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**Opinião dos pais e/
ou guardiões sobre o
conhecimento, atitudes e
comportamento alimentar
dos adolescentes: Um estudo
comparativo**

**| Views of parents and/
or guardians on knowledge,
attitudes, and eating behavior of
teenagers: a comparative study**

RESUMO | Introdução:

*O padrão de alimentação e as atitudes dos adolescentes em relação aos alimentos são influenciados por hábitos alimentares típicos, acesso e disponibilidade de alimentos, modos de preparação de alimentos em casa e renda familiar. **Objetivo:** Comparar os pontos de vista dos pais e/ou responsáveis sobre o conhecimento, atitudes e comportamentos alimentares de seus filhos adolescentes.*

Métodos: Um estudo transversal incluiu 275 adolescentes de ambos os sexos, com idade entre 12-17 anos, que frequentam escolas públicas e privadas em Teresina, Piauí, bem como seus pais e/ou responsáveis. Foi aplicado um questionário autoaplicado sobre tópicos semelhantes aos pais e aos adolescentes, sobre as atitudes e os sentimentos dos adolescentes após o almoço e jantar, bem como suas atitudes em relação a situações envolvendo alimentos e suas opiniões sobre alimentação saudável. **Resultados:** Relata-se que entre 60% e 90% dos adolescentes concordaram plenamente com as declarações sobre alimentos saudáveis e prejudiciais, porém parte considerável deles refere menor aversão a alimentos não saudáveis. Não houve evidência de que os pais estivessem cientes de aversões ou sentimentos de seus filhos adolescentes após comer ($p < 0,05$).

No entanto, os pais e/ou responsáveis estavam cientes de que seus filhos adolescentes poderiam distinguir alimentos saudáveis e prejudiciais. **Conclusão:** Os resultados destacam a necessidade de maior participação dos pais e/ou responsáveis na formação dos comportamentos alimentares dos adolescentes.

Palavras-chave | Adolescente; Pais; Comida; Conhecimento; Comportamento alimentar.

ABSTRACT | Introduction: The dietary patterns of adolescents and the attitudes of teenagers toward food are influenced by typical eating habits, food access and availability, preparation of food at home, and family income. **Objective.** To compare the views of parents and /or guardians about the knowledge, attitudes and eating behaviors of their teenage children. **Methods:** This cross-sectional study included 275 teenagers of both sexes, aged 12-17 years, attending public and private schools in Teresina, Piauí, and their parents and/or guardians. A self-administered questionnaire addressing similar issues was applied to parents and their teenage children. The questionnaire surveyed the attitudes and feelings of teenagers after lunch and dinner and other situations involving food, together with their opinions regarding healthy foods. **Results:** We found 60 to 90 % of teenagers fully agreed with the statements about healthy and unhealthy foods; however, many of them refers lower aversion to unhealthy foods. There was no evidence suggesting that parents were aware of aversions or feelings of their teenage children after eating ($p < 0,05$). However, parents and/or guardians were aware that their teenage children were able to distinguish between healthy and unhealthy foods. **Conclusion:** Our findings highlight the need for greater participation of parents and/or guardians in the formation of teenage children's eating behaviors.

Keywords | Teenage; Parents; Food; Knowledge; Feeding behavior.

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INTRODUCTION |

Eating is one of the most important needs for human development, not only biologically, but also because of its social, psychological, and economic aspects. In childhood and adolescence, proper eating behavior is critical, since these are intense periods of growth and development^{1,2}.

Several studies have found that adolescents reject natural foods such as fruits, vegetables, and herbs, and are increasingly consuming fast foods. These studies have found that regular consumption of these foods after the pubertal growth spurt exceeds the daily energy, fat, and sodium recommendations, and reduce the intake of micronutrients and fiber, increasing the risk of chronic diseases³.

The dietary patterns of adolescents and the attitudes of teenagers toward food are influenced by typical eating habits, food access and availability, preparation of food at home, and family income. Adolescents are influenced by their families' psychological, socioeconomic, and cultural environments¹.

It is therefore essential for parents and/or guardians to have good eating habits, because they influence feelings and attitudes of their teenage children toward eating through stimulation and sensations^{4,5}.

Considering the importance of nutrition in teenager rearing and growth, and the parents' influence on eating habits, we designed a comparative study examining views of parents and/or guardians on knowledge, attitudes, and eating behaviors of their teenage children.

METHODS |

This cross-sectional study was carried out with adolescents participating in Cardiovascular Risk Study in Adolescents Initiative (Portuguese acronym: ERICA), a National research for recognition of school-based, with the purpose of estimating the prevalence of diabetes mellitus, obesity, cardiovascular risk factors and markers of insulin resistance and inflammatory markers in adolescents from schools in Brazilian cities with more than 100,000 inhabitants.

Inclusion criteria were as follows: adolescents aged 12 to 17 years old, enrolled in public or private schools. Pregnant

adolescents and those with physical and mental disabilities, temporary or permanent, were excluded from the sample. The result of the sample calculation for state of Piauí, based on the population of Teresina, was 1,980 adolescents from 33 schools.

In ERICA, the sample was stratified according to the municipality districts. After geographical stratification, a successive selection was implemented in two phases: the selection of schools and the selection of classes. Ultimately, three classes per school were examined. The selection of proportional geographic probability was performed in each geographic stratum after classification of schools as urban or rural, and private or public. All students belonging to the selected classes were invited to participate.

The results this study refers to an additional ERICA project in Teresina, Piauí. We used a subsample of the ERICA participants, including students and their parents and/or guardians. Thirty public and private schools were randomly selected⁶. The samples were matched according to identifiers so that each student's answers would be related to that of their parent and/or guardian. Three field teams consisting of researchers, undergraduate students, and graduate students of the Postgraduate Program in Food and Nutrition of the Federal University of Piauí. Questionnaires for adolescents and parents/guardians were designed.

The self-administered questionnaires were answered by adolescents at the school in the presence of the search field team; and each student was responsible for getting their parents/guardians to answer the questionnaire in their own residence and returned to the field team at school. The questionnaires returned by parents were matched to their children's through coding which allowed the identification of pairs to analyze the responses.

We aimed to identify food likes and dislikes, as well as attitudes and feelings after eating. We chose to investigate the foods served during lunch and dinner, because these are larger meals and include larger portions of healthy and unhealthy foods, such as vegetables, leafy vegetables, fish and fatty red meat, fruits, natural and industrialized juices, as well as fast foods such as sandwiches, snacks, filled biscuits or chocolates chips, soda and ice cream.

The questionnaire consisted of four questions regarding healthy or unhealthy foods groups, with the aim of collecting information on:

I. The adolescents' reactions to food itself, comprising 14 food alternatives.

II. The reactions to being invited to grocery shopping, comprising three alternatives related to food preferences and aversions when being invited in grocery shopping.

III. Opinions on statements about healthy foods, consisting 10 alternatives to assess awareness of healthy eating habits.

Standardized procedures were adopted to prevent or minimize systematic or random errors during data collection, ensuring data quality. After selecting project collaborators, the field teams were trained and certified prior to data collection, and were re-evaluated periodically. The training was undertaken by a team of researchers using manual procedures, and the questionnaires were tested for reliability.

Data were entered into an electronic spreadsheet (Microsoft® Office Excel® 2007) by three of the researchers, to avoid errors. Data was analyzed using the IBM SPSS Statistics (v. 20.0). Descriptive statistics were used to determine the frequencies and percentages of each event. We tested the concordance of teenagers' responses and those of their guardians through the McNemar chi-square test. Statistical significance was set at $p < 0.05$ for all tests.

This study was approved by the Research Ethics Committee of the Federal University of Piauí, under number 406353 (CAAE

05185212.2.2002.5214). Informed consent forms were signed by students and their parents and/or guardians. The privacy of participants was guaranteed during data collection.

RESULTS |

The study population consisted of 275 adolescents enrolled in public and private schools in the city of Teresina, Piauí, each student was accompanied by their parents and/or guardians.

From the sample of adolescents provided by ERICA³⁰, 1507 (76%) answered the self-administered questionnaire, showing a loss of 24%, justified by the teenager's absence from school on the day the questionnaires were distributed. Of the 1507 adolescents, 302 of them (20%) returned the questionnaire answered by their parents/ guardians, so, it was possible to pair 275 (91%) questionnaires, the final sub-sample of this study.

On average, only 49% of parents and/or guardians gave the same answer as their teenage children, with a standard deviation of 9%.

While the proportion of teenagers who reported aversion to fast food is lower than those reporting aversion to fruits or juices, there was no significant difference in the proportion. The proportion of teenagers averse to vegetables is high, but not significantly different from those with an aversion to industrial juices or leafy vegetables (Figure 1).

Figure 1 - Proportion of teenagers with aversion to studied food, McNemar chi-square test ($p > 0.05$)

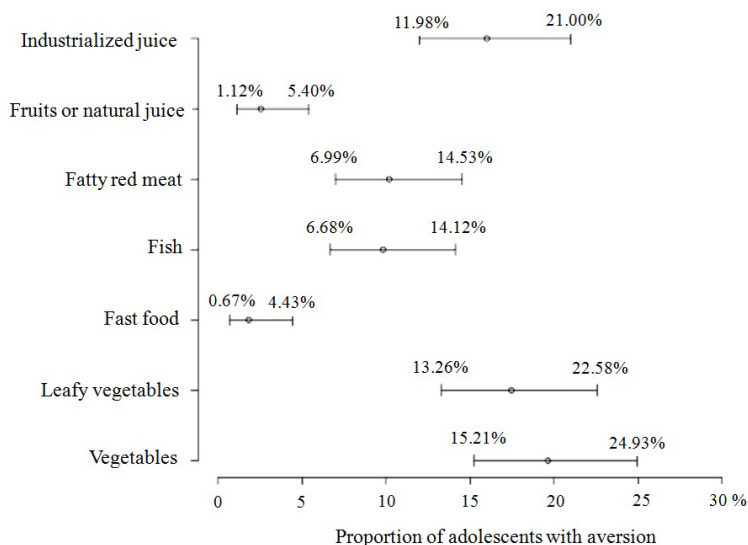


Figure 2 shows a comparison between the answers given by adolescents and their parents and/or guardians about their aversion to certain foods. There was a significant difference between the responses ($p < 0.05$), indicating that parents and/or guardians may not be aware of their teenage children dislike of certain foods.

Adolescents' responses about their attitudes toward grocery shopping, including buying fruits or vegetables, snacks, stuffed biscuits, or chocolates were compared with the perceptions of their parents and/or guardians about the attitudes of their teenage children toward such an invitation. There were significant differences between the responses ($p < 0.05$), except for the item 'I think before accepting' (Table 1).

Figure 3 shows responses of parents and/or guardians and responses of their teenage children when questioned about their opinions on statements about their food-related knowledge.

We also found that 60 to 90 % of teenagers were aware of healthy and unhealthy food choices, since most of them agreed with the stated assertions (Figure 3). There were no significant differences between the responses of adolescents and their parents and/or guardians, indicating that parents and/or guardians know opinions of their teenage children on this topic ($p > 0.05$).

Figure 2 - Percentages of the answers given by teenagers about aversion to certain foods and the opinion of parents and/or guardians about these aversions, McNemar chi-square test ($p < 0.05$)

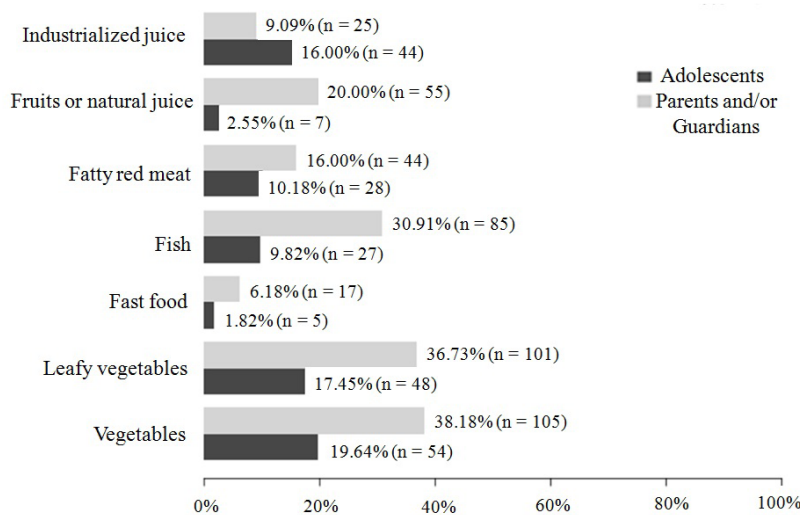
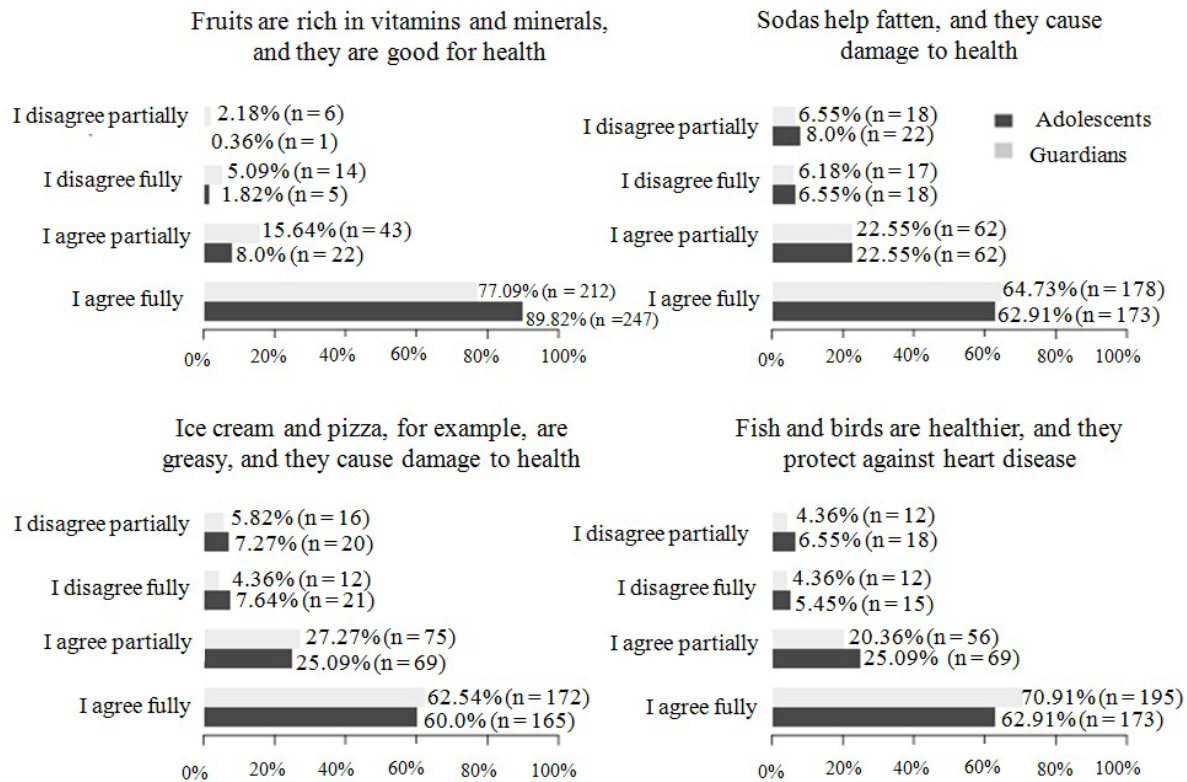


Table 1 - Comparison between answers of parents and/or guardians and attitudes of their teenage children toward being invited to buy groceries in Teresina, Piauí

	Reactions to being invited to buy fruits or vegetables		
	I do not accept	I accept immediately	I think before accepting
	% (n)	% (n)	% (n)
Teenagers	13.09% (36)	61.09% (168)	25.82% (71)
Parents and/or guardians	38.55% (106)	34.91% (96)	26.55% (73)
	Reactions to being invited to buy snacks, biscuits, chocolates, or other similar foods		
	I do not accept	I accept immediately	I think before accepting
	% (n)	% (n)	% (n)
Teenagers	4% (11)	78.55% (216)	17.45% (48)
Parents and/or guardians	18.55% (51)	61.09% (168)	20.36% (56)

Figure 3 - Comparison between agree and disagree answers to statements about healthy and unhealthy food given by teenagers and by their parents and/or guardians, McNemar chi-square test ($p > 0.05$)



DISCUSSION |

This comparative study was conducted with teenagers and their parents and/or guardians to examine their aversions and opinions on food, and to assess to what extent their parents and/or guardians knew about awareness of healthy/unhealthy food, attitudes, and feeding behaviours of their teenage children. Our findings highlight the importance of parental influence on attitudes, behaviors, and dietary knowledge of their teenage children. Additionally, parents and/or guardians are responsible for influencing eating habits and perceptions of food of their teenage children. Hence, it is necessary for children to be exposed to a healthy eating environment from an early age.

The family presence during meals is positively associated with healthy eating, since they are the main reference for your children in the habit formation process and eating behaviors^{7,8}.

Nutrition has an essential role as it favors proper age-related growth and development. Awareness of healthy food

consumption and representations about healthy eating during adolescence have been gaining increased attention, as evidence of the relationship between inappropriate eating habits and the development of certain diseases in adult age has become more solid⁹.

Recent studies have shown important changes in food choices after nutritional interventions with adolescents, increasing their preference for healthy eating^{10,11}.

Teenagers often prefer processed and unhealthy foods. Based on the food aversions of the surveyed adolescents, we must emphasize the need to educate teenagers about the importance of healthy eating, since excessive and frequent consumption of high fat- and sugar-containing foods may lead to chronic diseases, such as obesity, cardiovascular disease, hypertension, diabetes mellitus, and some forms of cancer¹²⁻¹⁴. Among the most frequent complications are changes in blood pressure and serum triglycerides, low HDL levels and high fasting glucose^{15,16}.

Fisberg¹⁷ has demonstrated that early onset of chronic diseases in adolescence is related to poor health status and quality of life in adulthood. Comorbidities previously seen in older adults, such as diabetes mellitus and hypertension, are increasingly found in children and adolescents because of sedentary lifestyles and inadequate diet.

The differences between adolescents' responses to the questionnaire and the perceptions of their parents and/or guardians about food aversions of their teenage children may lead to the hypothesis that parents and/or guardians are not aware of their teenage children's eating habits. Studies have shown that this behavior can be caused by lack of time and hectic lifestyle of the parents who work every day and often full-time, making it more difficult for sharing meals at home with their children. Moreover, many teens say that eat away from home, with friends, in the leisure time and for fun¹⁸⁻²⁰.

It should be noted that the parental influence on children's eating behavior in relation to the education they receive in childhood. Russel *et al* have evaluated the attitudes of parents attempting to influence the food preferences of their children; the study shows that parents who do not usually surrender to the wishes of their children exert a positive influence the preferences of their children. However, other researchers found that a too restrictive and authoritarian attitude of parents/guardians may favor the consumption of more fatty and high-calorie foods when the children begin the process of food autonomy, in other words, the choice for food²²⁻²⁴. Costa *et al.*¹ have shown that adolescents' eating behaviors are often not understood or known by parents, which in many cases triggers unhealthy eating styles. Our results are consistent with this finding. Previous studies have stressed the importance of family involvement in encouraging adolescents to consume healthy foods, which promotes increased healthy choices, purchases, and food preparation among adolescents²⁵.

Pearson *et al.*²⁶ have argued that the omission of families may lead to an increased reliance on take-out meals, consumption of nutritionally inadequate foods, and skipping meals. Teenage children relate mealtime with the family environment, where they are welcomed and protected. When parents and/or guardians show interest in healthy eating and invite their teenage children to participate in making food choices and in meal preparation, this stimulates children's interest in adopting healthy habits.

Walsh *et al.*²⁷ have demonstrated an association between the dietary intake of parents and children aged 20 months to 5 years, indicating that parents' influence on children's eating habits begins at a young age and continues throughout early childhood. The authors also reported that parents should be included in interventions for improving the dietary behavior of children.

Family participation plays an important role in shaping eating habits, because the parents and/or guardians are usually responsible for buying and preparing the food consumed at home. The accelerated growth and development in adolescence is considered a vulnerable phase which is sensitive to eating habits and nutrition; this demonstrates the importance of encouraging healthy eating choices early in life²⁸.

According Cambraia *et al.*²⁹, eating behaviors and food choice consist of different components, such as cognitive factors corresponding to knowledge of food and nutrition, and emotional factors, which correspond to their emotional relationship with food. Adolescence is characterized by physiological, psychological, and social changes, as well as an intense search for individual identity and independence. These factors can increase vulnerability and expose teenagers to nutritional risks.

Costa *et al.*¹ have emphasized the crucial role of parents/guardians in promoting healthy eating habits, stressing that those habits acquired in childhood may be maintained throughout adulthood. Although teenagers know about healthy eating and its importance for health, they do not necessarily follow healthy eating patterns, since guilt was not often observed among their emotional responses after the intake of high-calorie foods.

Some researchers⁴ have suggested that easy access to nutritionally inadequate foods promote a gap between the understanding of the consequences of healthy eating and adolescents' eating habits, as seen in the increased consumption of non-nutritious snacks, fast food and treats to replace main meals. Processed foods are low in vitamins and minerals and high in saturated fats, sodium, and simple sugars, all of which may promote the onset of chronic diseases. Unhealthy eating habits may carry negative physical and psychological consequences, affecting the health and the quality of life of adolescents.

CONCLUSION |

The differences between adolescents' responses to the questionnaire and the perceptions of their parents and/or guardians about food aversions of their teenage children suggest that parents and/or guardians may not be aware that their teenage children dislike certain foods.

This study shows that teenagers are aware of healthy and unhealthy food choices and that parents and/or guardians know the views of their teenage children on this topic.

Our findings highlight the importance of parental influence on attitudes, behaviors, and dietary knowledge of their teenage children.

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