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The influence of parenting style and family meals on body esteem among Costa Rican adolescents

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ABSTRACT

The psychological wellbeing of adolescents is significantly influenced by their body esteem, which is shaped by various factors. This study aims to examine how parenting styles impact adolescent body esteem, considering the potential mediating effect of family meals. Initially, a complex model was tested but found to be an inadequate fit ($\chi^2 = 299.18$, $df = 12$, $p < 0.001$, $CFI = 0.74$, $TLI = 0.30$, $GFI = 0.99$, $RMSEA = 0.21$). Subsequently, a data-driven reduced model was analysed, showing excellent fit ($\chi^2 = 21$, $df = 3$, $p < 0.001$, $CFI = 0.98$, $TLI = 0.92$, $GFI = 1.00$, $RMSEA = 0.10$). This model revealed that authoritative parenting fosters a positive family meal atmosphere, thus enhancing adolescent body esteem. However, adolescent participation in family meals was low. Public health stakeholders must devise strategies aimed at promoting the active engagement of both parents and adolescents in family meals.

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Body esteem; parenting styles; family meals; adolescents; Costa Rica

Introduction

Body esteem (BE) is a person's subjective evaluation of their own body, influencing psychological wellbeing (Mendelson et al., 2001). As a culturally shaped concept, BE suggests that the importance attached to specific body parts and functions by boys and girls can change in response to evolving cultural standards of healthy, genderappropriate bodies (Frost et al., 2018). Self-discrepancy theory (Higgins, 1987), posits that BE is influenced by the gap between an individual's 'actual self' (how they perceive their body) and their 'ideal self' (how they wish their body would appear). Larger gaps between these two selves typically result in lower BE, since those who perceive their bodies as falling short of societal or personal ideals often experience negative emotions such as dissatisfaction or shame. Exposure to idealized body images, especially those promoted by the media, can exacerbate these feelings. When individuals internalize societal beauty standards, their BE is significantly impacted, leading to body dissatisfaction.

Adolescence is a crucial developmental period when appearance becomes increasingly important due to the physical and psychosocial changes individuals undergo as they form their identity (Erikson, 1994; Nelson et al., 2018). During this stage, adolescents often engage in social comparisons, comparing themselves either upward (to those they perceive as more attractive or fit) or downward (to those they perceive as less attractive). These comparisons can negatively affect their BE (Çivitci, 2010; Festinger, 1954). Low BE during adolescence is

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linked to various negative outcomes, such as low self-esteem, depression, body dissatisfaction, eating disorders, social anxiety, and alexithymia (Abdollahi & Abu Talib, 2016; Abdollahi et al., 2016; Flament et al., 2012; Frisén et al., 2015; Grogan, 2010; Hamlat et al., 2015; Jónsdóttir et al., 2008; Lilienthal & Weatherly, 2013; Nelson et al., 2018; Sasai et al., 2011; Skorek et al., 2014).

Family factors, particularly parenting styles, play a key role in shaping adolescent BE. Parents serve as influential role models, shaping their children's perceptions of their bodies through their own attitudes and behaviours concerning appearance (Neagu, 2015; Skorek et al., 2014; Yahaya et al., 2021). According to body image resilience theory (Cash, 2002), parents can help adolescents develop resilience against negative body image by encouraging them to accept their bodies despite societal pressures. This resilience acts as a protective buffer against negative BE and enhances overall psychological wellbeing (Cash, 2002).

Research shows that parenting styles significantly influence adolescent behaviour, with specific approaches linked to better or worse developmental outcomes (Crosswhite & Kerpelman, 2009). However, the relationship between parenting styles and BE remains underexplored. Understanding how parenting styles impact self-esteem is crucial since self-esteem is one of the strongest predictors of BE (Skorek et al., 2014). Baumrind's parenting typology (Baumrind, 1991; Darling & Steinberg, 1993) categorizes parenting into three styles: authoritarian, authoritative, and permissive. The authoritarian style, characterized by low responsiveness and high demandingness, is associated with lower self-esteem, while both the authoritative style (high responsiveness and high demandingness) and the permissive style (high responsiveness and low demandingness) are linked to higher self-esteem (Aremu et al., 2019; Okunlola et al., 2020; Sharma & Pandey, 2015).

The authoritative style, known for its warmth, involvement, and effective discipline, is linked to positive outcomes, including fewer risky behaviours and better emotional wellbeing (Berge, Wall, Loth, et al., 2010; Kenney et al., 2015; Meisel & Colder, 2022; Newman et al., 2008; Pearson et al., 2010). This style may also contribute to higher BE in adolescents. However, the impact of parenting styles on BE can vary depending on the sociocultural context in which adolescents live (Febiyanti & Rachmawati, 2021; García & Gracia, 2009).

In individualistic cultures, such as those in North America and Europe, independence and personal autonomy are highly valued. In contrast, collectivist cultures, such as those in Latin America, emphasize family unity and social harmony (Sorkhabi, 2005). These cultural differences can shape how parenting styles influence BE, underscoring the need to examine how these dynamics operate in various cultural contexts (Davids et al., 2016).

Parents can also promote healthy BE through family meals, which create opportunities for communication and emotional connection. Shared mealtimes foster socioemotional growth, providing an environment that supports positive body image development (Harrison et al., 2015). Cognitive dissonance theory (Festinger, 1954), suggests that adolescents experience internal conflict when trying to reconcile societal beauty standards with their body image. Family meals help adolescents resolve this dissonance by offering constructive feedback and promoting healthier body perceptions (Eisenberg et al., 2004; Harrison et al., 2015). These meals also act as a buffer against negative peer pressure, media portrayals of beauty standards, and societal norms (LaportaHerrero et al., 2018; McCabe & Ricciardelli, 2003). By fostering open conversations about body shape, weight, and self-worth, family meals encourage adolescents to develop more realistic and healthier attitudes towards the body (Choi et al., 2021). According to the family systems theory, which emphasizes the interconnectedness of family members, these shared moments help shape attitudes, values, and beliefs that positively influence adolescent emotional wellbeing (Bowen, 1993; Kerr & Bowen, 2009).

While the existing literature emphasizes the importance of parenting styles and family meals in promoting positive BE, there is a significant gap in research exploring how these factors interact. Understanding how parenting styles and family meals work together to influence BE could provide valuable insights for developing interventions aimed at improving BE among adolescents. This gap is

crucial, given that current intervention strategies have not effectively improved adolescent BE (Guest et al., 2022).

The goal of this study was to examine the relationship between parenting styles, family meals, and positive BE in adolescents. The hypothesis was that family meals mediate the relationship between parenting styles and positive BE. The family systems theory provided the analytical framework for the study, highlighting the interconnectedness of family members and the role of shared experiences in shaping adolescent behaviour.

Materials and methods

Study population and setting

A cross-sectional study was conducted among Costa Rican adolescents aged 13 to 18 years, specifically targeting students from 7th to 11th grade. The recruitment of adolescents occurred between February and September 2017. Participants were contacted from rural and urban schools located in the province of San José. This province was selected because it has the highest concentration of adolescents (30%) in the country (Instituto Nacional de Estadística y Censos, Costa Rica., n.d.), and the majority (80%) are actively enrolled in school (de la Nación, 2019).

The determination of the sample size considered a sampling error for a population proportion, incorporating finite population correction (Ryan, 2013). The selection of urban and rural schools was executed using a proportional size probability method (Alam et al., 2015). Within each school, 10 classrooms (two from each grade from 7th to 11th) were selected through simple random sampling. Students in each classroom were invited to participate in the study and were provided with informed consent and assent forms. To establish the study sample, students who submitted signed informed consent and assent forms were randomly selected. Before the study commenced, approximately 5% of the selected students opted out. Consequently, the final study sample comprised 818 adolescents aged 13 to 18 years. However, the analysis only considered participants who provided complete data on their fathers' and mothers' parental styles and submitted fully complete Body Esteem Scales and Family Meals Questionnaires. These selection criteria resulted in a final analysis sample size of 588 adolescents. The study protocol was approved by the Bioethics Committee of the Costa Rican Institute for Research and Education on Nutrition and Health (INCIENSA under number IC200701).

Data collection

At each high school, the adolescents were assembled during regular school hours in a specially designated classroom. A researcher provided instructions to the students for the completion of their sociodemographic information (including age, gender, and area of residence) and guided them in filling out the Parenting Styles Questionnaire, Body Esteem Scale, and Family Meal Environment Questionnaire. Throughout this process, one of the researchers involved in the study was present and available to address any questions the students may have had.

Parenting styles

To evaluate their perception of their parents' parenting styles, the adolescents completed the short version (32 items) of the Parenting Styles and Dimensions Questionnaire (PSDQ) (Robinson et al., 2001). This instrument was specifically designed to assess parenting styles in alignment with Baumrind's typologies: authoritative (characterized by high responsiveness and high demandingness), authoritarian (marked by low responsiveness and high demandingness), and permissive/indulgent (noted for high responsiveness and low demandingness) (Baumrind, 1991).

The Authoritative scale comprises 15 items, encompassing the three dimensions of warmth and support, regulation, and autonomy granting. The Authoritarian scale consists of 12 items, capturing

the three dimensions of physical coercion, verbal hostility, and nonreasoning/punitive strategies. The Permissive scale focuses on the single dimension of indulgence, composed of five items (Robinson et al., 2001). Respondents used a fivepoint Likert scale (1 = never to 5 = always) to express their agreement with each item. The score for each dimension was calculated as the average of its respective items.

The PSDQ was translated into Spanish by the authors, who are native Spanish speakers from Costa Rica. This translation was undertaken because, at the time of data collection, there was no published literature available on the short version of the questionnaire for Spanish speaking audiences. Additionally, to ensure the questionnaire's clarity, 20 adolescents (aged 13–18 years) in Costa Rica were surveyed using cognitive interviewing techniques (Smith-Castro & Molina, 2011), leading to the revision of questions to enhance comprehension.

Previously, our research team conducted a psychometric validation of the translated short version of the PSDQ, confirming its appropriateness for use among Costa Rican adolescents (Reyes-Fernández & Smith-Castro, 2018). In the current study, following data collection, the short translated PSDQ underwent a psychometric revalidation process using the entire study sample. The score for each dimension was computed as the average of its items, considering the perceived parenting styles of both parents. The results indicated that the internal consistency for each parenting style was considered adequate and acceptable (Cronbach's α for the authoritative style = 0.95, α = 0.85 for the authoritarian style, and α = 0.73 for the permissive style).

Family meals

The family meal environment was assessed using 14 items from the EAT (Eating Among Teens) Project questionnaire (Neumark-Sztainer et al., 2010). The questionnaire includes three dimensions: (i) family meal atmosphere, (ii) priority of family meals, and (iii) structure/rules at family meals, each with a different number of items. Four items assess the first dimension, which focuses on the pleasantness of the family meal atmosphere (e.g. 'In my family, eating brings people together in an enjoyable way', 'In my family, mealtime is a time for talking with other family members'). Five items measure the second dimension, which reflects the value the family places on dining together (e.g. 'In my family, it is important that the family eat at least one meal a day together', 'In my family, we are expected to be home for dinner'). The final five items assess the third dimension, which evaluates the presence of clear rules about expected behaviours during family meals (e.g. 'In my family, there are rules at mealtimes that we are expected to follow', 'Manners are important at our dinner table'). Participants were asked to score each item on a fivepoint Likert scale (1 = never to 5 = always). All items used to assess each dimension are detailed in Supplementary Material 1.

Since the original questionnaire was designed for American adolescents (50% Caucasian) participating in Project EAT (Neumark-Sztainer et al., 2010), the current study conducted a psychometric validation of the instrument using the study participants as the sample. The results showed reasonably satisfactory internal reliability for family meal atmosphere (Cronbach's α = 0.75) and priority of family meals (Cronbach's α = 0.61), whereas structure/rules at family meals displayed a less optimal fit (Cronbach's α = 0.48). The Cronbach's α coefficient values in this study were lower than those reported in the validation of the original questionnaire (Neumark-Sztainer et al., 2010).

To assess the frequency of family meals, students were asked the following question: 'During the past seven days, how many times did all, or most, of your family living at your house eat breakfast/lunch/dinner together?' A separate question was posed for each mealtime. Response choices ranged from 'never,' 'once or twice,' 'three to four times,' 'five to six times,' to 'every day.'

Body esteem

The 23-item Body Esteem Scale for Adolescents and Adults (BESAA) (10 negative and 13 positive items) was employed to measure participants' self-evaluation and self-esteem of their physical appearance (Mendelson et al., 2001).

The BESAA consists of three subscales: appearance (general feelings about appearance), attribution (evaluations attributed to others about one's body), and weight (weight satisfaction). Participants used a five-point Likert scale (1 = never to 5 = always) to indicate their level of agreement with each item. The internal consistency of the BESAA scale has been assessed in various countries (Beltrán-Garrayo et al., 2023; Brandão et al., 2021; Confalonieri et al., 2008; Forbes et al., 2012; Lunde et al., 2007; Smith et al., 2022). In this study, psychometric validation of the scale was conducted using the entire participant pool as the sample. The findings indicated satisfactory internal reliability for each of the three subscales: Cronbach's α for appearance = 0.87, for attribution = 0.70, and for weight = 0.86.

The Family Meals Questionnaire and the Body Esteem Scale for Adolescents and Adults were translated into Spanish by the authors, who are native Spanish speakers from Costa Rica. One hundred adolescents participated in a survey employing cognitive interviewing techniques to evaluate item comprehension (Smith-Castro & Molina, 2011). The survey items were subsequently revised to enhance clarity and overall comprehension.

Data analysis

Path analyses were conducted using the covariance matrix of the studied variables. For parenting styles, the included variables were authoritarian, authoritative, and permissive. In the context of family meals, the variables considered were rules, environment, and priority. Finally, the body esteem (BE) variables included in the covariance matrix were appearance, attribution, and weight.

Following the conceptual model (Figure 1), the path analysis included the parenting styles as exogenous variables, the family meal environment dimensions as mediators, and BE subscales as dependent variables or outcomes. The parameter estimates of the model were calculated using the Maximum Likelihood method. Model fit was assessed through global, parsimony, and incremental fit indexes, including Chi-square statistics (χ^2), comparative fit index (CFI), and root mean square error of approximation (RMSEA). According to Maruyama (1998), a CFI equal to or greater than 0.9 indicates a good fit, while an RMSEA less than 0.05 is considered the most acceptable fit index (Maruyama,

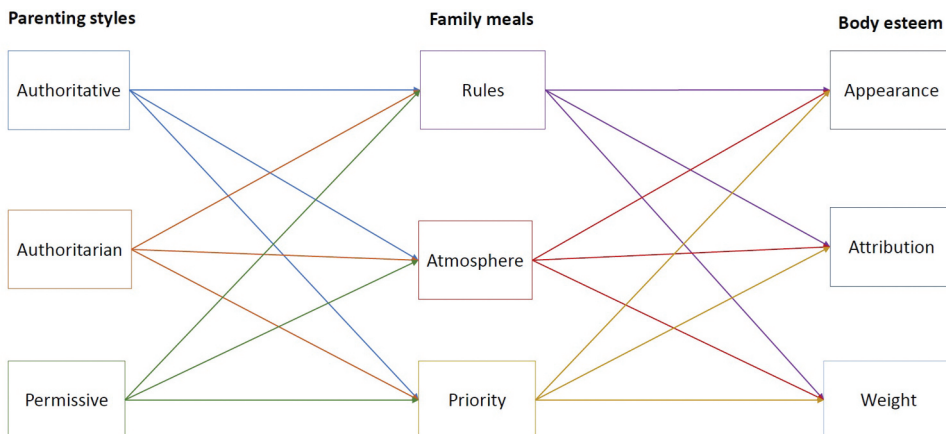


Figure 1. Conceptual model examining the mediating role of family meals in the associations between parenting styles and adolescent body esteem.

1998). The analysis included testing for complete structural relationships, both direct and indirect, among exogenous and endogenous variables. Preliminary analysis indicated no association between sex and age and the outcome variables, leading to their exclusion from path analyses.

Prior to conducting the path analysis, repeated measures ANOVA were performed on the overall sample to compare mean scores of parenting styles, family meal environment dimensions, and BE subscales. A Pearson correlation matrix was also estimated to examine bivariate associations among the variables under study and identify the presence of high collinearity ($\rho > 0.80$). The internal consistency of the measures underwent evaluation through Cronbach's alphas.

The analyses were conducted using IBM SPSS (version 23, IBM Corp., Armonk, NY, U.S.A.) and JAMOVI software (version 2.4, the Jamovi project, 2023).

Results

Of the 588 adolescents included in the sample, 65.5% were girls, and 50.2% resided in urban areas (Table 1). The mean average age was 15.2 ± 1.7 years. Of the total sample, 41.2% of adolescents never had breakfast with the family, but 23.9% did so daily. For lunch, 36.9% never ate with the family, but 31.9% ate together every day. Regarding dinner, 11.2% never participated in this family mealtime, while 50.5% joined in daily. Around 10% of adolescents shared breakfast, lunch, or dinner with their families 3 to 4 times a week (Table 1).

Descriptive statistics of parenting styles, family meal environment dimensions, and body esteem subscales

Means and standard deviations of all scales for the whole sample are presented in Table 2. Significant differences across the parenting styles were found ($F_{2,1162} = 446.448, p < .001$). Mean scores for the authoritative style (3.25 ± 0.96) were significantly higher ($p < .001$) than for the permissive style (2.28 ± 0.72), while the latter's scores were also significantly higher ($p < .001$) than for the authoritarian style (2.00 ± 0.59).

Table 1. General characteristics of the study sample and participation in family meals.

Characteristics	n = 588
Study population	
Age (years)	15.2 ± 1.7
Girls (%)	65
Urban (%)	48
Participation in family meals (%)	
Breakfast	
Never	41.2
1–2 times per week	22.1
3–4 times per week	10.3
5–6 times per week	2.5
Every day	23.9
Lunch	
Never	36.2
1–2 times per week	31.9
3–4 times per week	9.8
5–6 times per week	5.9
Every day	23.9
Dinner	
Never	11.2
1–2 times per week	15.4
3–4 times per week	10.5
5–6 times per week	12.4
Every day	50.5

Table 2. Mean scores of the exogenous, mediator, and outcome variables included in the path analyses.

	Total	
	Mean	SD
Parenting styles		
Authoritative	3.25 ^a	0.96
Authoritarian	2.00 ^b	0.59
Permissive	2.28 ^c	0.72
Family meal dimensions		
Rules	2.55 ^a	0.60
Atmosphere	3.20 ^b	0.72
Priority	2.24 ^c	0.68
Body esteem subscales		
Appearance	3.56 ^a	0.82
Attribution	2.91 ^b	0.82
Weight	3.45 ^c	0.99

Degrees of freedom vary due to missing values. ^{a,b,c} Labeled means in a column without a common letter are statistically different ($p < 0.05$) based on a repeated measures ANOVA.

Statistically significant differences across the family meal environment dimensions were also found ($F_{2,1108} = 254.305$, $p < 0.001$). Specifically, atmosphere (3.20 ± 0.72) was rated significantly higher ($p < .001$) than rules (2.55 ± 0.60), which in turn was rated significantly higher ($p < .001$) than priority (2.24 ± 0.68).

Finally, body esteem subscales also showed significant differences ($F_{2,1148} = 193.409$, $p < 0.001$). The appearance score was significantly higher ($p < .001$) (3.56 ± 0.82) than the weight score (3.45 ± 0.99), while the latter was significantly higher ($p < .001$) than the attribution score (2.91 ± 0.82).

Bivariate correlations among parenting styles, family meal dimensions, and body esteem subscales

Table 3 presents the bivariate correlation matrix among all variables under study, revealing patterns consistent with theoretical expectations and previous empirical findings.

Within parenting styles, the authoritative style showed a negative correlation with the authoritarian style ($r = 0.236$, $p < 0.01$) and a positive correlation with the permissive style ($r = 0.157$, $p < 0.05$). The authoritarian style, in turn, had a positive correlation with the permissive style ($r = 0.273$, $p < 0.01$). Among the family meal environment dimensions, rules were positively correlated with atmosphere ($r = 0.465$, $p < 0.01$) and negatively with priority ($r = 0.410$, $p < 0.01$). Atmosphere also correlated negatively with priority ($r = 0.507$, $p < 0.01$). For the body esteem

Table 3. Cronbach alphas and bivariate correlations among the exogenous, mediator, and outcome variables included in the path analyses.

Variables	αCronbach	1	2	3	4	5	6	7	8	9
(1) Authoritative	0.95	1	0.236**	0.157**	0.198**	0.472**	0.298**	0.289**	0.223**	0.210**
(2) Authoritarian	0.85		1	0.273**	0.024	0.136**	0.113**	0.215**	0.076	0.195**
(3) Permissive	0.73			1	0.07	0.026	0.046	0.090*	0.127**	0.017
(4) Rules	0.47				1	0.465**	0.410**	0.177**	0.069	0.150**
(5) Atmosphere	0.75					1	0.507**	0.321**	0.183**	0.263**
(6) Priority	0.61						1	0.259**	0.091*	0.212**
(7) Appearance	0.86							1	0.484**	0.734**
(8) Attribution	0.70								1	0.390**
(9) Weight	0.87									1

* $p < 0.05$, ** $p < 0.01$.

subscales, appearance was positively correlated with both attribution ($r = 0.484, p < 0.01$) and weight ($r = 0.734, p < 0.01$). Attribution also showed a positive correlation with weight ($r = 0.390, p < 0.01$).

In terms of correlations between parenting styles and family meal environment dimensions, the authoritative style positively correlated with rules ($r = 0.198, p < 0.01$) and atmosphere ($r = 0.472, p < 0.01$), while it negatively correlated with priority ($r = 0.298, p < 0.01$). Conversely, the authoritarian style was negatively correlated with atmosphere ($r = 0.136, p < 0.01$) and positively with priority ($r = 0.113, p < 0.01$). The permissive style did not show significant correlations with any of the family meal environment dimensions.

Regarding parenting styles and body esteem subscales, the authoritative style was positively associated with appearance ($r = 0.289, p < 0.01$), attribution ($r = 0.223, p < 0.01$), and weight ($r = 0.210, p < 0.01$). In contrast, the authoritarian style showed negative correlations with appearance ($r = 0.215, p < 0.05$) and weight ($r = 0.195, p < 0.01$). The permissive style was negatively correlated with appearance ($r = 0.090, p < 0.05$) and positively with attribution ($r = 0.127, p < 0.01$).

For correlations between family meal environment dimensions and body esteem subscales, rules showed significant positive correlations with appearance ($r = 0.177, p < 0.01$) and weight ($r = 0.150, p < 0.01$). Atmosphere had positive correlations with appearance ($r = 0.321, p < 0.01$), attribution ($r = 0.183, p < 0.01$), and weight ($r = 0.263, p < 0.01$). Finally, priority showed significant negative correlations with appearance ($r = 0.259, p < 0.01$), attribution ($r = 0.091, p < 0.05$), and weight ($r = 0.212, p < 0.01$).

Path analysis: testing model 1

Table 4 provides the parameter estimates for the direct paths in the proposed model, which intended to elucidate the mediating role of family meals in the associations between parenting styles and adolescent BE. Concurrently, Figure 2 illustrates the structural relationships among the variables in this model.

Overall data inspection revealed an inadequate fit for the proposed model: $\chi^2 = 299.18, df = 12, p < 0.001, CFI = 0.74, TLI = 0.30, GFI = 0.99, RMSEA = 0.21$.

Structural coefficient (β) analysis revealed significant predictions, where atmosphere predicted appearance ($\beta = 0.26, B = 0.30, SE = 0.05, z = 6.27, p < 0.001$), attribution ($\beta = 0.18, B = 0.21, SE = 0.05, z = 4.24, p < 0.001$), and weight ($\beta = 0.20, B = 0.27, SE = 0.06, z = 4.62, p < 0.001$). Priority predicted appearance ($\beta = 0.13, B = 0.16, SE = 0.05, z = 3.22, p = 0.001$) and weight ($\beta = 0.12, B = 0.17, SE = 0.06, z = 2.76, p = 0.006$). On the other hand, authoritative parenting predicted rules ($\beta = 0.24, B = 0.15, SE$

Table 4. Parameter estimates for the proposed model.

Dependent	Predictor	Estimate (B)	SE	Lower 95% CI	Upper 95% CI	β	z	p
Appearance	Rules	0.02	0.05	0.09	0.13	0.01	0.36	0.720
Appearance	Atmosphere	0.30	0.05	0.20	0.39	0.26	6.27	<0.001
Appearance	Priority	0.16	0.05	0.25	0.06	0.13	3.22	0.001
Attribution	Rules	0.03	0.06	0.14	0.09	0.02	0.46	0.648
Attribution	Atmosphere	0.21	0.05	0.11	0.31	0.18	4.24	<0.001
Attribution	Priority	0.02	0.05	0.12	0.08	0.01	0.34	0.730
Weight	Rules	0.03	0.07	0.11	0.16	0.02	0.37	0.709
Weight	Atmosphere	0.27	0.06	0.15	0.38	0.20	4.62	<0.001
Weight	Priority	0.17	0.06	0.28	0.05	0.12	2.76	0.006
Rules	Authoritative	0.15	0.03	0.10	0.21	0.24	5.52	<0.001
Rules	Authoritarian	0.14	0.05	0.05	0.24	0.14	3.08	0.002
Rules	Permissive	0.13	0.04	0.20	0.06	0.16	3.45	<0.001
Atmosphere	Authoritative	0.37	0.03	0.32	0.43	0.50	12.68	<0.001
Atmosphere	Authoritarian	0.02	0.05	0.08	0.11	0.01	0.32	0.752
Atmosphere	Permissive	0.12	0.04	0.20	0.04	0.12	3.02	0.003
Priority	Authoritative	0.21	0.03	0.27	0.15	0.29	6.74	<0.001
Priority	Authoritarian	0.03	0.05	0.07	0.13	0.02	0.56	0.578
Priority	Permissive	0.08	0.04	0.00	0.17	0.09	2.02	0.043

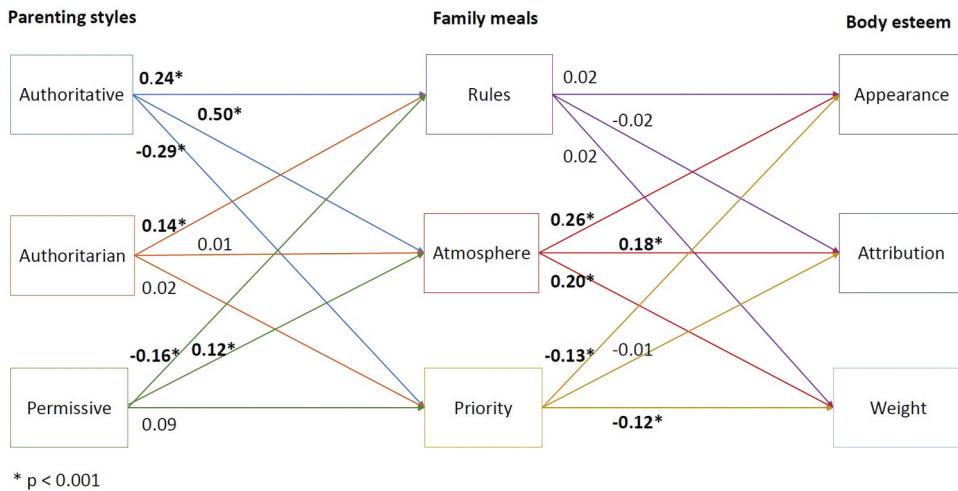


Figure 2. Structural relationships between variables in the proposed model.

= 0.03, $z = 5.52$, $p < 0.001$), atmosphere ($\beta = 0.50$, $B = 0.37$, $SE = 0.03$, $z = 12.68$, $p < 0.001$), and priority ($\beta = 0.29$, $B = 0.21$, $SE = 0.03$, $z = 6.74$, $p < 0.001$). Permissive parenting predicted rules ($\beta = 0.16$, $B = 0.13$, $SE = 0.04$, $z = 3.45$, $p < 0.001$) and atmosphere ($\beta = 0.12$, $B = 0.12$, $SE = 0.04$, $z = 3.02$, $p = 0.003$). Finally, authoritarian parenting only predicted rules ($\beta = 0.14$, $B = 0.14$, $SE = 0.05$, $z = 3.08$, $p = 0.002$).

In summary, authoritarian parenting was related to a structured and positive family meal environment but placed less priority on having family meals. In contrast, greater parental permissiveness was associated with less structured rules and a less enjoyable mealtime environment. Meanwhile, authoritarian parenting was connected to stricter meal rules. The findings also showed that a more enjoyable family meal atmosphere was associated with higher body esteem (BE) across all dimensions, while a stronger focus on prioritizing family meals was related to lower BE scores, particularly in the dimensions of appearance and weight.

Tests for the mediating effects of the proposed model are presented in Table 5. According to the analysis, atmosphere significantly mediated the effects of the authoritative style on appearance ($\beta = 0.13$, $p < 0.001$), attribution ($\beta = 0.09$, $p < 0.001$), and weight ($\beta = 0.10$, $p < 0.001$). Priority significantly mediated the effects of the authoritative style on appearance ($\beta = 0.04$, $p < 0.01$) and weight ($\beta = 0.03$, $p < 0.01$). Finally, atmosphere significantly mediated the effects of the permissive style on appearance ($\beta = 0.03$, $p < 0.01$), attribution ($\beta = 0.02$, $p < 0.05$), and weight ($\beta = 0.02$, $p < 0.05$).

Even though not all expected relationships among the variables achieved statistical significance, resulting in a suboptimal model fit, the initial findings highlighted a discernible path from the authoritative parenting style to the dimensions of BE through the atmosphere during family meals. Consequently, a second data-driven reduced model was examined to explore this path specifically.

Path analysis: testing model 2

The standardized parameter estimates for the direct paths of the reduced model are displayed in Table 6. The standardized structural coefficients (β) revealed that family meals atmosphere significantly predicted appearance ($\beta = 0.32$, $B = 0.37$, $se = 0.05$, $z = 8.05$, $p < 0.001$), attribution ($\beta = 0.18$, $B = 0.21$, $se = 0.05$, $z = 4.46$, $p < 0.001$), and weight ($\beta = 0.26$, $B = 0.36$, $se = 0.06$, $z = 6.43$, $p < 0.001$). Furthermore, family meals atmosphere was significantly influenced by the authoritative parenting style ($\beta = 0.47$, $B = 0.35$, $se = 0.03$, $z = 12.55$, $p < 0.001$).

Table 5. Mediating effects for the proposed model.

Mediating effect	Parameter	SE	Lower 95%CI	Upper 95%CI	β	z	p
Authoritative \Rightarrow Rules \Rightarrow Appearance	0.00	0.01	-0.01	0.02	0.00	0.36	0.721
Authoritative \Rightarrow Rules \Rightarrow Attribution	-0.00	0.01	-0.02	0.01	-0.00	-0.45	0.649
Authoritative \Rightarrow Rules \Rightarrow Weight	0.00	0.01	-0.02	0.02	0.00	0.37	0.710
Authoritative \Rightarrow Atmosphere \Rightarrow Appearance	0.11	0.02	0.07	0.15	0.13	5.62	<.001
Authoritative \Rightarrow Atmosphere \Rightarrow Attribution	0.08	0.02	0.04	0.12	0.09	4.02	<.001
Authoritative \Rightarrow Atmosphere \Rightarrow Weight	0.10	0.02	0.06	0.15	0.10	4.34	<.001
Authoritative \Rightarrow Priority \Rightarrow Appearance	0.03	0.01	0.01	0.06	0.04	2.91	0.004
Authoritative \Rightarrow Priority \Rightarrow Attribution	0.00	0.01	-0.02	0.02	0.00	0.34	0.731
Authoritative \Rightarrow Priority \Rightarrow Weight	0.03	0.01	-0.01	0.06	0.03	2.55	0.011
Authoritarian \Rightarrow Rules \Rightarrow Appearance	0.00	0.01	-0.01	0.02	0.00	0.36	0.722
Authoritarian \Rightarrow Rules \Rightarrow Attribution	-0.00	0.01	-0.02	0.01	-0.00	-0.45	0.652
Authoritarian \Rightarrow Rules \Rightarrow Weight	0.00	0.01	-0.02	0.02	0.00	0.37	0.712
Authoritarian \Rightarrow Atmosphere \Rightarrow Appearance	0.00	0.01	-0.02	0.03	0.00	0.32	0.752
Authoritarian \Rightarrow Atmosphere \Rightarrow Attribution	0.00	0.01	-0.02	0.02	0.00	0.32	0.753
Authoritarian \Rightarrow Atmosphere \Rightarrow Weight	0.00	0.01	-0.02	0.03	0.00	0.32	0.752
Authoritarian \Rightarrow Priority \Rightarrow Appearance	-0.00	0.01	-0.02	0.01	-0.00	-0.55	0.584
Authoritarian \Rightarrow Priority \Rightarrow Attribution	-0.00	0.00	-0.00	0.00	-0.00	-0.29	0.769
Authoritarian \Rightarrow Priority \Rightarrow Weight	-0.00	0.01	-0.02	0.01	-0.00	-0.55	0.586
Permissive \Rightarrow Rules \Rightarrow Appearance	-0.00	0.01	-0.02	0.01	-0.00	-0.36	0.722
Permissive \Rightarrow Rules \Rightarrow Attribution	0.00	0.01	-0.01	0.02	0.00	0.45	0.651
Permissive \Rightarrow Rules \Rightarrow Weight	0.00	0.01	-0.02	0.01	-0.00	-0.37	0.711
Permissive \Rightarrow Atmosphere \Rightarrow Appearance	-0.04	0.01	-0.06	-0.01	-0.03	-2.72	0.007
Permissive \Rightarrow Atmosphere \Rightarrow Attribution	-0.03	0.01	-0.05	-0.01	-0.02	-2.46	0.014
Permissive \Rightarrow Atmosphere \Rightarrow Weight	-0.03	0.01	-0.06	-0.01	-0.02	-2.52	0.012
Permissive \Rightarrow Priority \Rightarrow Appearance	-0.01	0.01	-0.03	0.00	-0.01	-1.71	0.087
Permissive \Rightarrow Priority \Rightarrow Attribution	-0.00	0.00	-0.01	0.01	-0.00	-0.34	0.734
Permissive \Rightarrow Priority \Rightarrow Weight	-0.01	0.01	-0.03	0.00	-0.01	-1.63	0.103

Table 6. Parameter estimates for the reduced model.

Dependent	Predictor	Estimate (B)	SE	Lower 95% CI	Upper 95% CI	β	z	p
Appearance	Atmosphere	0.37	0.05	0.28	0.46	0.32	8.05	<0.001
Attribution	Atmosphere	0.21	0.05	0.12	0.31	0.18	4.46	<0.001
Weight	Atmosphere	0.36	0.06	0.25	0.47	0.26	6.43	<0.001
Atmosphere	Authoritative	0.35	0.03	0.29	0.40	0.47	12.55	<0.001

Table 7. Parameter estimates for the reduced model.

Parameter	Estimate	SE	Lower 95% CI	Upper 95% CI	β	z	p
Authoritative \Rightarrow Atmosphere \Rightarrow Appearance	0.13	0.02	0.09	0.16	0.15	6.78	<0.001
Authoritative \Rightarrow Atmosphere \Rightarrow Attribution	0.07	0.02	0.04	0.11	0.09	4.20	<0.001
Authoritative \Rightarrow Atmosphere \Rightarrow Weight	0.13	0.02	0.08	0.17	0.12	5.72	<0.001

The mediating effects illustrated in Table 7 of the reduced model indicated that family meals atmosphere served as a significant mediator in the relationship between the authoritative parenting style and the three dimensions of BE: appearance ($\beta = 0.15$ $p < 0.001$), attribution ($\beta = 0.09$ $p < 0.001$) and weight ($\beta = 0.12$ $p < 0.001$).

Figure 3 illustrates the structural relationships between variables in the final model. The reduced model distinctly demonstrated that an authoritative parenting style promoted an enjoyable family meal atmosphere, subsequently fostering a positive BE. In the final model, the fit indices indicated excellent fit: $\chi^2 = 21$, $df = 3$, $p < 0.001$, CFI = 0.98, TLI = 0.92, GFI = 1, RMSEA = 0.10.

Discussion

The aim of this study was to examine the relationship between parenting styles, family meals, and positive body esteem (BE) in adolescents. The findings support our hypothesis and is

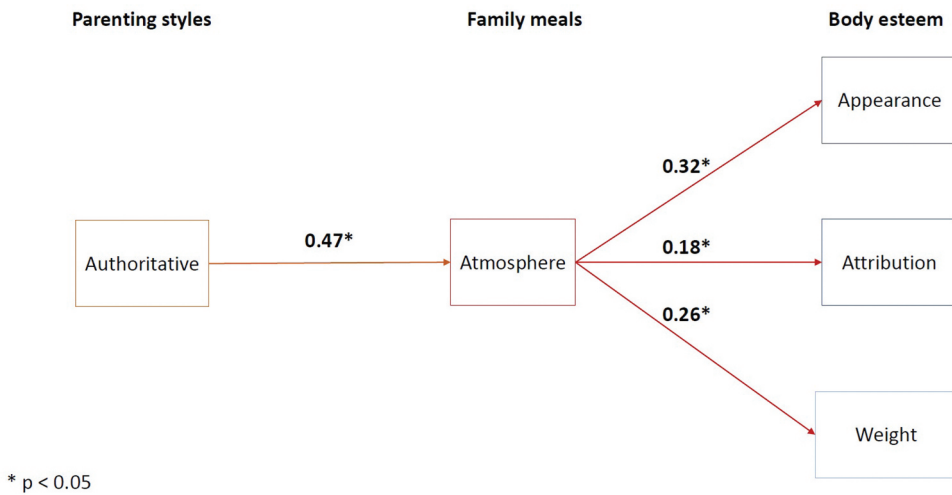


Figure 3. Structural relationships between variables in the final model.

consistent with the hypothesis of Berge, Wall, Neumark-Sztainer et al. (2010), who suggested that the relationship between authoritative parenting styles and more frequent family meals may be explained by the creation of a home environment where parental expectations, structure, and warmth encourage regular family meals. The impact of other parenting styles and family meals dimensions on the BE of Costa Rican adolescents was not observed. Because research on this topic is still limited, more studies in diverse geographic areas are essential to examine how results may vary across different social settings, as family dynamics are heavily influenced by the surrounding sociocultural factors (Moussa Rogers et al., 2024).

Our study underscores the importance of the family as a central intervention point for promoting positive BE in adolescents. Family systems theory (Bowen, 1993; Kerr & Bowen, 2009) emphasizes the interconnectedness of family dynamics, where changes in one member's behaviour can impact the emotional wellbeing of the entire household. When parents adopt an authoritative parenting style – characterized by warmth, structure, and clear communication – they create a supportive atmosphere during family meals, fostering emotional stability and connection (Skeer & Ballard, 2013).

In cultures where body weight and appearance are heavily stigmatized, adolescents who do not meet societal standards often experience lower body esteem (BE) and increased body dissatisfaction (Harrison et al., 2015). Our study suggests that authoritative parenting and a positive atmosphere are crucial in helping adolescents navigate these pressures. Supportive communication with parents that encourages positive body image perceptions helps adolescents build a healthy self-concept, enabling them to better navigate external body image expectations (Bowen, 1993; Kerr & Bowen, 2009; McCabe & Ricciardelli, 2003). This underscores the importance of viewing family meals as more than just mealtimes, but as an opportunity for open discussions that foster positive body image, helping adolescents build self-confidence and become more resilient to appearance-related pressures, which in turn leads to lower levels of body dissatisfaction (Grabe et al., 2008; Harrison et al., 2015; Tiggemann, 2015).

To our knowledge, this study is the first to explore the relationship between parenting styles, family meals, and adolescent BE, contributing new knowledge that is valuable for both academics and practitioners. The research underscores how a positive family meal atmosphere fosters cohesion, emotional connectedness, and support, which are critical for developing healthy BE in adolescents. Additionally, the study provides evidence that parenting styles characterized by structure, warmth, and open communication, particularly during family interactions like meals, significantly influence adolescent self-perception and their ability to resist societal pressures regarding body image.

By identifying the interplay between parenting styles and family meal dynamics, this study lays the groundwork for family-centred interventions that promote positive BE, allowing parents to create nurturing environments that help counteract societal and peer pressures. Additionally, it integrates factors that are often studied separately, providing a holistic view of the relationship between parenting styles, family meals, and BE. This approach expands academic understanding and offers actionable insights for improving adolescent wellbeing through family-based practices and interventions.

Nevertheless, our results highlight a concerning trend: adolescent involvement in family meals is markedly low, aligning with existing literature that consistently notes a decline in family meal participation during adolescence (Balantekin et al., 2020; Burgess-Champoux et al., 2009; Neumark-Sztainer et al., 2003; Videon & Manning, 2003; Walton et al., 2016). Considering this trend, public health stakeholders must devise strategies aimed at fostering the active participation of both parents and adolescents in family meals. The family meals framework (Middleton et al., 2022) can help understand the dynamics of family meals by focusing on five key components: cognitions, actions, outcomes, beliefs and feelings, and the person(s) responsible. This framework offers a new perspective on the cyclical nature of the work involved in family meals, providing valuable opportunities for intervention in research, practice, policy, and promotion.

Conclusion

This study shows that authoritative parenting – marked by warmth, structure, and open communication – cultivates a positive atmosphere during family meals, which plays a pivotal role in enhancing adolescent BE. By fostering a supportive and emotionally connected environment, parents can help adolescents navigate societal pressures and develop a healthier self-image. These findings highlight the significance of family meals as an opportunity to build resilience and self-confidence in adolescents, providing a foundation for developing family-based interventions that promote positive BE. However, given the decline in family meal involvement during adolescence, it is essential to implement strategies that encourage both parents and adolescents to prioritize and actively participate in shared meals. This study highlights the need for the academic community to engage in practical and committed research on this topic, contributing to a deeper understanding of the triad of parenting styles, family meals, and body esteem, as well as the development of strategies that encourage adolescent participation in family meals.

Limitations

Our findings must be interpreted with caution since: 1) Our sample lacked national representativeness, focusing only on urban and rural areas within the province of San José. Nevertheless, it's noteworthy that the largest proportion of Costa Rican adolescents (30%) reside in this province (Instituto Nacional de Estadística y Censos, Costa Rica., n.d.). Additionally, though our sample was limited to enrolled adolescents, approximately 80% of adolescents in Costa Rica are enrolled in secondary school (de la Nación, 2019). 2) For the sake of parsimony and sample size limitations, our data analysis did not include sex disaggregation (i.e. moderation effects) neither did we differentiate between maternal and paternal parenting styles. Future studies should explore these issues as well as the potential effect of parent/adolescent dyads (e.g. mother/son, father/daughter) on the association evidenced. Despite these limitations, our study represents a pioneering exploration aimed at uncovering potential associations between three variables (parenting styles, self-esteem, and family meals) that haven't been previously examined together. Future longitudinal research should incorporate these analyses to offer a more detailed landscape of the associations between these variables.

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

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Author contributions

R.MR.: Conceived and designed the study, collected and interpreted data, and wrote the manuscript. V.SC: Contributed importantly to the analysis and interpretation of data and assisted in writing the manuscript. R.VQ: Made major contributions to the interpretation of data and assisted in writing the manuscript. All authors have read and agreed to the published version of the manuscript.

Data availability statement

The data presented in this study are available upon request to the corresponding author.

Ethics statement

The study was conducted in accordance with the Declaration of Helsinki. The study protocol was approved by the Scientific and Ethics Committee of the Costa Rican Institute for Research and Education on Nutrition and Health (INCIENSA) under number IC200701. Written informed consent was obtained from the parents of all adolescents included in the study; likewise, oral and written informed assent was obtained from the adolescents.

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