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Tracking of dietary patterns from childhood to adolescence

ABSTRACT

OBJECTIVE: To review the scientific literature on the tracking of dietary patterns from childhood to adolescence.

METHODS: A search of the MEDLINE/PubMed, Lilacs and SciELO databases was performed, using the following key words: "tracking", "dietary patterns" and "childhood/adolescence" and their respective synonyms. A total of 45 abstracts were found and, after the inclusion criteria were applied, 13 articles were included. The tracking of dietary patterns was assessed by three main statistical analyses: (Pearson or Spearman) correlation coefficients, kappa coefficient and probability analysis.

RESULTS: The tracking of dietary patterns ranged from weak to moderate between the childhood-childhood and childhood-adolescence periods. During adolescence, there appears to be no tracking.

CONCLUSIONS: Dietary patterns in childhood may continue until adolescence, although such patterns may be changed or discontinued throughout adolescence.

DESCRIPTORS: Child. Adolescent. Food Habits. Food Preferences. Food and Nutrition. Education. Review.

INTRODUCTION

A demographic, epidemiological and nutritional transition is occurring worldwide.[1] Changes in global patterns of food sources, forms of processing and distribution have led to the predominance of highly processed foods and beverages.[14] The consequences of changes in the frequency of intake and in food and beverage preparation are the general imbalance in energy intake and the increase in the prevalence of obesity. These changes first appeared in high-income countries and now affect billions of individuals.[14]

Cardiovascular diseases, largely associated with overweight, are one of the main causes of death in the adult Brazilian population.[23] Nearly 1/5 of Brazilian adolescents are overweight, according to the 2008 Household Budget Survey.[a]

An adequate diet and regular physical activity are proven protective factors against overweight and chronic diseases.[23] Maintaining healthy eating habits since childhood and throughout life is one of the requirements for a healthy life. Studies show low tracking of dietary patterns throughout life. In epidemiology, the term "tracking" is defined as the stability of a given variable during a certain period of time.[6,21] Diet tracking represents the maintenance of eating habits, nutrient intake or food intake throughout time. The continuity of these habits can be understood as positive or negative behavior, depending on the eating habits.

[a] Instituto Brasileiro de Geografia e Estatística. Pesquisa de Orçamentos Familiares 2008-2009: Antropometria e estado nutricional de crianças, adolescentes e adultos no Brasil. Rio de Janeiro; 2010.

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Studies can identify a negative variation in patterns when there is a change from a pattern considered to be healthy to another with a lower nutritional quality.[12] The literature includes a wide variety of methods used to assess tracking.[4,7,11,13]

The percentage of individuals who maintain their positive or negative dietary pattern throughout childhood (zero to nine years) and adolescence (ten to 19 years) varies according to the population group.

Eating habits, whether healthy or unhealthy, acquired and established during adolescence, are very likely to continue throughout adult life.[9,10] However, between childhood and adolescence, the tracking of dietary habits or patterns has not been clearly identified yet. This assessment is important, considering the fact that healthy food intake promotion measures should be prioritized from the first years of childhood if dietary patterns are in fact stable from childhood to adolescence, so that healthy eating habits can be acquired and maintained throughout one's life cycle.

The present study aimed to review the scientific literature on the tracking of dietary patterns from childhood to adolescence.

METHODS

A scientific literature review of the MEDLINE/PubMed, Lilacs and SciELO databases was performed. In addition, the bibliographical references of the articles found were searched.

The following were adopted as inclusion criteria: a longitudinal design with an analysis of tracking from primary data; a period of follow-up longer than one year; and date of publication until July 2010. Studies were included regardless of an analysis adjusted for confounding factors being performed.

The following were adopted as exclusion criteria: ill individuals; individuals aged 20 years or more; assessment of time trends in food intake without an analysis of the continuity/stability of dietary patterns; different observational cohort study designs; review articles, theses and dissertations; and relevant methodological problems, such as an excessive number of losses/refusals during follow-up without an analysis being presented.

A search was performed from a syntax of the following title and abstract words (search limits): "tracking, change, continuing, stability" to find articles that assessed continuity; "nutrient intake, dietary patterns, dietary intake, diet" to search for the dietary patterns; and "childhood, infants, adolescence, adolescent" to identify the age group. In addition to words used in groups, other synonyms were included. The syntax corresponded to the search for articles that had at least one word from each of the groups in their title or abstract.

These terms were used alone and in a combined form in the Lilacs and SciELO databases, as these do not have the option to input syntax.

RESULTS

A total of 4,441 titles were identified. Of these, 4,396 were excluded when the titles were read, based on the inclusion and exclusion criteria. Subsequently, 45 abstracts were read and 15 articles were selected. Among these, three were excluded because of the high number of losses in the study and because of the lack of an analysis, and one was included from the bibliographical references as it dealt with the term "food group intake", thus totaling 13 articles (Figure).

A total of three main types of statistical analyses were identified in the assessment of tracking: correlation coefficients (Pearson or Spearman), kappa coefficient and probability analysis (Table 1).

There were six studies that assessed tracking during childhood, of which five performed a correlation analysis; one, the kappa coefficient agreement analysis; two, the paired t-test; and four, probability analyses, aiming to assess the continuity of the dietary pattern identified in the beginning of the follow-up. One article was mentioned more than once as more than one type of analysis was performed (Table 2).

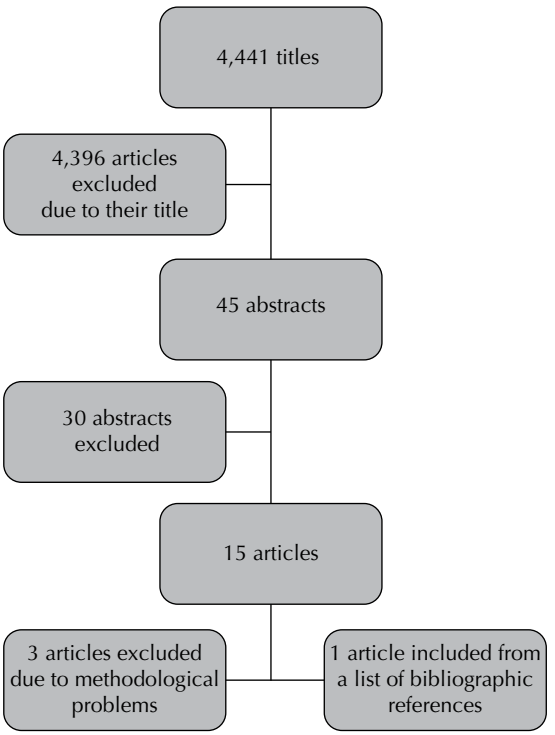

Figure. Flow chart showing the results of the bibliographical review.

Table 1. Summary of the main methodological aspects of articles included from the systematic review.

Author	Year	n	Location/Study	Food questionnaire	Nutrients and/or food assessed
Tracking of dietary patterns during childhood (zero to nine years)					
Nicklas et al[11]	1991	50	Louisiana State University Medical Center Bogalusa Heart Study	24-hour recall with food models	Energy, animal and vegetal protein, carbohydrate, sugar, total fat, saturated fat, polyunsaturated fat, cholesterol and starch
Stein et al[20]	1991	181	Manhattan (New York City) Columbia University Study of Childhood Activity and Nutrition	24-hour recall with 3D models of utensils	Energy, total fat, saturated fat, polyunsaturated fat, protein, carbohydrate, cholesterol, sodium, potassium and calcium
Singer et al[19]	1995	95	Massachussets The Framingham Children's Study	Three-day food diary	Protein, carbohydrate, total fat, saturated fat, monounsaturated fat, polyunsaturated fat, cholesterol, calcium, sodium and potassium
Deheeger et al[5]	1996	112	Paris Public Health Centers	Dietary history	Energy, protein, fat and carbohydrate
Mannino et al[8]	2004	181	Pennsylvania Longitudinal Study of the Health and Development of Young Girls	24-hour recall (three days) with photographs of portion sizes	Energy, total and saturated fat, carbohydrate, protein, sucrose, cholesterol and fibers + vitamins and minerals
Northstone et al[13]	2008	6.177	Avon (Inglaterra) Avon Longitudinal Study of Pregnancy and Childhood (ALSPAC)	Food Frequency Questionnaire	Main component analysis: quintiles of patterns
Tracking of dietary patterns during adolescence (ten to 19 years)					
Cusatis et al[4]	2000	81	Pennsylvania Penn State Young Woman's Health Study	Three-day food record	Iron Vitamin C % energy from fat % energy from sugar (mono- and disaccharides) Total score of diet (0-1 if meeting the recommendation)
Robson et al[17]	2000	455 451	Irlanda do Norte Young Hearts Project	Dietary history with photographs of portion sizes	Energy, micro- and macronutrients
Li et al[7]	2007	181	Chicago Healthy Eating and Active Lifestyles from school to Home for Kids (HEALTH-KIDS) Study	Food Frequency Questionnaire	Energy, fat, fiber and calcium Groups: fruits and vegetables, fried foods, sweetened beverages with sugar and snack foods Principal Component Analysis: western, eastern and dairy products
Tracking from childhood to adolescence					
Boulton et al[3]	1995	252	Australia Adelaide Nutrition Study	Three-day recall with weighting	Energy, fat and calcium Total cholesterol, LDL-cholesterol and HDL-cholesterol
Resnicow et al[15]	1998	561	Atlanta, USA Gimme5 Intervention Trial	Seven-day record	Fruits and vegetables
Zive et al[24]	2002	228	California, USA San Diego Study of Children's Activity and Nutrition (SCAN)	Food record 24-hour recall	Energy, fat and sodium
Wang et al[22]	2002	984	China China Health and Nutrition Surveys	24-hour recall during three consecutive days (validated with the Basal Metabolic Rate)	Fat, carbohydrate, energy, fruits, vegetables, meat and oils

Table 2. Tracking of dietary patterns during childhood, stratified according to type of analysis.

Author	Year	Follow-ups	Outcomes	Analysis	Results
Correlation Analysis					
Nicklas et al[11]	1991	At 6 months 1, 2, 3 and 4 years	Energy intake, animal and vegetal protein, carbohydrate, sugar, total fat, saturated fat, polyunsaturated fat, cholesterol and starch	Spearman correlation	Between two and four years (higher coefficients) Energy: 0.59 Total protein: 0.65 Fat: 0.53 Carbohydrate: 0.46 All with $p < 0.001$
Stein et al[20]	1991	At 3-5 years 6-8 years	Energy intake, total fat, saturated fat, polyunsaturated fat, protein, carbohydrate, cholesterol, sodium, potassium and calcium	Pearson's correlation	Coefficients (95%CI) Energy: 0.43 (0.30;0.54) Total fat: 0.41 (0.28;0.52) Protein: 0.43 (0.30;0.54) Carbohydrate: 0.40 (0.27;0.52)
Singer et al[19]	1995	At 3-4 years 5-6 years 7-8 years	Protein, carbohydrate, total fat, saturated fat, mono- and polyunsaturated fat, cholesterol, calcium, sodium and potassium	Spearman correlation	Between 3-4 5-6 years: Coef. (95%CI) Protein: 0.47 (0.26;0.54) Carbohydrate: 0.63 (0.46;0.76) Fat: 0.61 (0.43;0.74) Between 3-4 7-8 years: Coef. (95%CI) Protein: 0.38 (0.16;0.56) Carbohydrate: 0.57 (0.39;0.71) Fat: 0.55 (0.36;0.69) Between 5-6 7-8 years: Coef. (95%CI) Protein: 0.46 (0.27;0.62) Carbohydrate: 0.65 (0.50;0.76) Fat: 0.62 (0.46;0.74)
Deheeger et al[5]	1996	At 10 months 2, 4, 6 and 8 years	Energy, protein, fat and carbohydrate	Unspecified correlation	Between four and eight years* (higher coefficients) Protein: 0.48 Energy: 0.54 Between six and eight years* (for all nutrients) coefficients varied between 0.48 and 0.56 * $p < 0.001$
Northstone et al[13]	2008	At 3, 4, 7 and 9 years	Main component analysis (quintiles)	- Spearman correlation	The three patterns (processed, traditional and healthy) tracking from 3 to 9 years ($r > 0.35$; $P < 0.0001$) A pattern of snacks was only assessed at 3 years and it was correlated to the processed pattern at 4, 7 and 9 years

To be continued

Table 2 continuation

Author	Year	Follow-ups	Outcomes	Analysis	Results
Kappa coefficient					
Northstone et al[13]	2008	At 3, 4, 7 and 9 years	Main component analysis (quintiles)	- Weighed kappa	The lowest coefficient was for the traditional pattern from 3 to 9 years (k = 0.28) The highest coefficients were for the healthy pattern from 4 to 7 years and for the processed pattern from 7 to 9 years (k = 0.47)
Paired-t test					
Stein at al[20]	1991	At 3-5 years 6-8 years	Energy intake, total fat, saturated fat, polyunsaturated fat, protein, carbohydrate, cholesterol, sodium, potassium and calcium	- Paired t-test – change in mean score throughout time	Percentage of fat, protein, carbohydrate and sodium did not show differences in mean intakes
Northstone et al[13]	2008	At 3, 4, 7 and 9 years	Main component analysis	- Paired t-test	The only significant mean difference in scores of patterns was 0.10 ($p < 0.001$) for the processed pattern from 3 to 9 years
Probability analysis					
Stein et al[20]	1991	At 3-5 years 6-8 years	Energy intake, total fat, saturated fat, polyunsaturated fat, protein, carbohydrate, cholesterol, sodium, potassium and calcium	- Cross-classification tables (maintenance in the quintiles)	Remained in the highest quintile of intake from 3-5 years to 6-8 years Energy: 55.6% Total fat: 47.2% Protein and carbohydrate: 44.4%
Nicklas et al[11]	1991	At 6 months 1, 2, 3 and 4 years	Energy intake, animal and vegetal protein, carbohydrate, sugar, total fat, saturated fat, polyunsaturated fat, cholesterol and starch	- Chi-square of independence (maintenance of tertiles)	Remained in the highest tertile of intake from 2 to 4 years Sugar: 59% Energy and total fat: 65% * Statistically significant difference
Singer et al[19]	1995	At 3-4 years 5-6 years 7-8 years	Protein, carbohydrate, total fat, saturated fat, mono- and polyunsaturated fat, cholesterol, calcium, sodium and potassium in quintiles of intake	- Unspecified test	Remained in the highest quintile of intake From 3-4 to 5-6 years: 35.7 to 57.1% From 3-4 to 7-8 years: 40 to 66.7% From 5-6 to 7-8 years: 41.2 to 58.8%
Deheeger et al[5]	1996	At 10 months 2, 4, 6 and 8 years	Energy, protein, fat and carbohydrate	- Analysis of proportions	Remained in the highest tertile of energy intake From 10 months to 2 years: 56% From 2 to 4 years: 60% From 4 to 6 years: 63% From 6 to 8 years: 68%
Mannino et al[8]	2004	At 5, 7 and 9 years	Energy, total and saturated fat, carbohydrate, protein, sucrose, cholesterol and fiber + vitamins and minerals	- Descriptive (plots) - Percentage of agreement between quartiles of intake: chi-square goodness-of-fit (considers the value observed and that randomly expected)	Energy, protein, cholesterol, vitamins D and E, phosphorus, magnesium, iron and zinc showed the highest level of tracking. Among the food groups, fruits and vegetables showed the highest level of tracking

A total of five articles that performed the correlation analysis were consistent and showed coefficients equal to or higher than 0.40, regardless of the dietary pattern assessed and the period between assessments.

One study used the kappa coefficient and found three dietary patterns, obtained with principal component analysis (PCA), known as "healthy", "traditional" and "processed". Paired t-test was also used to assess the difference in means of dietary pattern scores between periods. In addition, another study used the t-test and found statistically significant differences between mean intakes between the first and third years, except for polyunsaturated fat. The remaining tests were used to estimate the proportion of children who remained in the same percentiles of intake during the periods analyzed.

The studies that assessed tracking during childhood found a moderate level of tracking in this stage and reasonable stability of eating habits in the cohort of children. All of them showed correlation coefficients indicative of the presence of continuity of dietary patterns and the majority showed percentages higher than 50% of children who remained in the same percentiles of intake during a certain period.

A total of three studies assessed the continuity of dietary patterns during adolescence and one of them assessed tracking with only one test (kappa coefficient). Other two studies used correlation analysis and probability analysis and/or kappa coefficient.

The results obtained from correlation showed coefficients between 0.3 and 0.6 (fair to moderate) in both studies that performed this type of assessment (Table 3).

A total of two studies assessed the continuity of food intake using kappa coefficient and one study also performed a correlation analysis, obtaining similar results in both assessments; these two tests revealed poor tracking. Among those that performed probability analyses, the results of the first study in Table 3 showed an absence of tracking during six years of follow-up. However, the study conducted by Li & Wang[7] found that approximately 40% of adolescents remained in the same quartile of intake of the nutrients assessed.

A total of four studies assessed tracking between childhood and adolescence (Table 4). There were three studies using the correlation test that showed similar results. Authors considered the coefficient values to be from weak to moderate ($0.18 \leq r \leq 0.68$) during different assessment periods: three, six and 15 years of follow-up.

Finally, there were two studies that used the kappa coefficient to assess the presence of tracking of nutrient intake and found coefficients associated with weak tracking ($k \leq 0.38$).

DISCUSSION

The results found point to the presence of weak to moderate tracking during the three periods. However, such results derived from different statistical approaches.

With regard to the statistical analyses used to assess tracking (Pearson and/or Spearman correlation analysis, kappa coefficient and probability analysis), relevant points must be considered. In the assessment performed using correlation, the intake is analyzed in terms of continuous numerical values in grams or proportion of calories between both assessments. Perfect tracking would be represented by a correlation coefficient equal to one. Thus, the amount of food or nutrient consumed in the first assessment should be the same or change proportionately in the same direction for all individuals. Studies that used this type of analysis adopted the following classification: absence of tracking ($r < 0.2$), weak tracking ($0.2 < r \leq 0.4$) and moderate tracking ($r > 0.4$).

The kappa coefficient assesses the agreement of food intake (usually divided into percentiles) among two or more follow-up periods. The kappa coefficient value excludes the agreement that would be randomly expected. This method was used by five[7,13,15,17,22] out of the 13 studies of this review and it showed weak tracking, regardless of the period assessed.

The probability analysis assesses the continuity of food intake in a position or grade after a certain period. In this assessment, individuals placed in the highest or lowest percentiles in the initial assessment are taken into consideration.

The results found during childhood point to moderate tracking, suggesting a continuity of intake throughout this age group. This is because children's diet is closely monitored and defined by the family, especially the purchase and preparation of foods.[16,18]

The results obtained during childhood were consistent, considering the magnitude of coefficients and the probability of individuals remaining in the same percentile of intake throughout time. Studies showed the presence of continuity of intake between two and six years of follow-up. In the analysis with correlation, coefficients varied from 0.40 to 0.60 (moderate continuity).

The same consistency is not observed during adolescence. One of the studies[4] did not show continuity of intake of the nutrients assessed. Another study, conducted in Northern Ireland,[17] showed weak to moderate tracking with kappa coefficient and a third study[7] evidenced tracking with the analyses performed (correlation, kappa and probabilities), although its assessments had been conducted during a period of one year. Thus, the results pointed to weak tracking of food intake for periods equal to or lower than three years between assessments. This is probably the period when there is the greatest diversity of foods.

Table 3. Tracking of dietary patterns during adolescence, stratified according to type of analysis.

Author	Year	Follow-ups	Outcomes	Analysis	Results
Correlation analysis					
Cusatis et al[4]	2000	At 12, 17 and 18 years From 12 to 16 years, follow-ups were performed at every six months	Iron Vitamin C % of energy from fat % of energy from sugar Total score of the diet (0-1 if meeting the recommendation)	Pearson correlation and self-correlation parameters (strength of association - PROC MIXED)	Higher coefficients in the entire period Iron, vitamin C, fat and sugar: between 0.33 and 0.44 From 15-18 years Total score of the diet: 0.53 Both with non-significant self-correlation tests indicating an absence of tracking
Li et al[7]	2008	At 10-14 years 11-15 years	Energy, fat, fiber and calcium Groups: fruits and vegetables, fried foods, sweetened beverages and snack foods Principal Component Analysis: western, eastern and dairy products	Pearson and Spearman correlation ($r > 0.2$ indicates tracking)	Energy, fat, fiber, calcium, fruits and vegetables, fried foods, snack foods and western dietary pattern: coefficients between 0.44 and 0.53 Sweetened beverages: 0.28 Percentage of energy from fat: 0.20 * All coefficients were statistically significant ($p < 0.05$)
Kappa coefficient					
Robson et al[17]	2000	At 12 and 15 years	Energy, macro- and micronutrients	Kappa - 3x3 matrix 25th, 50th and 75th percentiles k < 0.2 weak k 0.21 – 0.40 fair k 0.41 – 0.60 moderate k 0.61 – 0.80 substantial k 0.81 – 1.0 almost perfect	Macronutrients: Coefficients between 0.09 and 0.28 Micronutrients (Fe, Ca, thiamin, riboflavin, vitamins B6, A, C, D and folate): coefficients between .13 and .31
Li et al[7]	2008	At 10-14 years 11-15 years	Energy, fat, fiber and calcium Groups: fruits and vegetables, fried foods, sweetened beverages and snack foods Principal Components Analysis: western, eastern and dairy products	Kappa k > 0.2 track k ≥ 0.4 moderate track k ≥ 0.8 almost perfect track	Coefficients between 0.30 and 0.37 for energy, fat and fiber, fruits and vegetables, friend foods and snack foods
Analysis of probabilities					
Cusatis et al[4]	2000	At 12, 17 and 28 years From 12 to 16 years, follow-ups were performed at every six months	Iron Vitamin C % of energy from fat % of energy from sugar (mono- and disaccharides) Total score of the diet (0-1 if meeting the recommendation)	Descriptive analysis of tracking: quartiles of intake in the baseline Longitudinal linear analysis	Individuals in the lowest quartiles tended to increase their intake, whereas those in the highest quartiles tended to reduce their intake
Li et al[7]	2008	At 10-14 years 11-15 years	Energy, fat, fiber and calcium Groups: fruits and vegetables, fried foods, sweetened beverages and snack foods Principal Component Analysis: western, eastern and dairy products	Specific quartiles of intake by sex and age	Remained in the same quartile of intake of foods and nutrients: 32.6 to 44.2% ($p < 0.05$)

Table 4. Tracking of dietary patterns from childhood to adolescence, stratified according to type of analysis.

Author	Year	Follow-ups	Outcome	Analysis	Results
Correlation analysis					
Boulton et al[3]	1995	At 1, 2, 8, 11, 13 and 15 years	Energy, fat and calcium	- Spearman correlation	Intervals of two years between 4 and 15 years Coefficients were as follows*: Energy: between 0.46 and 0.64 Percentage of fat: between 0.32 and 0.40 Calcium: between 0.51 and 0.62 * Statistically significant
Resnicow et al[15]	1998	3rd, 4th and 5th grades of level of education Mean of 8.7 years in the baseline	Fruits and vegetables	- Pearson correlation	From the 3rd to the 5th grade Coefficients between 0.37 and 0.68 ($p < 0.001$)
Wang et al[22]	2002	At 6-13 years 12-19 years	Relative intake of fat, carbohydrate, energy, fruits, vegetables, meat and oils	- Pearson and Spearman correlation	Between 1991 and 1997 Energy: 0.28 Fat: 0.47 Protein: 0.28 Carbohydrate: 0.51 Vegetables and fruits: 0.28 Oils: 0.34
Kappa coefficient					
Resnicow et al[15]	1998	3rd, 4th and 5th grades of level of education Mean of 8.7 years in the baseline	Fruits and vegetables	- Kappa	From the 3rd to 4th grade: k = 0.17 (males) and k = 0.19 (females) From the 3rd to 5th grades: k = 0.25 (males) and k = 0.26 (females)
Wang et al[22]	2002	At 6-13 years 12-19 years	Fat, carbohydrate, energy, fruits, vegetables, meat and oils - Quartiles of intake	- Kappa coefficients > 0.2 and > 0.4 suggest tracking and moderate tracking, respectively	Coefficients between 0.16 and 0.35
Other tests					
Zive et al[24]	2002	At 4, 7 and 11-12 years From 4 to 7 years, follow-ups were performed at every six months	Energy, % of energy from fat and sodium	Linear model of mixed effect (takes into consideration the effect between individuals, between periods (4-7 years and 11-12 years) and between visits)	No evidence of tracking from 4 to 12 years
Wang et al[22]	2002	At 6-13 years 12-19 years	Fat, carbohydrate, energy, fruits, vegetables, meat and oils	- Specific quartiles of intake by sex and age (proportion)	Remained in the same quartile of intake: 33%-45% Diet rich in fat (> 30%E): 48% Rich in carbohydrate (> 70%E): 50.4%

The continuity of dietary patterns from childhood to adolescence, assessed with correlation analysis in three studies, showed weak to moderate tracking. For this type of analysis, the period between assessments was not a determinant, as the coefficients found in the three studies were similar, even among very different periods such as two, five and 14 years between assessments.

Based on the kappa coefficient, two studies showed weak tracking and only one of them, with a different analysis, revealed a discontinuity of dietary patterns. The results found are consistent with the study conducted by Wang et al (2003),[22] which emphasized higher percentages of continuity among those who were in the extreme percentiles. As an example, participants who were in the highest tertile of intake of a pattern of fruits and vegetables had a higher probability of remaining on this level of intake than others who were initially in intermediate percentiles.

There were differences in sample size. Studies included between 200 and 400 individuals on average, three had samples with less than 100 children/adolescents and one large English cohort assessed nearly 6,200 children. However, researchers considered that the representativeness of cohorts was maintained even with smaller samples, because studies that did not perform an assessment of losses (when these are excessive) were not included. The present study did not intend to describe or compare dietary patterns per se, nor to diagnose nutritional problems, but rather to analyze whether individuals characterized by a certain dietary pattern, regardless of their being positive or negative, continued to show this pattern in subsequent years.

The follow-up period varied among studies and probably influenced the results. The highest level of tracking appeared among the outcomes assessed in the shortest period.

Relevant differences were observed in the form of analysis of the dietary consumption. Studies that assessed aspects ranging from the intake of specific micronutrients to the assessment of dietary patterns produced by factorial analysis (based on food groups) were included. In all cases, the assessment of continuity or stability of intake was performed with the same methodology between different points in time.

The definition of the majority of outcomes derived from the assessment of the dietary intake by quantitative methods and food surveys such as daily records and 24-hour recalls were the ones most frequently used. The food frequency questionnaire was used in two studies that assessed food intake by factorial analysis, identifying dietary patterns and working with scores (percentiles) of intake of their populations. The stability of intake of micronutrients was found in few studies.[3,4,8,17,19,20,24] Thus, most of the evidence of tracking in the literature is based on the intake of macronutrients (carbohydrates, proteins and fats) of the diet.

Eating habits during childhood are considered to be stable, as are those from childhood to adolescence. However, there seems to be greater variability of dietary patterns during adolescence. This should be viewed with caution, considering the reduced number of studies assessed. The findings suggest that dietary patterns during childhood continue until adolescence, although they may be changed or discontinued during adolescence.

Eating habits developed during childhood are important, because the introduction of new foods occurs in this initial stage of life, which can determine the dietary patterns in subsequent years. The development of the sense of taste in children has a genetic component and an environmental/social component, which may have an early influence on the dietary pattern that they will repeat throughout the years.[2]

The establishment of healthy eating habits must be promoted early in life. Eating habits can substantially change during growth, but the imprint and relevance of early learning and certain types of social behavior acquired remain throughout the life cycle.

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