: "I feel able to do 30 minutes of exercise every day" and "I feel capable of controlling my weight well".

The Weight Efficacy Lifestyle (WEL) test measures situational factors related to self-efficacy for controlling eating behaviours (Clark et al., 1991). It was translated into Spanish and adapted to the child and adolescent population. It consists of 20 items divided into five factors: Negative emotions (for example, "I eat much more than usual when I feel sad"); Availability (for example, "I eat much more than usual on weekends"); Social pressure (for example, "I eat much more than usual when I think that others get angry if I don't eat"); Physical discomfort (for example, "I eat much more than usual when I'm tired"); and Positive activities (for example, "I eat much more than usual when I watch TV"). Participants answer items on a Likert-scale (from 1 = *never* or *almost never*, to 5 = *always* or *every day*). The Cronbach's alpha was good for the global scale (α =.88 in our study; .95 in the original scale).

To assess the well-being of children, five items were extracted from the validated Spanish version by Aymerich et al. (2005), and subsequently adapted to the sample. It was answered on a five-point Likert scale (from 1 = *never* or *hardly ever*, to 5 = *always* or *every day*). The Cronbach's alpha was high (α =.82 in the current study; >.70 in the original scale). Some examples of items are as follows: "Have you felt energetic?" and "Have you felt happy?".

•DATA ANALYSIS

An intragroup design was carried out to complete the aims of the study. Initially to all analyses, Levene's test is run, and the homoscedasticity principle is confirmed, considering that the variance does not vary between the different groups; and Cronbach's α was used to assess the internal consistency of the items. Then, descriptive and reliability analyses were performed with the SPSS v.25 statistical package. Second, a confirmatory factor analysis was developed to validate the WEL scale for Spanish youths (Objective 1), using the maximum probability estimate to study the fit of the scale in this sample (*N* = 299) through the AMOS v.22 program. Based on Hoyle's (1995) recommendations, the adequacy of the model fit was assessed using the relative chi-square (Wheaton et al., 1977); the incremental fit index (IFI: Bollen, 1989), comparative fit index (CFI), root mean square error of approximation (RMSEA), and standardized root mean square residual (SRMR) were used to determine the model fit (Hu & Bentler, 1999); a good model fit was considered if RMSEA values were lower than .60, and, in addition, CFI and goodness of fit index (GFI) values should be close to -.90.

In order to achieve the second aim we carried out a descriptive and correlational analysis along with multivariate analyses of variance (MANOVAs), with Bonferroni correction where necessary, to evaluate the relationship and differences between sociodemographic factors (i.e., sex, age groups and socioeconomic levels) and BMI with respect to WEL (global scale and factors), GWM self-efficacy, and well-being. Finally, the last aim was to test an explanatory model (structural equation model) of well-being in the young Spanish population following the steps already explained for the first objective one.

RESULTS

•CONFIRMATORY FACTOR ANALYSIS OF WEL SCALE FOR YOUNG SPANISH POPULATION

The Cronbach's alpha was good for the global scale, α = .88. The different factors are also adjusted to an appropriate consistency: Negative emotion, α = .77; Availability, α = .68; Social Pressure, α = .71; Physical discomfort, α = .69; and Positive activities, α = .64. The global scale explains 61.47% of the variance. The percentage for the different factors was 32.59%, 10.25%, 8.31%, 5.66%, and 4.67%, respectively.

An inspection of the modification indices, allowing the unique variances within each of five factors was performed to correlate the model (see Figure 1). A five-factor model revealed acceptable scores, χ^2 (114) = 188.99, RMSEA = .05, SRMR = .05, 95% CI [.03, .06]), CFI = .97, GFI = .94.

• DESCRIPTIVE AND CORRELATIONAL ANALYSIS

Correlational analysis showed the relationship between all studied variables. The data, descriptive and correlational results, are show in Table 1. All correlations were in the expected direction. Regarding the sociodemographic variables, the participants with higher age showed higher academic distress, higher parent and peer support for unhealthy eating, and higher WEL scores; in contrast, higher age correlated negatively with parent support for healthy eating and wellbeing. The BMI correlated significantly and negatively with GWM self-efficacy and with wellbeing. Participants with higher age showed higher BMI. Moreover, regarding the dependent variables WEL and wellbeing, the former correlated significantly and positively with academic distress and with parent and peer social support for healthy and unhealthy eating, and correlated negatively with wellbeing; and the latter (wellbeing) correlated negatively and significantly with academic distress, parent and peer social support for unhealthy eating, and WEL. In contrast, wellbeing correlated positive and significatively with GWM self-efficacy and parent support for healthy eating.

• DIFFERENCES BETWEEN SEX, AGE GROUPS, SOCIOECONOMIC LEVEL, AND BMI WITH WEL, GWM SELF-EFFICACY, AND WELL-BEING

A MANOVA was carried out to analyze the relationship between the sex, age groups, socioeconomic level, and BMI percentile with WEL, GWM self-efficacy, and perceived well-being. The

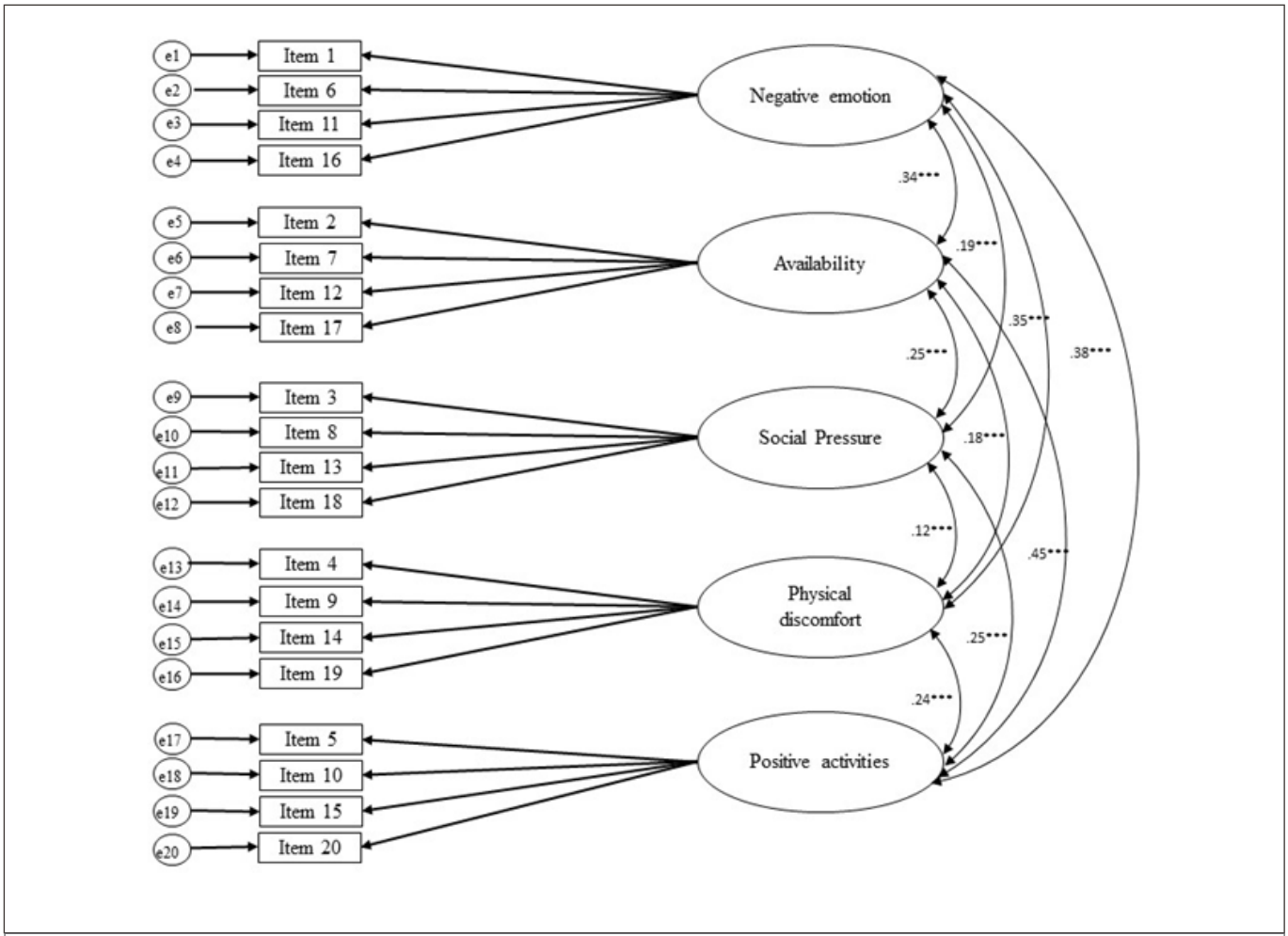

Figure-1: Confirmatory factor analysis of the Spanish version for young population of the Weight Efficacy and Lifestyle (WEL) Questionnaire.

Table 1
Correlations, means, and standard deviations for all of the study variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Age	-														
Body Mass Index	.44**	-													
Academic distress	.26**	.06	-												
Parent support healthy	-.23**	-.05	.06	-											
Parent support unhealthy	.15*	.08	.28**	.01	-										
Peers support healthy	.01	.04	.20**	.14*	.29**	-									
Peers support unhealthy	.15*	.11	.25**	.08	.50**	.30**	-								
GWM self-efficacy	.04	-.2**	-.03	.16**	.04	.13*	.04	-							
F1. Negative emotion	.19**	.24**	.38**	.13*	.41**	.18**	.33**	-.15**	-						
F2. Avaliability	.08	.09	.19**	.20**	.30**	.06	.34**	.03	.41**	-					
F3. Social pressure	.05	-.03	.23**	.18**	.32**	.12*	.34**	.00	.36**	.47**	-				
F4. Physical discomfort	.21**	.19**	.35**	.07	.48**	.22**	.40**	.00	.74**	.38**	.37**	-			
F5. Positive activities	.18**	.02	.36**	.10	.45**	.25**	.34**	.08	.55**	.61**	.50**	.55**	-		
WEL	.18**	.12*	.38**	.19**	.49**	.20**	.45**	-.011	.77**	.78**	.71**	.75**	.84**	-	
Wellbeing	-.32**	-.28**	-.28**	.25**	-.16**	-.11	-.17**	.28**	-.34**	-.01	-.07	-.24**	-.11	-.19**	-
M	12.92	20.09	2.51	3.12	1.60	1.54	1.67	3.30	1.62	2.51	1.81	1.40	1.93	1.85	3.76
SD	2.74	3.70	0.99	0.97	0.64	0.73	0.82	1.03	0.75	0.92	0.81	0.60	0.79	0.60	0.78
M_{boys}	12.53	20.20	2.34	3.21	1.53	1.50	1.52	3.37	1.50	2.48	1.78	1.30	1.86	1.78	3.88
SD_{boys}	2.68	3.80	0.92	1.05	0.56	0.76	0.69	1.09	0.67	0.97	0.98	0.55	0.80	0.59	0.80
M_{girls}	13.20	20.00	2.62	3.06	1.65	1.57	1.78	3.25	1.70	2.52	1.83	1.46	1.97	1.90	3.68
SD_{girls}	2.77	3.63	1.01	0.92	0.68	0.72	0.89	0.99	0.80	0.89	0.83	0.63	0.77	0.59	0.76

Note. GWM: General Weight Management; WEL: Weight Efficacy Lifestyle. * $p < .05$; ** $p < .01$; (N = 299).

results showed an interaction between BMI percentile and GWM self-efficacy, F (3, 237) = 4.31, $p < .01$,η^2 =.05, power = -86. Post hoc analysis (Bonferroni correction: 0.5/3 = .017) showed that participants with obesity had significantly lower self-efficacy than those with overweight, normal weight, and underweight. Participants with obesity (M = 2.45, SD = 1.00) showed significantly lower GMW self-efficacy than underweight participants (M = 3.97, SD = 1.01) and normal weight (M = 3.41, SD = 0.96), and than overweight (M = 3.21, SD = 1.08).

Post-hoc analysis also showed that participants with high socioeconomic level (M = 3.45; SD = 1.03) had significantly higher self-efficacy than participants with low socioeconomic level (M = 2.79, SD = 0.88).

For WEL, analysis showed differences according to age. Younger participants showed significantly lower WEL than older participants (Figure 2). Finally, for general well-being, analysis showed differences according to: a) BMI, where participants with obesity showed significantly lower well-being (M = 3.60, SD = 0.87) than underweight participants (M = 4.32, SD = 0.49); b) socioeconomic level, where participants with low socioeconomic level showed significantly lower well-being (M = 3.46, SD = 0.77) than participants with high socioeconomic level (M = 3.95, SD = 0.69) ; and c) age groups, where younger participants showed significantly higher well-being than older participants, and participants aged between 12 and 13 showed significantly higher well-being than participants aged between 16 and 18 (see Figure 2).

ANOVAs were performance to evaluate the differences between girls and boys. Results shown that girls displayed significantly higher scores in academic distress (F(1,297) = 6.13; p<.01), in peers support unhealthy (F(1,297) = 7.28; p<.01), in negative emotion (F(1,297) = 5.21;

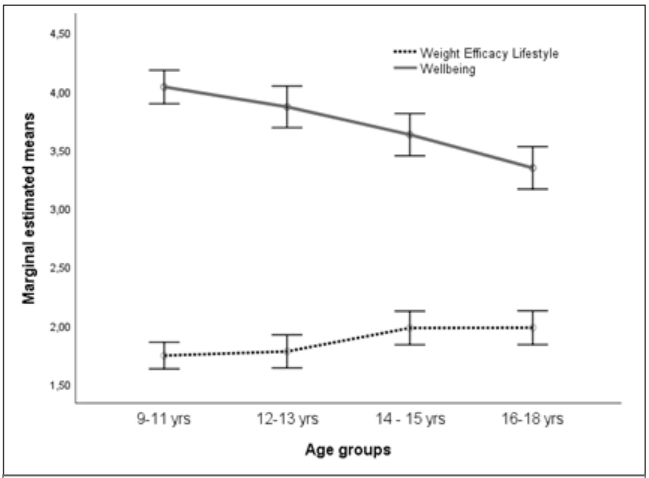

Figure-2: Means of Weight Efficacy Lifestyle (WEL) and well-being for age groups.

$p<.05$), and in physical discomfort ($F(1,297) = 5.22$; $p<.05$); while boys displayed significantly higher score in BMI ($F(1,294) = 4.49$; $p<.05$) and in well-being ($F(1,297) = 4.92$; $p<.05$).

A MANOVA was carried out to analyze the differences in sex, age groups, socioeconomic level, and BMI percentile with the five factors of WEL. The results are shown in Table 2.

Post hoc analysis showed differences in negative emotions (F1) with BMI, where participants with obesity ($M = 1.92$, $SD = 0.90$) showed significantly lower scores than participants with normal weight ($M = 1.64$, $SD = 0.69$). For socioeconomic level, also showed differences (Bonferroni correction: $0.5/2 = .025$) in negative emotions—participants with low socioeconomic level ($M = 2.01$, $SD = 1.10$) showed more difficulties in regulating the need to eat when experiencing negative emotions than participants with medium ($M = 1.61$, $SD = 0.73$) and high socioeconomic level ($M = 1.47$, $SD = 0.61$) — and in physical discomfort (F4), where participants with low socioeconomic level ($M = 1.77$, $SD = 0.98$) showed significantly higher difficulties in regulating the need to eat when experiencing physical discomfort than participants with medium ($M = 1.37$, $SD = 0.56$) and high socioeconomic levels ($M = 1.37$, $SD = 0.53$).

According to the age groups, post hoc analysis (Bonferroni correction: $0.5/2 = .025$) showed differences in negative emotions (F1):

Table 2
MANOVA testing sex, BMI, socioeconomic level, and age group differences.

Source	Dependent variables										
	df (numerator, 236)	F1. Negative emotion		F2. Availability		F3. Social Pressure		F4. Physical discomfort		F5. Positive activities	
		F	*Eta²*	*F*	*Eta²*	*F*	*Eta²*	*F*	*Eta²*	*F*	*Eta²*
Sex (S)	1	2.85	0.01	0.65	0.00	0.42	0.00	1.41	0.01	1.74	0.01
Body Mass Index (I)	3	5.23**	0.06	1.86	0.02	0.84	0.01	3.41*	0.04	1.66	0.02
Socioeconomic level (SEL)	2	1.77	0.02	0.13	0.00	1.48	0.01	4.95**	0.04	2.29	0.02
Age groups (A)	3	0.82	0.01	0.42	0.01	1.86	0.02	1.62	0.02	1.23	0.02
Sex x Body Mass Index	3	0.86	0.01	0.16	0.00	0.66	0.01	0.44	0.01	0.56	0.01
Sex x Socioeconomic Level	2	0.48	0.00	3.08*	0.03	1.27	0.01	0.73	0.01	1.25	0.01
Sex x Age groups	3	2.15	0.03	0.03	0.00	0.17	0.00	0.58	0.01	0.22	0.00
Body Mass Index x Socioeconomic level	5	1.97	0.04	1.52	0.03	1.51	0.03	2.66*	0.05	2.48*	0.05
Body Mass Index x Age groups	9	1.77	0.06	1.43	0.05	1.94*	0.07	1.29	0.05	2.35*	0.08
Socioeconomic level x Age groups	6	2.09	0.05	1.51	0.04	2.21*	0.05	3.45**	0.08	1.25	0.03
Sex x Body Mass Index x Socioeconomic level	1	0.25	0.00	0.04	0.00	0.64	0.00	0.06	0.00	0.28	0.00
Sex x Body Mass Index x Age groups	6	1.11	0.03	0.48	0.01	0.42	0.01	0.44	0.01	0.72	0.02
Sex x Socioeconomic level x Age groups	4	0.33	0.01	0.32	0.01	0.76	0.01	0.15	0.00	0.62	0.01
Body Mass Index x Socioeconomic level x Age groups	6	2.29*	0.06	1.53	0.04	1.48	0.04	1.57	0.04	2.14*	0.05

Note * $p < .05$; ** $p < .01$

participants of the group aged between 9 and 11 years (M = 1.47, SD = 0.71) and between 12 and 13 years (M = 1.51, SD = 0.61) showed significantly lower negative emotions (F1) than those between 16 and 18 years (M = 1.87, SD = 0.84). Post hoc analysis also (Bonferroni correction: 0.5/4 = .013) showed differences in physical discomfort (F4): participants aged between 14 and 15 (M = 1.56, SD = 0.63) and between 16 and 18 years showed significantly higher physical discomfort (F4) than aged between 9 and 11 years (M = 1.27, SD = 0.60) and between 12 and 13 years (M = 1.25, SD = 0.28).

Finally, post hoc analysis (Bonferroni correction: 0.5/2 = .025) showed differences in positive activities (F5) depending on socioeconomic level, where participants with low socioeconomic level (M = 2.38, SD =.86) showed significantly higher difficulties in regulating eating when experiencing positive activities (F5) than participants with medium (M = 1.89, SD = 0.74) and high socioeconomic levels (M = 1.90, SD = 0.92).

• EXPLANATORY MODEL

To identify what factors could influence adolescents' and children's well-being, a model (Objective 3) was tested by mean of a structural equation model (SEM). This exploratory model included the relationship between sociodemographic variables (age, BMI and socioeconomic level), academic distress, parent and peer support for healthy eating, WEL self-efficacy (to negative emotions, to physical discomfort and to positive activities), GWM self-efficacy and well-being. Results showed that the proposed explanatory model was well-fitted to the data, χ^2 (24) = 27.56, RMSEA = .02, 95% CI [.00, .05], SRMR = .04, CFI = .99, and GFI = .98 (see Figure 3).

Fit indices for the male (χ^2 (24) = 35.52, RMSEA = .06, 95% CI [.00, .10], SRMR = .06, CFI = .96, and GFI = .95) and the female (χ^2 (24) = 38.98, RMSEA = .06, 95% CI [.02, .09], SRMR = .06, CFI = .97, and GFI = .96) samples were adequate, and when performing the multigroup analyses, no significant

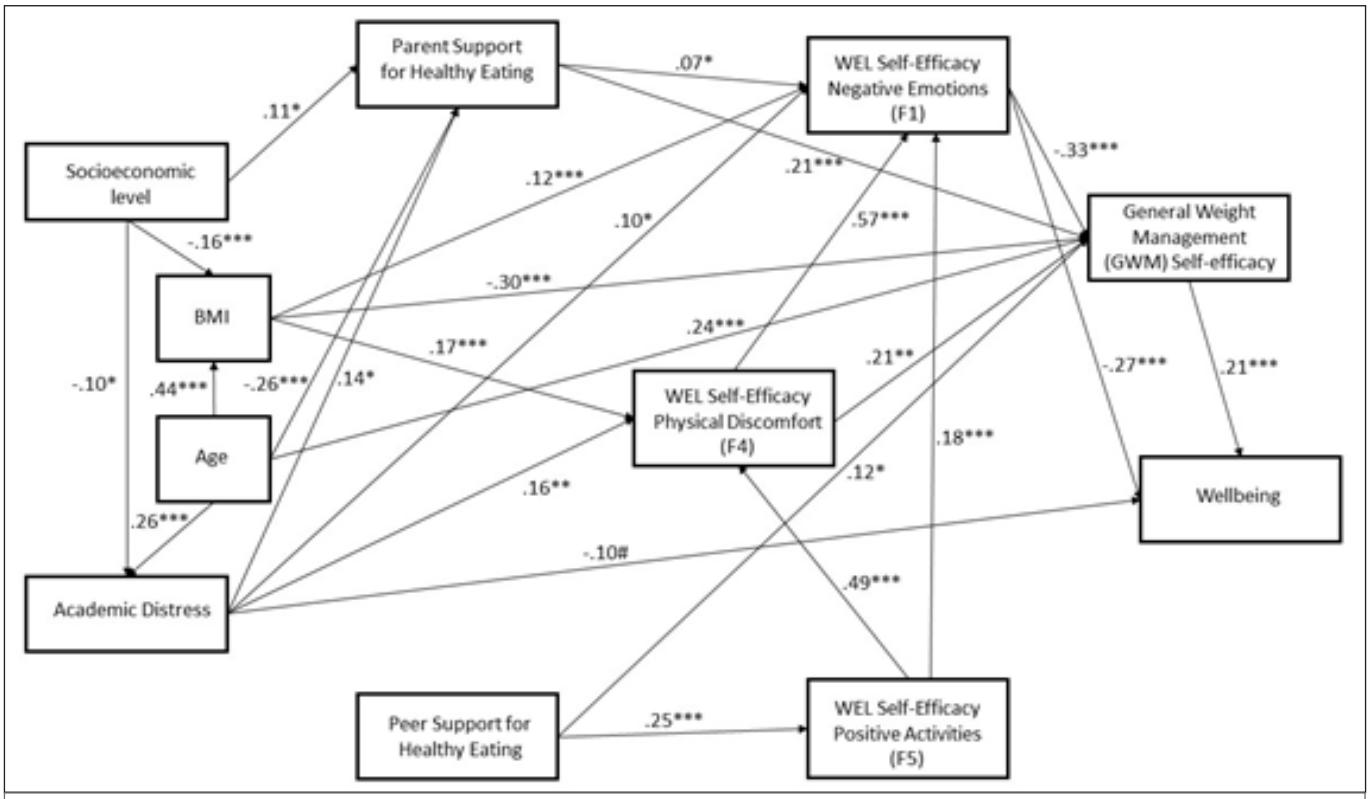

Figure-3: Explanatory model: Standardized parameter estimates.
Note. #$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

differences ($\Delta\chi^2$ (25) = 32.95; p = .132) were found between the unconstrained (χ^2 (84) = 74.52, RMSEA = .04, 95% CI [.02, .06], CFI = .97, and GFI = .96) and the fully constrained (χ^2 (59) = 107.46, RMSEA = .04, 95% CI [.02, .06], CFI = .96, and GFI = .94) models. Then, the model was invariant for gender, being valid for both boys and girls.

DISCUSSION

Regarding the validation in Spanish of the Weight Efficacy and Lifestyle (WEL) Questionnaire for children and adolescents (Objective 1), our results indicated the adequacy of the psychometric properties of the measure as well as the validity and reliability of this version of the scale. In addition, the analyses carried out have provided evidence of the validity of a five-factor structure, which is in line with the previous theoretical approach (Clark et al., 1991), showing adequate statistical indices, and acceptable results in accordance with Hoyle's (1995) recommendations.

Concerning the main objectives, relationships in the expected direction were found between general perceived well-being of adolescents and children and SES, BMI, age, academic distress, social support for healthy and unhealthy eating, and self-efficacy (Objective 2). In turn, with the interrelation of these variables, an explanatory model that could serve as a prelude to a predictive model with anticipation capacity was tested (Objective 3), in which academic distress, weight efficacy lifestyle, and general weight management self-efficacy were directly associated with general well-being.

According to the results, the presence of a high BMI in children and adolescents means a worsening of WEL and well-being. This fact reinforces previous research that showed a poorer quality of life in individuals with higher levels of BMI (Gouveia et al., 2014; Wynne et al., 2016). In turn, when the BMI of children and adolescents is high, lower GWM self-efficacy and well-being appear. Therefore, those with obesity have lower GWM self-efficacy than the rest. These results were like those observed by Halasi et al. (2018). Moreover, the results confirm that older participants had higher BMI, higher academic stress, more support from parents and friends for unhealthy eating, and a higher WEL.

SES was associated with well-being and GWM self-efficacy. In the presence of higher SES, children and adolescents showed more GWM self-efficacy, which could be one of the reasons why the BMI of adolescents is markedly higher in low-income countries (Abarca-Gómez et al. 2017). Moreover, adolescents with lower SES had poorer well-being than those with higher SES. The intake of unhealthy foods could be behind this result. Children in high-income families consume more fruits and vegetables (Davison et al., 2020), while low-income families consume less healthy foods (De Pinho et al., 2014). The intake of unhealthy food has already been associated with a decline in well-being (Steinvoord & Junge, 2019).

Closely related to socioeconomic level is social support. Esteban et al. (2019) and Fitzgerald et al. (2013) anticipated that the social context of the youth population is an important predictor of well-being and eating self-efficacy. Ragelienė and Grønhøj (2020) also considered that parental and peer support for unhealthy eating is very important. In view of the results obtained, it can be stated that the presence of low social support from parents and peers for unhealthy eating may facilitate a higher well-being. Relatedly, when parental support for healthy eating was high, adolescents and children showed higher well-being. Undoubtedly, these findings demonstrate that the family is a critical component of both protection and risk in controlling behaviours, especially in adolescents, inferring that a lenient parenting style, according to previous studies, would reinforce the acquisition of healthy eating habits. (Perez-Gramaje et al., 2019).

In the presence of a high WEL score it has been found that: a) in contrast to expectations, adolescents reported higher levels of academic discomfort; and b) a high WEL score showed higher levels of parental and peer support for healthy and unhealthy eating. In terms of age, the older the participants, the higher the WEL scores.

In the factorial categories of WEL, firstly, in relation to resistance to food intake when experiencing negative emotions, three differences have been identified: BMI, SES, and age. Children and adolescents with obesity eat much more when experiencing negative emotions than those with normal weight, which is consistent with the study of Ames et al. (2015). In terms of socioeconomic level, participants with a low SES presented greater difficulty in their food self-efficacy in the presence of negative emotions than participants with medium or high SES. Secondly, concerning age, younger children (9–13 years) had less difficulty resisting eating in the face of negative emotions than older youths (16–18 years). This was also true when resistance occurs when experiencing physical discomfort. In turn, adolescents with a low SES showed worse physical distress than those with a medium and high SES. This may lead, as Phillipou et al. (2020) consider, to poorer eating behaviors and a reduction in physical exercise, which may be associated with perceived self-efficacy (Parschau et al., 2014). Thirdly, children and adolescents with low SES had greater control over food in the face of positive activities than those with a medium and high SES.

As for general well-being, this was higher when the age and BMI in adolescents was lower. Therefore, we can affirm that the younger the age, the greater the perceived well-being, especially in comparison with the oldest (16–18 years); and that BMI, as Wynne et al. (2014) noted, can act as a predictor of well-being, being lower in obese adolescents (Meixner et al., 2020). This fact leads us to raise the idea of a hypothetical intervention design differentiated according to the age range of minors. It seems obvious, and these data show it, that as adolescence advances and youth approaches, perceived well-being decreases due to the change in perception and awareness acquired by young people about life. This perception would be impossible to assimilate with that of younger children, since the spatial-temporal notion does not finish developing until late adolescence.

Furthermore, it can be observed that less academic distress leads to greater well-being. In reference to this, as stated by Mignano et al. (2016), high stress affects an individual's general well-being, and the reduction of social contact and changes in health are related to worse well-being (Chen & Feeley, 2014). Also, the results showed that in the presence of higher well-being in adolescents, higher general self-efficacy (GWM) appeared. This is consistent with the predictions of Kulik et al. (2019), where self-efficacy related to physical activity predicted a higher well-being.

With this evidence, we cannot ignore the impact that could have the implementation of programs based on the promotion of self-efficacy beliefs for an adequate nutrition control, and that this, in turn, leads to an improvement in perceived well-being. Interventions based on mindfulness in children and adolescents seem to be effective in reducing anxiety and improving well-being (Soriano et al., 2020). In this sense, working on removing perceived barriers as well as increasing cognitive skills could help create effective interventions (Ochoa-Meza et al., 2017). For nutrition management interventions in adolescents, it would be interesting to explore the use of mHealth applications, which already seem to be effective in other fields. This population also prefers customizable apps, with access to peer-to-peer interaction through social networks, where gamification becomes an important resource for their continuity in the program and in which simple and visual graphs are displayed on their course and evolution (Jeminiwa et al, 2019). One of the limitations of this study is the sample size, so that future studies should confirm these results with a larger sample. Another limitation is due to the cross-sectional design; a longitudinal data collection or comparing it with other groups would have allowed us to proceed from an explanatory model to confirm a predictive model of well-being. For future works, the explanatory model could be confirmed further. In any case, the validation of the scale and the creation of the model will allow us to use it in children and adolescents who have a disease related to eating disorders or an endocrine illness such as obesity or diabetes.

In summary, the findings of this study leave us with a wide range of practical implications: a) the proposed scale adaptation will make it possible to measure eating self-efficacy in young population, which is very useful especially for those with an endocrine disease; b) the variables associated with the well-being of children and adolescents (academic distress, parent and peer support, and various form of self-efficacy) might be included in intervention programs focused on promoting minors' well-being and healthy habits; c) the presence of weight management self-efficacy supports the emergence of well-being, and consequently it may reduce youths' BMI and, therefore, help prevent overweight and obesity; d) results support the international evidence about the influence of socioeconomic level on general well-being (which is better at higher levels of SES), while well-being tends to decrease with the increase in age in adolescents; e) and, finally, this study reflects the importance of general and specific self-efficacy judgments on the well-being of adolescents, therefore, it seems necessary to create training programs based on the promotion of self-efficacy beliefs for an adequate control of nutrition in children and adolescents, due to their relationship with an increase in their well-being and, therefore, in their present and future quality of life.

In short, it is necessary to continue working on building confidence in children and adolescents about their self-efficacy judgements for weight control because this can influence well-being, reduce their body mass index, favoring the practice of healthy habits to prevent overweight and obesity.

• Funding

This study was supported by the Ministry of Science, Innovation and University of the Government of Spain via a grant to the first author (Code: FPU18/04504) and via a project supported by Spanish Ministry of Science and Innovation (Code: PID2019-107304RB-I00).

• Conflict of interest

The authors declare that there is no conflict of interest.

• Ethical Approval

This research was evaluated and accepted by the bioethics committee of the University of XXXX to which the authors belong and satisfies the requirements of the Declaration of Helsinki.

REFERENCES

Abarca-Gómez, L., Abdeen, Z. A., Hamid, Z. A., Abu-Rmeileh, N. M., Acosta-Cazares, B., Acuin, C., ... & Agyemang, C. (2017). Worldwide trends in body-mass index, underweight, overweight, and obesity from 1975 to 2016: A pooled analysis of 2416 population-based measurement studies in 128· 9 million children, adolescents, and adults. *The Lancet, 390*(10113), 2627-2642. https://doi.org/10.1016/S0140-6736(17)32129-3

Ames, G. E., Heckman, M. G., Diehl, N. N., Grothe, K. B., & Clark, M. M. (2015). Further statistical and clinical validity for the Weight Efficacy Lifestyle Questionnaire-Short Form. *Eating Behaviors, 18,* 115-119. https://doi.org/10.1016/j.eatbeh.2015.05.003

Aymerich, M., Berra, S., Guillamón, I., Herdman, M., Alonso, J., Ravens-Sieberer, U., & Rajmil, L. (2005). Development of the Spanish version of the KIDSCREEN, a health-related quality of life instrument for children and adolescents. *Gaceta Sanitaria, 19*(2), 93-102.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review, 84*(2), 191-215. https://doi.org/10.1037/0033-295X.84.2.191

Bargiota, A., Delizona, M., Tsitouras, A., & Koukoulis, G. N. (2013). Eating habits and factors affecting food choice of adolescents living in rural areas. *Hormones, 12*(2), 246-253. https://doi.org/10.14310/horm.2002.1408

Beaver, K. M., Flores, T., Boutwell, B. B., & Gibson, C. L. (2012). Genetic influences on adolescent eating habits. *Health education & behavior, 39*(2), 142-151. https://doi.org/10.1177/1090198111412776

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological Methods & Research, 17*(3), 303-316.

Capogrossi, K., & You, W. (2017). The influence of school nutrition programs on the weight

of low-income children: A treatment effect analysis. *Health Economics, 26*(8), 980-1000. https://doi.org/10.1002/hec.3378

Cavallo, F., Dalmasso, P., Ottová-Jordan, V., Brooks, F., Mazur, J., Välimaa, R., … & Positive Health Focus Group (2015). Trends in life satisfaction in European and North American adolescents from 2002 to 2010 in over 30 countries. *European Journal of Public Health, 25*(Suppl 2), 80-82. https://doi.org/10.1093/eurpub/ckv014

Chen, Y., & Feeley, T. H. (2014). Social support, social strain, loneliness, and well-being among older adults: An analysis of the Health and Retirement Study. *Journal of Social and Personal Relationships, 31*(2), 141-161. https://doi.org/10.1177/0265407513488728

Chua, R., Ng, Y. L., & Park, M. (2018). Mitigating academic distress: The role of psychological capital in a collectivistic Malaysian University student sample. *Open Psychology Journal*, 11, 171-183. https://doi.org/10.2174/1874350101811010171

Clark, M. M., Abrams, D. B., Niaura, R. S., Eaton, C. A., & Rossi, J. S. (1991). Self-efficacy in weight management. *Journal of Consulting and Clinical Psychology, 59*(5), 739-744. https://doi.org/10.1037/0022-006X.59.5.739

Clark, M. M., Vickers, K. S., Hathaway, J. C., Smith, M., Looker, S. A., Petersen, L. R., … & Loprinzi, C. L. (2007). Physical activity in patients with advanced-stage cancer actively receiving chemotherapy. *Journal of Supportive Oncology, 5*(10), 487-493

Coduras, A., del Llano, J, & Gol-Montserrat, J. (2019). *La obesidad en España y sus consecuencias*. Madrid, Spain: Fundación Gaspar Casal. Retrieved from https://fundaciongasparcasal.org/wp-content/uploads/2021/01/Libro-obesidad-y_consecuencias.pdf

Cooke, J. E., Eirich, R., Racine, N., & Madigan, S. (2020). Prevalence of posttraumatic and general psychological stress during COVID-19: A rapid review and meta-analysis. *Psychiatry Research, 292,* 113347. https://doi.org/10.1016/j.psychres.2020.113347

Cooke, L. J., & Wardle, J. (2005). Age and gender differences in children's food preferences. *British Journal of Nutrition, 93*(5), 741–746. https://doi:10.1079/bjn20051389

Cordero, M. L., & Cesani, M. F. (2019). Nutritional transition in schoolchildren from Tucuman, Argentina: A cross-sectional analysis of nutritional status and body composition. *American Journal of Human Biology, 31*(4), e23257. https://doi.org/10.1002/ajhb.23257

Cutler, G. J., Flood, A., Hannan, P., & Neumark-Sztainer, D. (2011). Multiple sociodemographic and socioenvironmental characteristics are correlated with major patterns of dietary intake in adolescents. *Journal of the American Dietetic Association, 111*(2), 230-240. https://doi.org/10.1016/j.jada.2010.10.052

Davison, J., Stewart-Knox, B., Connolly, P., Lloyd, K., Dunne, L., & Bunting, B. (2020). Exploring the association between mental wellbeing, health-related quality of life, family affluence and food choice in adolescents. *Appetite, 158,* 105020. https://doi.org/10.1016/j.appet.2020.105020

De Pinho, L., Silveira, M. F., Botelho, A. C. D., & Caldeira, A. P. (2014). Identification of dietary patterns of adolescents attending public schools. *Journal de Pediatria, 90*(3), 267-272. https://doi.org/10.1016/j.jped.2013.04.006

Di Renzo, L., Gualtieri, P., Pivari, F., Soldati, L., Attinà, A., Cinelli, G., … & De Lorenzo, A. (2020). Eating habits and lifestyle changes during COVID-19 lockdown: An Italian survey. *Journal of Translational Medicine, 18,* 1-15. https://doi.org/10.1186/s12967-020-02399-5

Esteban-Gonzalo, L., Turner, A. I., Torres, S. J., Esteban-Cornejo, I., Castro-Piñero, J., Delgado-Alfonso, Á., … & Veiga, Ó. L. (2019). Diet quality and well-being in children and adolescents: the UP&DOWN longitudinal study. *British Journal of Nutrition, 121*(2), 221-231. https://doi.org/10.1017/S0007114518003070

Fitzgerald, A., Heary, C., Kelly, C., Nixon, E., & Shevlin, M. (2013). Self-efficacy for healthy eating and peer support for unhealthy eating are associated with adolescents' food intake patterns. *Appetite, 63,* 48-58. https://doi.org/10.1016/j.appet.2012.12.011

Gaspar de Matos, M., Palmeira, A. L., Gaspar, T., De Wit, J. B., & Luszczynska, A. (2016). Social support influences on eating awareness in children and adolescents: The mediating effect of self-regulatory strategies. *Global Public Health, 11*(4), 437-448. https://doi.org/10.1080/17441692.2015.1094106

Ghosh, R., Dubey, M. J., Chatterjee, S., & Dubey, S. (2020). Impact of COVID-19 on children: special focus on the psychosocial aspect. *Minerva Pediatrica, 72*(3), 226-235. https://doi.org/10.23736/s0026-4946.20.05887-9

Gouveia, M. J., Frontini, R., Canavarro, M. C., & Moreira, H. (2014). Quality of life and psychological functioning in pediatric obesity: The role of body image dissatisfaction between girls and boys of different ages. *Quality of Life Research, 23*(9), 2629-2638. https://doi.org/10.1007/s11136-014-0711-y

Halasi, S., Lepeš, J., Đorđić, V., Stevanović, D., Ihász, F., Jakšić, D., … & Marinković, D. (2018). Relationship between obesity and health-related quality of life in children aged 7–8 years. *Health and Quality of Life Outcomes, 16,* 149. https://doi.org/10.1186/s12955-018-0974-z

Hoyle, R. H. (1995). The structural equation modeling approach: Basic concepts and fundamental issues. In R. H. Hoyle (Ed.), *Structural equation modeling: Concepts, issues, and applications* (pp. 1-15). Thousand Oaks, CA: Sage Publications.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Imran, N., Zeshan, M., & Pervaiz, Z. (2020). Mental health considerations for children & adolescents in COVID-19 Pandemic. Pakistan journal of medical sciences, 36(COVID19-S4), S67. https://doi.org/10.12669/pjms.36.COVID19-S4.2759

Jeminiwa, R. N., Hohmann, N. S., & Fox, B. I. (2019). Developing a theoretical framework for evaluating the quality of mHealth apps for adolescent users: A systematic review. *The Journal of Pediatric Pharmacology and Therapeutics: JPPT, 24*(4), 254–269. https://doi.org/10.5863/1551-6776-24.4.254

Kalavana, T. V., Maes, S., & De Gucht, V. (2010). Interpersonal and self-regulation determinants of healthy and unhealthy eating behavior in adolescents. *Journal of Health Psychology, 15*(1), 44-52. https://doi.org/10.1177/1359105309345168

Kartiosuo, N., Ramakrishnan, R., Lemeshow, S., Juonala, M., Burns, T. L., Woo, J. G., … & Dwyer, T. (2019). Predicting overweight and obesity in young adulthood from childhood body-mass index: comparison of cutoffs derived from longitudinal and cross-sectional data. *Lancet Child & Adolescent Health, 3*(11), 795-802. https://doi.org/10.1016/S2352-4642(19)30204-4

Kulik, N. L., Moore, E. W., Centeio, E. E., Garn, A. C., Martin, J. J., Shen, B., … & McCaughtry, N. (2019). Knowledge, attitudes, self-efficacy, and healthy eating behavior among children: Results from the building healthy communities trial. *Health Education & Behavior, 46*(4), 602-611. https://doi.org/10.1177/1090198119826298

Lessard, J., Greenberger, E., & Chen, C. (2010). Adolescents' response to parental efforts to influence eating habits: When parental warmth matters. *Journal of Youth and Adolescence, 39*(1), 73-83. https://doi.org/10.1007/s10964-008-9376-6

Lindberg, L., & Swanberg, I. (2006). Well-being of 12-year-old children related to interpersonal relations, health habits and mental distress. *Scandinavian Journal of Caring Sciences, 20*(3), 274-281. https://doi.org/10.1111/j.1471-6712.2006.00405.x

Loaiza, L. I. S., Belda, B. I. V., López, J. M. M., Sáez, A. C., & Cobas, A. C. (2020). Hábitos alimentarios en la población gallega durante

el confinamiento por la COVID-19 [Food habits in the Galician population during confinement by COVID-19]. *Nutrición Hospitalaria, 37*(6), 1190-1196. http://doi:10.20960/nh.03213

López-Moreno, M., López, M. T. I., Miguel, M., & Garcés-Rimón, M. (2020). Physical and psychological effects related to food habits and lifestyle changes derived from COVID-19 home confinement in the Spanish population. *Nutrients, 12,* 3445. https://doi.org/10.3390/nu12113445

Mäkinen, M., Puukko-Viertomies, L. R., Lindberg, N., Siimes, M. A., & Aalberg, V. (2012). Body dissatisfaction and body mass in girls and boys transitioning from early to mid-adolescence: additional role of self-esteem and eating habits. *BMC psychiatry, 12*(1), 1-8. https://doi.org/10.1186/1471-244X-12-35

Mattioli, A. V., Sciomer, S., Cocchi, C., Maffei, S., & Gallina, S. (2020). Quarantine during COVID-19 outbreak: Changes in diet and physical activity increase the risk of cardiovascular disease. *Nutrition, Metabolism and Cardiovascular Diseases, 30*(9), 1409-1417. https://doi.org/10.1016/j.numecd.2020.05.020

Maturana, H. A., & Vargas, S. A. (2015). School stress. *Revista Médica Clínica Las Condes, 26*(1), 34-41. https://doi.org/10.1016/j.rmclc.2015.02.003

Meixner, L., Cohrdes, C., Schienkiewitz, A., & Mensink, G. B. (2020). Health-related quality of life in children and adolescents with overweight and obesity: results from the German KIGGS survey. *BMC Public Health, 20*, 1722. https://doi.org/10.1186/s12889-020-09834-8

Michel, G., Bisegger, C., Fuhr, D. C., Abel, T., & KIDSCREEN group (2009). Age and gender differences in health-related quality of life of children and adolescents in Europe: A multilevel analysis. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care and Rehabilitation, 18*(9), 1147-1157. https://doi.org/10.1007/s11136-009-9538-3

Mignano, C., Faghri, P. D., Huedo-Medina, T., & Cherniack, M. C. (2016). Psychological health, behavior, and bodyweight (PBBW) model: An evaluation of predictors of health behaviors and body mass index (BMI). *Journal of Workplace Behavioral Health, 31*(1), 37-56.

Mochida, S., Sanada, M., Shao, Q., Lee, J., Takaoka, J., Ando, S., & Sakakihara, Y. (2021). Factors modifying children's stress during the COVID-19 pandemic in Japan. *European Early Childhood Education Research Journal*, 1-15. https://doi.org/10.1080/1350293X.2021.1872669

Moreno-Maldonado, C., Ramos, P., Moreno, C., & Rivera, F. (2018). How family socioeconomic status, peer behaviors, and school-based intervention on healthy habits influence adolescent eating behaviors. *School Psychology International, 39*(1), 92-118. https://doi.org/10.1177/0143034317749888

Ochoa-Meza, G., Sierra, C. J., Pérez. C., Aranceta. J., Esparza. O. A., & Musi. B. (2017). Psychosocial factors of vegetable intake in urban and semi-urban Mexican schoolchildren. *Revista Iberoamericana de Psicología y Salud, 8*(2), 108-120, https://doi.org/10.23923/j.rips.2017.08.010

Ozamiz-Etxebarria, N., Idoiaga Mondragon, N., Dosil Santamaría, M., & Picaza Gorrotxategi, M. (2020). Psychological symptoms during the two stages of lockdown in response to the COVID-19 outbreak: an investigation in a sample of citizens in Northern Spain. *Frontiers in psychology, 11,* 1491. https://doi.org/10.3389/fpsyg.2020.01491

O'Dea, J. A., & Wilson, R. (2006). Socio-cognitive and nutritional factors associated with body mass index in children and adolescents: Possibilities for childhood obesity prevention. *Health Education Research, 21*(6), 796-805. https://doi.org/10.1093/her/cyl125

Parschau, L., Fleig, L., Warner, L. M., Pomp, S., Barz, M., Knoll, N., … & Lippke, S. (2014). Positive exercise experience facilitates behavior change via self-efficacy. *Health Education & Behavior, 41*(4), 414-422. https://doi.org/10.1177/1090198114529132

Perez-Gramaje, A. F., Garcia, O. F., Reyes, M., Serra, E., & Garcia, F. (2019). Parenting Styles and Aggressive Adolescents: Relationships with Self-esteem and Personal Maladjustment. *The European Journal of Psychology Applied to Legal Context, 12*(1), 1 - 10. https://doi.org/10.5093/ejpalc2020a1

Phillipou, A., Meyer, D., Neill, E., Tan, E. J., Toh, W. L., Van Rheenen, T. E., & Rossell, S. L. (2020). Eating and exercise behaviors in eating disorders and the general population during the COVID-19 pandemic in Australia: Initial results from the COLLATE project. *International Journal of Eating Disorders, 53*(7), 1158-1165. https://doi.org/10.1002/eat.23317

Ragelienė, T., & Grønhøj, A. (2020). The influence of peers' and siblings' on children's and adolescents' healthy eating behavior. A systematic literature review. *Appetite, 148*, 104592. https://doi.org/10.1016/j.appet.2020.104592

Rodríguez-Pérez, C., Molina-Montes, E., Verardo, V., Artacho, R., García-Villanova, B., Guerra-Hernández, E. J., & Ruíz-López, M. D. (2020). Changes in dietary behaviours during the COVID-19 outbreak confinement in the Spanish COVIDiet study. *Nutrients, 12,* 1730. https://doi.org/10.3390/nu12061730

Salvy, S. J., Miles, J. N., Shih, R. A., Tucker, J. S., & D'Amico, E. J. (2017). Neighborhood, family and peer-level predictors of obesity-related health behaviors among young adolescents. *Journal of Pediatric Psychology, 42*(2), 153-161. https://doi.org/10.1093/jpepsy/jsw035

Silva, A. L., Teles, J., & Fragoso, I. (2020). Health-related quality of life of Portuguese children and adolescents according to diet quality and food intake. *Quality of Life Research, 29,* 2197-2207. https://doi.org/10.1007/s11136-020-02475-9

Soriano, J. G., Pérez-Fuentes, M. C., Molero-Jurado, M. M., Gázquez, J. J., Tortosa, B. M., & González, A. (2020). Benefits of mindfulness-based symptoms for the treatment of anxious symptoms in children and adolescents: Meta-analysis. *Revista Iberoamericana de Psicología y Salud, 11*(1), 42-53. https://doi.org/10.23923/j.rips.2020.01.034

Spinelli, M., Lionetti, F., Pastore, M., & Fasolo, M. (2020). Parents' stress and children's psychological problems in families facing the COVID-19 outbreak in Italy. *Frontiers in Psychology, 11*, 1713. https://doi.org/10.3389/fpsyg.2020.01713

Steinvoord, K., & Junge, A. (2019). Does an association exist between socio-economic status and subjective physical, mental and social well-being among early adolescents? *International Journal of Adolescent Medicine & Health*. Advance online publication. https://doi.org/10.1515/ijamh-2019-0090

Watts, A. W., Miller, J., Larson, N. I., Eisenberg, M. E., Story, M. T., & Neumark-Sztainer, D. (2018). Multicontextual correlates of adolescent sugar-sweetened beverage intake. *Eating Behaviors, 30*, 42-48. https://doi.org/10.1016/j.eatbeh.2018.04.003

Western, M., & Tomaszewski, W. (2016). Subjective wellbeing, objective wellbeing and inequality in Australia. *PloS One, 11*(10), e0163345. https://doi.org/10.1371/journal.pone.0163345

Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology, 8,* 84-136. Retrieved from https://www.jstor.org/stable/270754

World Health Organization. (2016). *Report of the commission on ending childhood obesity.* Retrieved from https://apps.who.int/iris/bitstream/handle/10665/204176/9789241510066_eng.pdf?sequence=1

World Health Organization. (2020). *Responding to non-communicable diseases during and beyond the COVID-19 pandemic: state of the evidence on COVID-19 and non-communicable diseases: a rapid review.* Retrieved from https://www.who.int/publications/i/item/WHO-2019-nCoV-Non-communicable_diseases-Evidence-2020.1

Wynne, C., Comiskey, C., Hollywood, E., Quirke, M. B., O'Sullivan, K., & McGilloway, S. (2014). The relationship between body mass index and health-related quality of life in urban disadvantaged children. *Quality of Life Research, 23*(6), 1895-1905. https://doi.org/10.1007/s11136-014-0634-7

Wynne, C., Comiskey, C., & McGilloway, S. (2016). The role of body mass index, weight change desires and depressive symptoms in the health-related quality of life of children living in urban disadvantage: Testing mediation models. *Psychology and Health, 31*(2), 147-165. https://doi.org/10.1080/08870446.2015.1082560

Yue, J., Zang, X., Le, Y., & An, Y. (2020). Anxiety, depression and PTSD among children and their parent during 2019 novel coronavirus disease (COVID-19) outbreak in China. *Current Psychology*. Advance online publication. https://doi.org/10.1007/s12144-020-01191-4