ASSESSMENT OF NUTRITIONAL STATUS AND NUTRITION-RELATED KNOWLEDGE, ATTITUDES AND PRACTICES AMONG SCHOOL-AGED CHILDREN IN ALBANIA

Survey Report 2017-2018

Tirana 2018

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INSTITUTI I SHËNDETIT PUBLIK

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Acknowledgements

Financial support for this survey was provided by the Food and Agricultural Organization (FAO) through the *"Pilot project to support the development of a national school food and nutrition programme in Albania"*, and by the Institute of Public Health (IPH) in Tirana,Albania.

The survey was implemented by the *"Albanian Institute of Health and Social Development".*

Technical assistance and expertise was provided in the whole course of the study by the IPH experts involved in this research work. Also, the Albanian Ministry of Education and Sports, FAO, UNICEF and WHO experts involved in this study provided valuable input, comments and suggestions during the whole process of implementation and review of the survey. Of note, the commitment and expertise of all members of the Working Group made it possible to complete successfully this study and the final report.

Valeria Menza provided significant support and technical assistance during the whole course of this research work including study design, refinement of the instruments for data collection, data analysis and report writing.

In particular, special thanks to all children participating in this survey who, without any hesitation, were our best collaborators in this joint endeavor together with their respective parents, school staff and key informants in all regions of Albania.

CONTENTS

INTRODUCTION

This national survey has been carried out to gather essential information needed to better understand and address the food and nutrition problems and dietary practices of Albanian schoolchildren and their families.Studies on the nutritional status, dietary knowledge and practices of the general Albanian population are scarce and not comprehensive, and prior to this survey, no studies covering the full range of school-aged children between 6-15 years of age had been conducted.

Data available from other surveys have indicated that many children in the country are entering primary school in poor nutritional status. Among children under five years of age, about one-fifth (19%) are stunted (short for age), indicating chronic malnutrition; in the mountain regions this figure is higher, reaching 28%. Wasting (too thin for height), a sign of acute malnutrition, affects about 9% of this age group, and 5% of children are underweight for their age[1]. Only one-quarter (25%) of young children are fed according to recommended infant and young child feeding practices. At the other end of the spectrum, one-fifth (22%) of under-fives are overweight. About 17% of 6-59 month-old children have some level of anaemia, with a significantly higher prevalence in rural areas among the poor. Mild iodine deficiency remains a problem.[2]

The information available for Albanian children 8-9 years old indicates that many children in this age group have unhealthy diets, poor eating habits and inadequate physical activity. Many children tend to skip meals, especially breakfast (1 in 4 go to school without breakfast), have poor quality meals and irregular eating schedules, poor nutritional knowledge and lifestyle practices. The prevalence of overweight among this age-group is increasing, with overall 21.7% of children 8-9 years old being overweight or obese; this figure is even higher in urban areas (26.2%).[3]

According to the Global Burden of Disease (GBD) 2016 Study, in Albania, the second leading risk factor that accounted for the most disease burden concerns the dietary risks[4] according

1. Institute of Statistics (INSTAT). Tirana, Albania, 2010.
2. 2010 Baseline Nutrition and Food Survey and 2008/9 Albania Demographic and Health Survey.
3. 2016 COSI Survey.

to the GBD 2016 analysis, the overall mortality rate attributable to dietary risks in Albania is about 221 (95%CI=174-271) deaths per 100,000 population. In 2016, dietary risks accounted for 28.9% (95%CI=22.9%-34.2%) of the total mortality rate (GBD, 2016). Also, in 2016, dietary risks were related to about 3,960 DALYs per 100,000 accounting for about 15% (95%CI=12%-18%) of the total burden of disease in Albania.

It is well-recognized that the effects of unhealthy nutritional habits are manifested since early childhood. Therefore, specific consideration of dietary risk factors is of particular importance for Albanian children.

The results of this comprehensive survey, the initial findings of which are presented in this report, create an important baseline of information on the knowledge, attitudes and practices of Albanian schoolchildren, their teachers, and their families, as well as a picture of their school and surrounding environment, which will contribute to the planning of interventions and programmes at local and national levels to improve the diets, eating habits and nutritional status of Albanian schoolchildren.

4. http://ghdx.healthdata.org/gbd-results-tool.

AIM AND OBJECTIVES OF THE SURVEY

The *aim* of the survey was to assess the nutritional status and the nutrition-related knowledge, attitudes and practices of school-age children in transitional Albania.

The *objectives* of this project were to:

- *Collect information on the nutritional status of Albanian school-age children who attend the first, fourth and eighth grade;*
- *Assess the food and nutrition knowledge, attitudes and practices of schoolchildren, their parents, and teachers; and*
- *Collect food and nutrition-related information from school directors and local authorities on the broader economic, social and environmental factors that influence nutrition and healthy dietary practices among schoolchildren.*

Partners

- Institute of Public Health (the institution responsible for the overall national coordination)
- Department of Public Health, Faculty of Medicine (Tirana Medical University)
- Ministry of Education and Sports
- UN organizations (FAO, WHO, UNICEF)

Survey design and Methodology

The study consisted of a representative sample of Albanian schoolchildren attending the first, the fourth and the eighth grade in public and private schools during the academic year 2017/2018:The survey was carried out from the second week of November 2017 through the third week of February 2018, and included the following:

- All children in the selected grades and classes were measured for height and weight in their school classes. Children in the fourth and the eighth grades completed a

semi-structured questionnaire inquiring about their level of knowledge, their attitudes and practices related to food, nutrition and physical activity.

- Parents completed a semi-structured questionnaire about their children's nutrition-related level of knowledge, attitudes and practices and the socio-demographic determinants of food choices in their families;
- School teachers in all the selected classes were invited to fill in a semi-structured questionnaire inquiring about their own food and nutrition knowledge and perceptions, as well as the nutritional environment and related context in their respective schools; and
- School directors of all the selected schools and selected local authorities from 12 regions of Albania were interviewed regarding food and nutrition-related information and the broader economic, social and environmental factors that influence nutrition and healthy dietary practices among schoolchildren.

Study population

The survey covered a nationally representative sample of 37 schools, including the director of each school, a sample of teachers pertinent to the classes (grades) included in the survey, pupils and their respective parents. In addition, a sample of key informants was interviewed in all of the 12 regions of Albania including representatives from the Regional Health Directorates, Regional Directorates of Education, as well as representatives from the respective Municipalities.

Overall, the current analysis included:

- 37 schools from 12 districts (from each district: one school in urban areas, one school in rural areas, and one private school, except Kukes region where there were no private schools) [Annex 1: List of schools].
- 7578 children with valid data on anthropometric measurements. Of these, 3903 (51.5%) were boys and 3675 (48.5%) were girls (Table 1). About 77% of the children were enrolled in public schools, compared with 23% enrolled in private schools (Table 2). Regarding the place of residence, 75% of the children were residing in urban areas; compared with 25% of their counterparts who were rural residents (Table 3). There was fairly equal distribution by gender across school grade (Table 4).
- 37 school directors' interviews.
- 311 school teachers' interviews; of these 219 worked in urban areas and 92 worked in rural areas (Table 5). Eighty three interviewed teachers were operating in private schools (Table 6).
- 53 key informants from all districts of Albania (Table 7). 26 representatives from Regional Health Directorates, 14 Regional Directorates of Education and 13 representatives from the Municipalities participated (data not shown).
- 6810 parent questionnaires (768 of them (10%) did not complete the questionnaire).

Table 1. Distribution of children by gender

		Percentage		
Gender	Frequency	Total	Valid	Cumulative
Boys	3903	51.5	51.5	NA
Girls	3675	48.5	48.5	51.5
Total	7578	100.0	100.0	100.0

Table 2. Distribution of children by type of school

		Percentage		
School Type	Frequency	Total	Valid	Cumulative
Public	5804	76.6	76.6	NA
Private	1774	23.4	23.4	76.6
Total	7578	100.0	100.0	100.0

Table 3. Distribution of children by residence

		Percentage		
Residence	Frequency	Total	Valid	Cumulative
Urban	5709	75.3	75.3	NA
Rural	1869	24.7	24.7	75.3
Total	7578	100.0	100.0	100.0

Table 4. Distribution of children by grade and gender

Gender/ Grade	Boys [n(%)]	Girls [n(%)]	Total [n (%)]
Grade 1	1336 (34.2)	1251 (34.0)	2587 (34.1)
Grade 4	1240 (31.8)	1140 (31.0)	2380 (31.4)
Grade 8	1327 (34.0)	1284 (34.9)	2611 (34.5)
Total	3903 (100.0)	3675 (100.0)	7578 (100.0)

Table 5. Number of teachers interviewed by district and school location

DISTRICTS		School location		Total
		Urban	Rural	
1	Berat	13	5	18
2	Diber	11	5	16
3	Durres	22	10	32
4	Elbasan	14	6	20
5	Fier	15	6	21
6	Gjirokaster	17	5	22
7	Korce	19	7	26
8	Kukes	9	6	15
9	Lezhe	14	6	20
10	Shkoder	21	7	28
11	Tirane	48	23	71
12	Vlore	16	6	22
	Total	219	92	311

Table 6. Distribution of interviewed teachers by type of school

		Percentage		
School Type	Frequency	Total	Valid	Cumulative
Public	228	73.3	73.3	NA
Private	83	26.7	26.7	73.3
Total	311	100.0	100.0	100.0

Table 7. Distribution of key informants included in the survey by district

District name	Frequency	Percent	Cumulative Percent
Berat	3	5,7	5,7
Diber	4	7,5	13,2
Durres	5	9,4	22,6
Elbasan	5	9,4	32,1
Fier	4	7,5	39,6
Gjirokaster	4	7,5	47,2
Korce	4	7,5	54,7
Kukes	4	7,5	62,3
Lezhe	5	9,4	71,7
Shkoder	4	7,5	79,2
Tirane	7	13,2	92,5
Vlore	4	7,5	100,0
Total	53	100,0	

Sampling method

The sampling was based on children's grades (classes): first, fourth and eighth. The sampling frame consisted of all primary schools (both public and private) in urban areas and rural areas of Albania. Initially, the sampling frame was stratified by region (12 prefectures of Albania), place of residence (urban vs. rural areas) and type of school (public vs. private). Subsequently, in each stratum, one school was selected at random with probability proportional to size (PPS). Next, all children pertinent to the three targeted grades (first, fourth and eighth grades) were recruited in the survey. Ultimately, in each of the 12 prefectures of Albania, one school in an urban area, one school in a rural area, and one private school were selected (except in the Kukes region, where there are no private schools).

A detailed list of schools included in the survey is provided in Annex 1.

Recruitment approach

The study included every pupil in the first, fourth and eighth grades selected by the sampling process who was present on the day the anthropometric measurements were performed, regardless of their age. No pupils who were absent on the measurement day were measured. Only students who gave consent were measured. Even children with severe physical handicaps were measured, but the results were not included in the database for further analysis.

In addition, all teachers and school directors pertinent to the schools and classes selected for inclusion in the survey were invited to fill in their respective questionnaires.

Parents' questionnaires were conveyed to them via their respective children; after completion, children gave back the questionnaires to their respective teachers who in turn submitted the questionnaires to the survey team members working in the field.

Supervisors of the teams works working in the field contacted and subsequently interviewed face-to-face representatives from the Regional Directorates of Education and Regional Directorates of Public Health, as well as representatives from the local government.

Materials and tools

At the Institute of Public Health, the Department of Nutrition and Food prepared the necessary materials to implement data collection, which consisted of the following:

- the information model and collaboration letters sent to the schools' administrative and teaching staff and to the parents included the study;
- the examiners' record form to collect data on each child;
- children questionnaires (4^{th} and 8^{th} grade);
- parents' questionnaire;
- teachers' questionnaire;
- school directors' questionnaire;
- guide for key informant interviews.

Development of the questionnaires was based on similar surveys employing a standardized methodology recommended by FAO, WHO and UNICEF; such surveys have been conducted in different countries worldwide and have consisted of similar aims and objectives. All five questionnaires contained both open-ended and closed questions.

A questionnaire collecting children's data and one collecting schools' data were prepared. Upon receiving the child's consent to be measured, the examiner filled out the form on the child's nutritional status, demographic data, and physical status at the time of the anthropometric measurements and consumption of breakfast on the day on the measurement.

Children's questionnaire contained questions aiming at exploring their level of food and nutrition-related knowledge, food habits, related lifestyle factors, their preferred means of learning and obtaining information on nutrition, as well as their perceptions about their

weight, body image, and health, etc.

The school directors' questionnaire contained questions regarding the availability of facilities in their respective schools, resources, tools and means for providing food and nutrition education in their schools, as well as the difficulties to provide a healthy nutrition environment, the initiatives/projects organized in their schools regarding health/ nutrition/ hygiene and physical activity. Others questions focused on the physical education that schools provide to pupils, the availability of facilities or gyms, initiatives for promoting a healthy lifestyle among children, the presence of school canteen/cafeteria or points of sale of foods and drinks on school premises and the availability of food products, difficulties to provide healthy snacks in the schools, and the degree of participation in initiatives aiming at promoting healthy nutritional habits organised by different institutions or organizations.

The teachers' questionnaire contained questions regarding the nutrition environment in their respective classes, resources, tools and means for providing food and nutrition education in their classes, as well as the difficulties to provide a healthy nutrition environment, the level of knowledge abilities regarding provision of food and nutrition education in their classes, teachers role as a model on promoting healthy eating behaviors with their respective pupils, the impact of nutrition and healthy eating on children's ability to learn and perform at school, the initiatives/projects organized in their respective classes to promote a healthy eating and physical activity,etc.

Parents' questionnaire included questions about child nutrition (breastfeeding, physical activity, meal consumption, frequency of consumption of selected food items, as well as food preferences); diet and health (sources of information related to nutrition), factors influencing food choices, family dietary habits, diseases related to malnutrition, parent's attitudes toward food provision at school premises, etc.); parents' perceptions and body image of their children (current status and the ideal/preferred image of their children); demographic and socioeconomic data including age, educational attainment, profession, economic level, etc.

Key informants questionnaire contained items which aimed at obtaining information about the economic, social and environmental factors that influence nutrition and healthy dietary practices among schoolchildren at the district level.

Anthropometric measurements of the children were performed using portable scales and stadiometers. Weight measurements were performed using scales with a degree of accuracy ± 100 g and a measuring capacity of 200 kg. Height measurements were performed using portable stadiometers with an accuracy of ± 1 mm and a measuring range of 20–205 cm

Definitions

- ***Body mass index***

This study used body mass index (BMI) to determine the status of underweight, normal overweight and obesity. Obesity was assessed by using BMI limit values defined by WHO[5].

For epidemiologic purposes, in an age group that spans one year (for example, children aged 6.0–7.0 years) the limit value of the mid-year (in this case 6.5) was used to assess the nutritional status of the children in this study, because it offers an essential and impartial assessment of prevalence[6].

Definition of child obesity according to WHO[a]

Age (years)	Underweight	Overweight	Obese
5-19	BMI < 2 standard deviation under the median of WHO standard growth curves	BMI > 1 standard deviation above the median of WHO standard growth curves	BMI > 2 standard deviation above the median of WHO standard growth curves

[a] WHO limit values based on the 2007 WHO growth standards.

- ***Classification of breakfast***

Breakfast was considered qualitatively suitable if it contained foods high in proteins and carbohydrates (simple or complex)[7].

Foods were grouped into two categories:

i. high in milk and dairy products
ii. high in carbohydrates such as bread, grains, etc.

The breakfast was considered consumed if the child reported eating at least one food of each category.

Data analysis

Data analysis consisted of descriptive statistics (univariate analysis) and statistical inference (assessment of associations/relationships between variables). Measures of central tendency and dispersion were used to describe (present) the distribution of numerical variables including height, weight and body mass index of the children. Conversely, absolute values and their respective proportions (percentages) were employed to present (describe) the

5. (Multicentre Growth Reference Study Group. WHO Child Growth Standards: Length/height-for-age, weight-for-age, weight-for-length, weight-for-height and body mass index-for-age: Methods and development. Geneva, World Health Organization, 2006 (http://www.who.int/childgrowth/standards/Technical_report.pdf, accessed 22 June 2013).
6. Cole TJ et al. Establishing a standard definition for child overweight and obesity worldwide: international survey. BMJ, 2006, 320(7244):1240–1243.
7. Linee Guida per una Sana Alimentazione Italiana [Guidelines for a Healthy Italian Food]. Istituto Nazionale di Ricerca per gli Alimenti e la Nutrizione [National Institute of Research on Food and Nutrition], 2003.

distribution of categorical variables such as underweight (thinness), overweight and obesity among children included in this study.

Chi-square test and Fisher's exact test were used to compare the prevalence of overweight and obesity in children by sex (boys vs. girls), age-group (or grade) of the children (1st, 4th, and 8th grade), place of residence (rural areas vs. urban), or school type (public vs. private).

Binary logistic regression was used to assess the association of overweight and obesity in children with the demographic factors (age, sex, place of residence), socioeconomic characteristics of their families (income level, parental education, parental employment), and other independent predictors. Initial models consisted of bivariate analysis (crude/ unadjusted association of overweight and obesity with each independent factor without accounting for the other variables). Crude (unadjusted) odds ratios (ORs), 95% confidence intervals (95%CIs) and their p-values were calculated. Subsequently, multivariable-adjusted logistic regression models were conducted assessing the association between overweight and obesity in children after simultaneous control (adjustment) for all variables included in the analysis. Multivariable-adjusted ORs 95%CIs and their p-values were calculated. The Hosmer-Lemeshow test was used to assess goodness-of-fit; the analysis fitted the criterion.

A p-value of $P \leq 0.05$ was considered statistically significant for all the statistical procedures applied.

All data analysis was conducted with the Statistical Package for Social Sciences (SPSS), version 19.0.

RESULTS AND DISCUSSION

Nutritional status of schoolchildren

a. Anthropometric measurements/BMI

Overall, mean weight in this nationwide representative sample of schoolchildren in Albania was 37.5±15.2 kg (Table 8). Median weight was 33.6 kg (interquartile range: 25.2-47.7 kg).

On the whole, mean height was about 141±18 cm. Median height was about 139 cm (interquartile range: 125-157 cm).

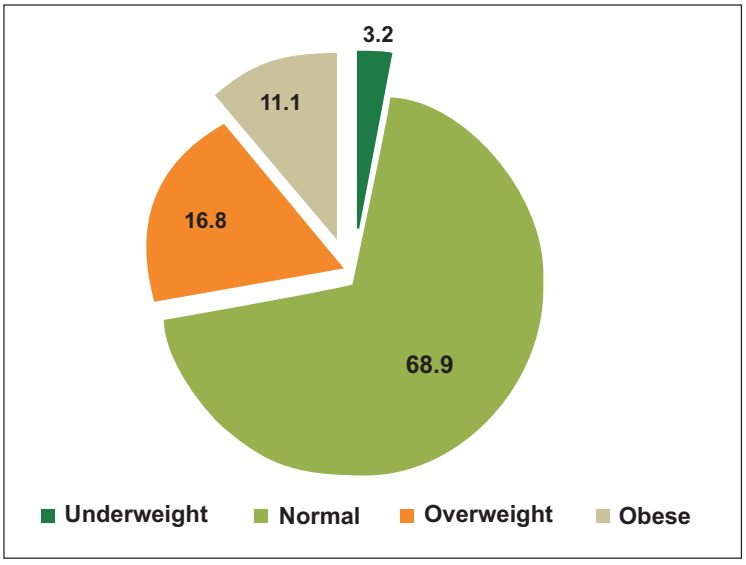
Mean BMI (kg/m2) was 18.1±3.7 (median value: 17.3; interquartile range: 15.4-20.1). Mean BMI value was significantly higher in boys than in girls (18.3±3.7 vs. 17.9±3.6, respectively) [Table 8].

Table 8. Distribution of anthropometric indexes in children (N=7578)

Anthropometric index	Boys (N=3903)		Girls (N=3675)		Total (N=7578)	
	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)	Mean (SD)	Median (IQR)
Weight (kg)	38.5±15.9	34.2 (25.7-48.7)	36.5±14.4	32.6 (24.5-46.8)	37.5±15.2	33.6 (25.2-47.7)
Height (cm)	142.0±18.8	139.0 (125.5-158.6)	139.8±17.2	138.5 (124.2-156.2)	141.0±18.1	138.7 (124.9-157.1)
BMI (kg/m ^{2})	18.3±3.7	17.4 (15.6-20.1)	17.9±3.6	17.2 (15.2-20.0)	18.1±3.7	17.3 (15.4-20.1)

Overall, about 69% of the children measured had a BMI within the normal range (Figure 1).The prevalence of underweight was 3.2%, whereas the prevalence of overweight and obesity were about 17% and 11%, respectively (overweight + obesity = 28%).

Figure 1. BMI distribution among children (in percent)



The prevalence of obesity was significantly higher in boys than in girls (Table 9): about 15% vs. 7%, respectively, P<0.001. Similarly, the prevalence of obesity was higher in children residing in urban areas (13% vs. 6% among rural children), those enrolled in private schools (15% vs. 10% among public schools), and children in the fourth grade (14% vs. 12% among first-grade and 8% among the eighth-grade pupils) – with all these differences being highly statistically significant (Table 9).

Table 9. Body mass index by socio-demographic characteristics of the children (N=7578)

Socio-demographic factors	Underweight (N=242)	Normal (N=5224)	Overweight (N=1274)	Obese (N=838)	P-value†
Sex:					
Boys (n=3903)	126 (3.2)*	2577 (66.0)	631 (16.2)	569 (14.6)	<0.001
Girls (n=3675)	116 (3.2)	2647 (72.0)	643 (17.5)	269 (7.3)	
Residence :					
Urban (n=5604)	159 (2.8)	3692 (65.9)	1038 (18.5)	715 (12.8)	<0.001
Rural (n=1974)	83 (4.2)	1532 (77.6)	236 (12.0)	123 (6.2)	
School type:					
Public (n=5804)	215 (3.7)	4119 (71.0)	905 (15.6)	565 (9.7)	<0.001
Private (n=1774)	27 (1.5)	1105 (62.3)	369 (20.8)	273 (15.4)	
Grade:					
First (n=2587)	53 (2.0)	1842 (71.2)	382 (14.8)	310 (12.0)	<0.001
Fourth (n=2380)	62 (2.6)	1546 (65.0)	450 (18.9)	322 (13.5)	
Eighth (n=2611)	127 (4.9)	1836 (70.3)	442 (16.9)	206 (7.9)	

* Numbers and row percentages (in parentheses).
† P-values from the chi-square test.

Knowledge and perceptions of food, health and nutrition

a. Perceptions and self-assessments (health, nutrition, diets)

- *Child*

Overall only one-third of children feel they know a lot about food, health and nutrition, and two-thirds know only an average amount or less(Table 10).

Table 10. Children's self-perceived level of knowledge about food, health and nutrition

How much do you think you know about food, health and nutrition?	Frequency	Percent	Cumulative Percent
A lot	1545	31.0	31.0
A little	843	16.9	47.8
Average	2553	51.2	99.0
Nothing	50	1.0	100.0
Total	4991	100.0	

However, this high level of nutrition-related knowledge does not correlate with children's knowledge about the general health status. Hence, children reported that one is healthy when "does not get sick" (63%); "sleeps well (61%), "has good appetite" (38%), "is calm" (37%), but only one-fourth of the children (25%) considered that one is healthy when "playing with pleasure" (Table 11).

Table 11. Children's knowledge on general health status

You are healthy when:	YES [n(%)]	NO [n(%)]	TOTAL [n(%)]
You do not get sick	3143 (63.0)	1848 (37.0)	4991 (100.0)
You are calm	1835 (36.8)	3156 (63.2)	4991 (100.0)
You play with pleasure	1264 (25.3)	3727 (74.7)	4991 (100.0)
You have good appetite	1911 (38.3)	3080 (61.7)	4991 (100.0)
You sleep well	3025 (60.6)	1966 (39.4)	4991 (100.0)
You are active	3316 (66.4)	1675 (33.6)	4991 (100.0)

Regarding consumption of selected food items, the majority of the children say they think they need to reduce their consumption of chocolates (81%), sweetened beverages (80.7%), chips and fast food (80%), and ice-cream (67.4%).The majority of them also say they need to increase their consumption of foods such as fresh fruit (87%), fresh vegetables (80.5%), vegetable soups (81.7%), milk and yoghurt (73.3%), peas, beans and lentils (67%), fish (65%), tomatoes (Table 12).

Table 12. Children's self-assessment about consumption of selected food items

I think I should eat or drink:	More often (%)	Less often (%)	Same as now (%)	Total (%)
1. Sweetened beverages (cola, Fanta, tea, fruit juice, etc.)	6.7	80.7	12.6	100.0
2. Meat	43.8	29.1	27.1	100.0
3. Chocolate / chocolate cream	6.0	81.0	12.9	100.0
4. Baked sweets (biscuits, croissant, pies)	12.6	63.6	23.8	100.0
5. Caramels, chewing gums	5.6	79.0	15.4	100.0
6. Cheese	61.9	14.7	23.4	100.0
7. Fresh fruit juice	85.9	4.1	10.1	100.0
8. Fresh Fruit	86.8	3.5	9.7	100.0
9. Ice cream	11.8	67.4	20.8	100.0
10. Milk and yoghurt	73.3	9.1	17.6	100.0
11. Peas, beans, lentils	67.0	13.8	19.1	100.0
12. Vegetable soup	81.7	5.9	12.4	100.0
13. Bread	46.8	28.1	25.0	100.0
14. Pasta, rice	33.8	39.0	27.2	100.0
15. Potatoes	34.3	40.9	24.8	100.0
16. Chips, and fast food (hamburger, sandwiches, toasts, pizzas)	7.6	80.0	12.3	100.0
17. Fish	65.0	16.4	18.6	100.0
18. Tomatoes	60.4	17.6	21.9	100.0
19. Eggs	57.0	19.5	23.4	100.0
20. Cooked vegetables	63.1	18.7	18.2	100.0
21. Fresh vegetables	80.5	5.4	14.1	100.0

There is evidence of a tendency for "trying different types of foods" (80.6% of children) and for "eating especially foods that are tasty" (60%). About half of the children report that they "eat with pleasure everything" (51.5%), while 9% of them say they do not like eating. Two out of five children (40.5%) are more concerned about "how much I eat than what kind of food I eat". Slightly more than one-fifth (23%) of the children report that sometimes they do not "get enough to eat" and "feel hungry" (Table 13).

Table 13. Children's perceptions of their food habits

Which of these statements is true or not true for you?	True (%)	Not true (%)	Total (%)
I eat especially foods that are tasty	60.4	39.6	100.0
There are only a few foods that I like to eat	41.5	58.5	100.0
I like eating snacks between meals	57.3	42.7	100.0
I like trying different types of foods	80.6	19.4	100.0
I don't like eating	9.0	91.0	100.0
I'm more concerned about how much I eat than what I eat/about getting enough to eat than what I eat	40.5	59.5	100.0
I like eating always the same foods	18.3	81.7	100.0
I like eating foods outside of home	29.4	70.6	100.0
I eat with pleasure everything	51.5	48.5	100.0
Sometimes I don't get enough to eat and I feel hungry	22.8	77.2	100.0
I like to participate in sports and be active	92.4	7.6	100.0

Children have different perceptions (images) of their current body weight (Table 14), compared with their objectively measured anthropometric indices (based on which the BMI was calculated). Among underweight children, there is a more objective perception of their current state of underweight, with 80% of this group considering themselves underweight, whereas only 24.5% of normal-weight children perceive their weight as normal; most (70%) normal-weight children think they are underweight. Among overweight children, only 16.9% think they are overweight, 48% consider themselves normal-weight and 34% believe they are underweight. Among obese children, only 9% consider themselves as obese, while 43% perceive themselves as overweight, 37% think they have a normal weight, and the remaining 9% consider themselves as underweight (Table 14).

Table 14. Children's image of their current body weight

BMI	Which of these pictures looks most like you?							Total
	Image 1	Image 2	Image 3	Image 4	Image 5	Image 6	Image 7	
	Underweight III	Underweight II	Underweight I	Normal	Overweight	Obese I	Obese II	
Underweight	19	56	78	31	4	1	0	189
	10.1%	29.6%	41.3%	16.4%	2.1%	.5%	.0%	100.0%
	16.1%	7.3%	3.8%	2.1%	.8%	1.6%	.0%	3.8%
Normal	91	666	1680	827	100	7	11	3382
	2.7%	19.7%	49.7%	24.5%	3.0%	.2%	.3%	100.0%
	77.1%	86.8%	81.3%	55.9%	20.7%	11.3%	73.3%	67.8%
Overweight	6	40	262	426	151	7	0	892
	.7%	4.5%	29.4%	47.8%	16.9%	.8%	.0%	100.0%
	5.1%	5.2%	12.7%	28.8%	31.3%	11.3%	.0%	17.9%
Obese	2	5	47	195	228	47	4	528
	.4%	.9%	8.9%	36.9%	43.2%	8.9%	.8%	100.0%
	1.7%	.7%	2.3%	13.2%	47.2%	75.8%	26.7%	10.6%
Total	118	767	2067	1479	483	62	15	4991
	2.4%	15.4%	41.4%	29.6%	9.7%	1.2%	.3%	100.0%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

As for the preferred body image (weight based on body images), underweight children have a more positive attitude toward their current weight (38%), compared to the other children. Half of them (49.9%) prefer to stay thin, although at an improved stage (lesser degree of underweight). Some underweight children (12%) indicate that they would prefer to be overweight or obese.

Among children with normal weight, nearly two-thirds (63.1%) would like to be thinner, with two-fifths (39.3%) preferring to be somewhat thinner (Image 3/Stage 1 underweight). More than one-quarter (28.2%) of normal weight children prefer to stay at normal weight, and 8.7% indicate a preference for being heavier.

Virtually, all overweight and obese children indicate that they would prefer a thinner body weight (93.9% and 91.5% respectively). About one-quarter of overweight (23%) and obese children (25.8%) would prefer to have a normal weight, while the majority indicates a preference for various stages of thinness (underweight). Only very few of this group would prefer to keep their current weight (5.6% and 6.6% respectively) (Table 15).

Table 15. Children's preferred body weight

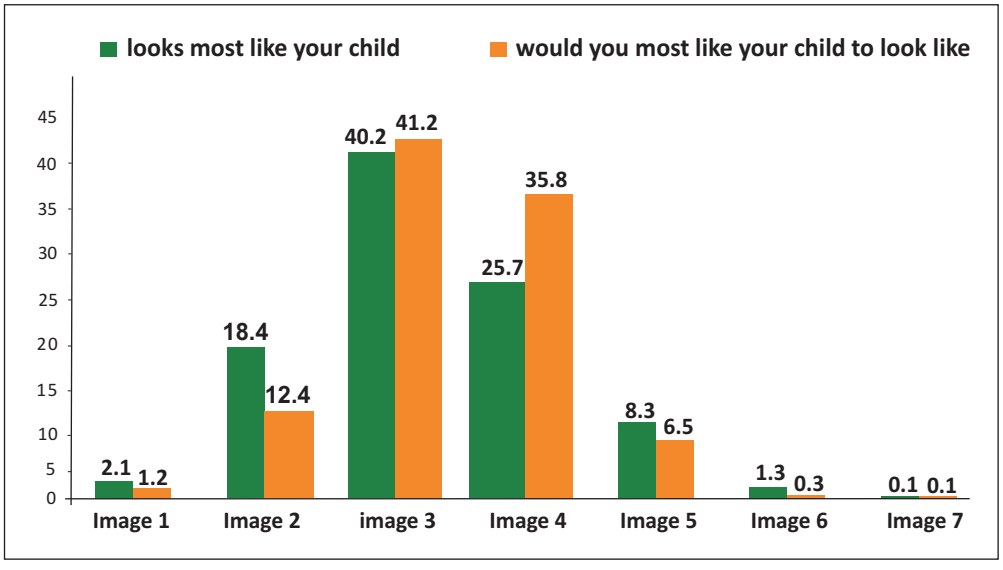
BMI	Which of these pictures would you like most to look like?							Total
	Image 1	Image 2	Image 3	Image 4	Image 5	Image 6	Image 7	
	Underweight III	Underweight II	Underweight I	Normal	Overweight	Obese I	Obese II	
Underweight	8	18	68	72	16	2	5	189
	4.2%	9.5%	36.0%	38.1%	8.5%	1.1%	2.6%	100.0%
Normal	163	643	1329	953	247	24	23	3382
	4.8%	19.0%	39.3%	28.2%	7.3%	.7%	.7%	100.0%
Overweight	45	227	361	205	50	1	3	892
	5.0%	25.4%	40.5%	23.0%	5.6%	.1%	.3%	100.0%
Obese	27	85	235	136	35	8	2	528
	5.1%	16.1%	44.5%	25.8%	6.6%	1.5%	.4%	100.0%
Total	243	973	1993	1366	348	35	33	4991
	4.9%	19.5%	39.9%	27.4%	7.0%	.7%	.7%	100.0%

- Parent

Looking at the crude totals, there are some interesting comparisons to be made between child weight assessment and preference and parent assessment and preference for their child, even without matching child response to their parent. For example, both children and parents seem to agree on underweight assessment and preference (around 40-41% for both children and parents for assessment and preference for image 3, underweight 1), and they are close pretty close on image 5, overweight 1. However, there seems to be a difference between the two for normal weight, with 27.4% of children and 35.8% of parents preferring this. There is also a difference for image 2, underweight 2, with 19.5% of children indicating a preference for this weight, compared with 12.4% of parents.

Concerning children's image, referring to the figure with seven body models (images), parents showed a positive tendency for the health of their children preferring an improved image toward normal weight, and not toward overweight and obesity (Figure 2).

Figure 2. Parent's current image vs. preferred image of their children's weight



- *Teacher*

Teachers consider their respective pupils generally as healthy (68.2%), or very healthy (22.2%). A considerably larger proportion of teachers in private schools (30.1% vs. 19.3 in public schools) and in urban areas (26.9% vs. 10.9% in rural areas) consider their pupils to be healthy. This is the consideration of the teachers based on their observations during the past academic year, according to which children were observed regarding their activities, school attendance, health status, meal consumption in school during class breaks, consumption of home foods including fresh fruits, and the like.

About 8% of the teachers consider their respective pupils as "not so healthy", especially in rural areas of the country (12%), because in these areas teachers state that they have observed that their pupils consume processed foods, are physically not so active, get sick more often, have more school absences, are not properly fed by their parents, do not consume meals regularly, and therefore are not properly focused and concentrated during the class hours, which results in poor performance of these children (Table 16).

Table 16. Teachers' opinion regarding pupils' health by school type and location

How healthy are most of the pupils in your class?	All teachers		School type		School location	
			Public	Private	Urban	Rural
	Frequency	Percent	[n (%)]	[n (%)]	[n (%)]	[n (%)]
Very healthy	69	22,2	44 19.3	25 30.1	59 26.9	10 10.9
Healthy	212	68,2	156 68.4	56 67.5	144 65.8	68 73.9
Not so healthy	25	8,0	23 10.1	2 2.4	14 6.4	11 12.0
Not sure	5	1,6	5 2.20	0 0,0	2 0.9	3 3.3
Total	311	100,0	228 100,0	83 100,0	219 100,0	92 100,0

Almost all of the teachers (91%) believe that "eating well and being healthy affects pupils' learning and performance in school". They report that they have noticed that their pupils who eat breakfast are more concentrated and focused than those who do not, and note that well-nourished and healthy pupils attend school regularly, are more focused, and more active. Some teachers note that good nutrition helps avoid many diseases and keeps the body in a proper weight and height, and in fact, many teachers summarize all these remarks with the famous saying: "mens sana in corpora sano" (Table 17).

Among teachers who believe that eating and being healthy affects performance only "somewhat" (8.4%), the majority teach in rural areas. Their arguments are based on their observation of the low socioeconomic status of some pupils who nevertheless perform well at school and the fact that not all well-nourished children have good performance at school, noting that good nutrition is not always a sufficient factor for good school performance.

Table 17. Teachers' opinions regarding pupils' eating and performance in school by school type and location

How much do you think eating well and being healthy affect your pupils' learning and performance in school	All teachers		School type		School location	
			Public	Private	Urban	Rural
	Frequency	Percent	[n (%)]	[n (%)]	[n (%)]	[n (%)]
Affects performance a lot	281	91.2	205 91.1	76 91.6	201 92.6	80 87.9
Affects performance somewhat	26	8.4	19 8.4	7 8.4	15 6.9	11 12.1
Not sure	1	0.4	1 0.4	0 .0	1 0.5	0 .0
Total	308	100.0	225 100.0	83 100.0	217 100.0	91 100.0

The great majority of teachers, in both public and private schools and in urban as well as rural areas, believe that children from their eating habits and food preferences between Kindergarten and the 3rd grade (overall, 79.7%), followed by 19.0% who feel they are formed between the 4th and the 7th grade (Table 18).

Table 18. Teachers' opinions on when pupils' form their eating habits, by school type

At what grade do you believe children's eating habits and food preferences are formed or established?	Frequency	Percent	School Type [n(%)]		School location [n(%)]	
			Public	Private	Urban	Rural
Kindergarten – 3rd grade	243	79,7	174 78.0	69 84.1	172 80.4	71 78.0
4th – 7th grade	58	19,0	45 20.2	13 15.9	42 19.6	16 17.6
8th – 12th grade	4	1,3	4 1.8	0 .0	0 .0	4 4.4
Total	305	100,0	223 100,0	82 100,0	214 100,0	91 100,0

Virtually all teachers (93%) consider healthy eating very important to them personally, and almost all of those who say this also say they have a "good" or "very good" approach to healthy eating (Table 19).

Table 19. Distribution of teachers regarding the importance and their approach to healthy eating

How important is healthy eating to you personally?		My own approach to healthy eating could be classified as				Total
		Poor	Good	Very good	Not sure/Do not know	
	Unimportant	0	0	1	0	1
		.0%	.0%	100.0%	.0%	100.0%
	Very important	1	12	7	0	20
		5.0%	60.0%	35.0%	.0%	100.0%
	Important	0	91	197	1	289
		.0%	31.5%	68.2%	.3%	100.0%
Total		1	103	205	1	310
		100.0%	100.0%	100.0%	100.0%	100.0%

b. Nutrition and health knowledge (knowledge of good diets and good food choices)

- Child

The great majority of children recognize the importance of eating three main daily meals for their growth and health, with 95.2% identifying breakfast as being important, followed by lunch (91.4%) and dinner (85.4%). Given that almost all children recognize the importance of breakfast, it is interesting to note that on the day of the anthropometric measurements, only 63% of children reported having eaten breakfast that day.

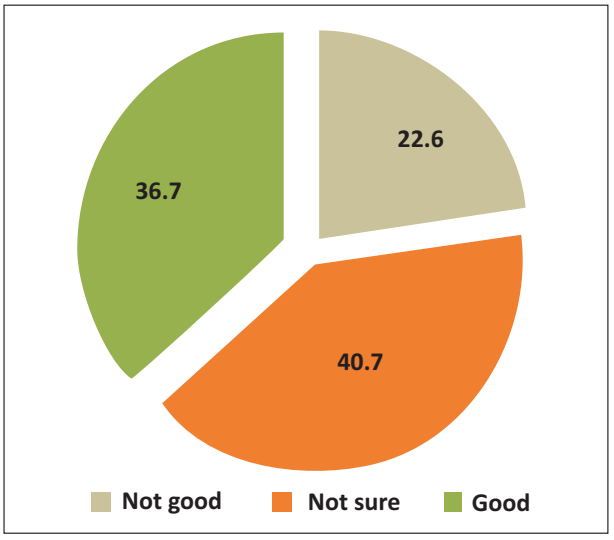
Children consider between meal snacks less important, with roughly one-third (30.4%) indicating that afternoon snacks are important, followed by one-fifth (21%) who say that late morning snacks are important; very few (8.9%) feel that after dinner snacks are important for them to eat (Table 20).

Table 20. Children's opinions regarding the importance of meals

Meals you think are most important for you to eat to grow well and be healthy	YES [n(%)]	NO [n(%)]	TOTAL [n(%)]
Breakfast	4750 (95.2)	241 (4.8)	4991 (100.0)
Late morning	1049 (21.0)	3942 (79.0)	4991 (100.0)
Lunch	4562 (91.4)	429 (8.6)	4991 (100.0)
Afternoon	1517 (30.4)	3474 (69.6)	4991 (100.0)
Dinner	4264 (85.4)	727 (14.6)	4991 (100.0)
After dinner	445 (8.9)	4546 (91.1)	4991 (100.0)

Only one-third (36.7%) of children believe it is important for their growth and health for them to have three main meals and in between snacks (Figure 3).

Figure 3. Distribution of children (in percent) who think it is good to have three meals a day and two snacks



In general, children indicate a good understanding of some basic healthy eating habits and practices. The great majority of them agree that their health while they are growing "depends on the kinds of foods you eat", and that in order to grow healthy" keeping active and physically fit are as important as the food consumed" (84.1% and 83.4%, respectively). Three out of four children (77.2%) also agree that "it is better to eat some amounts of different foods than large quantities of the same food", indicating some understanding of the importance of a diversified diet (Table 21).

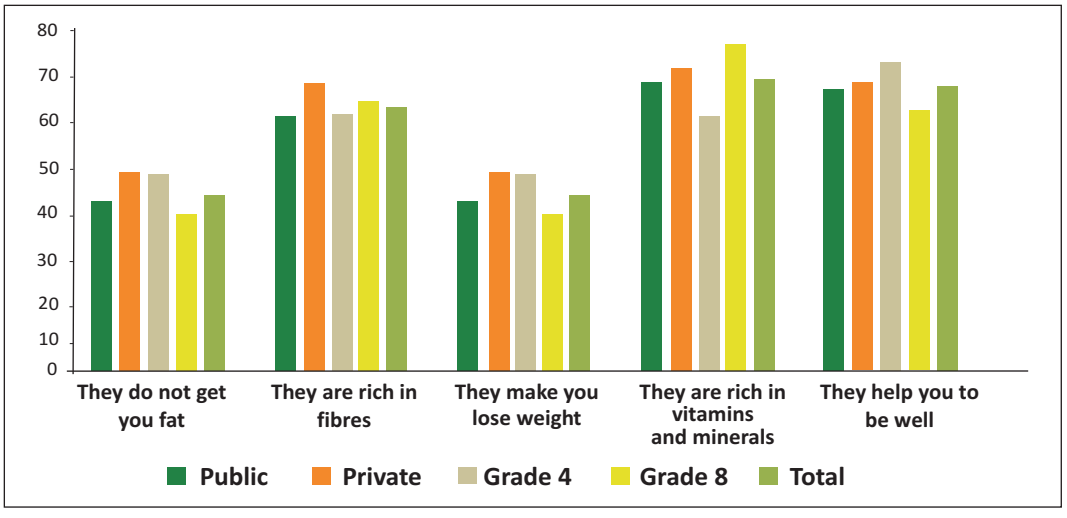
Most children agree that it is not good for health to eat "fast food very often" (85.2%), and almost three-quarters of them do not think that "drinking fizzy drinks is just as good as drinking water" to quench thirst (72.0%). However, one in three children are uncertain about fat intake and health, with 32.9% saying either they disagree or don't know that "in order to be healthy, one should eat little fat".

Table 21. Children's attitudes toward selected eating habits

Do you agree or disagree with each of the following statements?	Agree (%)	Disagree (%)	Don't know (%)	Total (%)
It is important to eat such foods as: bread and wheat	83.5	7.3	9.2	4991 (100.0)
In order to be healthy, one should eat little fat	67.1	18.8	14.1	4991 (100.0)
Milk strengthens the bones	87.0	4.0	9.0	4991 (100.0)
Eating fast food very often is good for your health	6.7	85.2	8.1	4991 (100.0)
It is ok to eat caramels and chocolate sometimes, but not every day	60.8	26.0	13.2	4991 (100.0)
It is better to eat small quantities of different foods than large quantities of the same food	77.2	9.5	13.3	4991 (100.0)
Your health while you are growing depends on the kinds of foods you eat	84.1	4.9	10.9	4991 (100.0)
Processed fruit and vegetables are healthy as the fresh ones	18.7	66.7	14.6	4991 (100.0)
Fizzy drinks are just as good as water when one is thirsty	14.0	72.0	15.8	4991 (100.0)
Keeping active and physically fit are important as the food consumed in order to grow healthy	83.4	8.0	8.6	4991 (100.0)

Children also seem to have some knowledge of the benefits of eating fresh fruits and vegetables, with 70% indicating that these foods "help you to be well". Three out of four children (72.4%) indicate that fruits and vegetables are rich in vitamins and minerals and two out of three say they are rich in fibre (65.2%). Children attending private schools are more likely than public school children to know about fibre in fruits and vegetables (71.4% versus 63.4% respectively), and 8th Graders are far more aware of the vitamin and mineral content than 4th Graders ((81.1%, compared with 62.8%). Children are also somewhat aware of the low calorie content of fruits and vegetables, with 43.6% indicating that these foods "do not get you fat" and 17.7% saying "they make you lose weight" (Figure 4).

Figure 4. Children's knowledge of the benefits of fruits and vegetables



When asked to indicate how good they think various foods are for their health, children most frequently indicate fruit as being very good for their health (92.3%), followed by soup (86.4%), milk and yoghurt (83%) and fresh vegetables (80.1%). They also say that fish (68.9%), eggs (61.8%), and cheese (58.1%) are very good for health; only about half of them indicate meat (52.6%) and chicken (49.0%) as very good foods. Most children acknowledge the importance of water, with 84.4% saying that it is very good for health.

The foods children most commonly indicate as not being good for their health include all forms of sweets or sugary foods, such as caramels (78.6%), chocolates (67.8%), sugar (65.2%), ice cream (58.9%) and fizzy drinks (80.9%). Among non-sweet foods, chips and French fries are frequently indicated as being not good for health (77.5% and 50.4% respectively), along with pies (63.1%), hamburgers (68.0%) and sausages and ham (43.1%) [Table 22].

Table 22. Children's knowledge about different foods and health

How good do you think each of these foods is for your health?	Very good for health (%)	Good for health (%)	Not good for health (%)	TOTAL (%)
1. Bread	42.3	52.4	5.2	100.0
2. Cheese	58.1	38.6	3.3	100.0
3. Water	84.4	14.5	1.1	100.0
4. Fresh vegetables	80.1	17.2	2.7	100.0
5. Cooked vegetables	51.9	41.9	6.3	100.0
6. Fruit	92.3	7.4	0.3	100.0
7. Meat	52.6	42.8	4.6	100.0
8. Milk, yoghurt	83.0	16.0	1.0	100.0
9. Fish	68.9	27.1	3.9	100.0
10. Eggs	61.8	34.7	3.5	100.0
11. Grains (orzo, corn, cereals, rice)	37.6	51.2	11.2	100.0
12. Sausages, ham	15.6	41.2	43.2	100.0
13. Butter	36.6	45.1	18.3	100.0
14. Biscuits	14.8	46.9	38.2	100.0
15. Sugar	5.1	29.7	65.2	100.0
16. Chocolates	6.0	26.2	67.8	100.0
17. Pasta	26.0	55.8	18.2	100.0
18. Chips/salty items	5.0	17.5	77.5	100.0
19. Ice cream	7.2	33.9	58.9	100.0
20. Fizzy drinks	4.8	14.2	80.9	100.0
21. Margarine	20.0	44.8	35.1	100.0
22. Hamburger	9.9	22.1	68.0	100.0
23. Chicken	49.0	41.6	9.4	100.0
24. Caramels	4.6	16.8	78.6	100.0
25. French fries	17.4	32.2	50.4	100.0
26. Soup	86.4	11.8	1.7	100.0
27. Olive oil	59.5	31.8	8.7	100.0
28. Pies	7.6	29.3	63.1	100.0

Almost all of the children (93.3%) agree that it is good to eat breakfast; 5.2% of the children are not sure about this, whereas further (1.4%) did not believe that it is good to have breakfast (data not shown).

Regarding the related problems of breakfast skipping (Table 23), children believe that without breakfast they feel tired, with no energy (87%), are less physically active (58%), can't follow the lessons (47%), but only one in three children believes that without breakfast they "can't learn as much". There were no differences between schools in rural areas and those in urban areas (not shown).

Table 23. Problems related to breakfast skipping according to children's perspective

What problems do you think children can have if they don't eat before go ing to school?	YES (%) Public	YES (%) Private	YES (%) Grade 4	YES (%) Grade 8	YES (%) Total
Feel tired; no energy	86.3	87.3	83.1	89.7	86.6
Fall asleep	33	39.1	37	31.2	34.3
Can't follow the lessons	47.1	48.1	51.9	43.1	47.3
Can't learn as much	29.8	35.8	37.9	24.9	31.1
Less physically active	56.1	64.6	52.9	62.7	58.0
Don't know	6.0	5.7	8.6	3.5	5.9
No problem	3.5	2.5	4.5	2.1	3.3

When asked to name (open-ended) any problems that may result from eating too many sweets and candies the problems most frequently named by children, are: 1) overweight and obesity; 2) "sugar disease" (diabetes); 3) Stomach-ache; 4) Feeling not good; 5) Teeth decay; 6) Feeling dizzy; and 7) Poor self-image (ranked in descending order, from the most frequently to the least frequently mentioned).

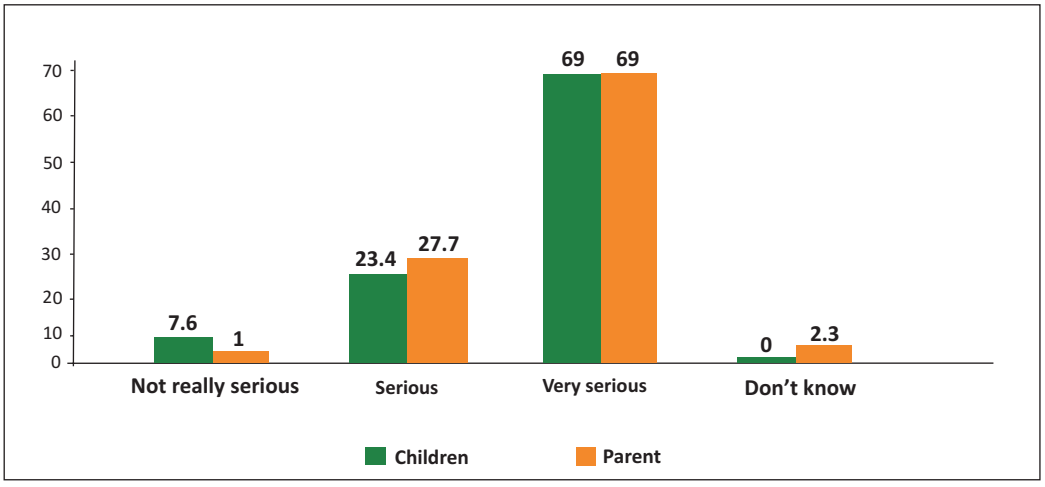
More than half of children (59.2%) think it is important to have different types of foods at meals, and one-fifth (20.0%) think it is somewhat important. More Grade 8 than Grade 4 pupils recognize food diversity as very important (63.7%, compared with 54.3%), and slightly more pupils in public schools than in private schools say it is very important (60.5%, compared with 54.5%). While overall, 17.7% of children are not sure or do not know the importance of diversifying foods at meals, one-quarter of 4th Graders (24.5%) are unsure of this, compared with 11.2% of 8th Graders (Table 24).

Table 24. Children's opinions about food diversity

How important do you think it is to have different types of foods at meals?	YES (%) Urban	YES (%) Rural	YES (%) Public	YES (%) Private	YES (%) Grade 4	YES (%) Grade 8	YES (%) Total
Very important	58.3	61.8	60.5	54.5	54.3	63.7	59.2
Somewhat important	20.3	19.0	19.3	22.5	16.3	23.3	20.0
Not important	2.9	4.0	3.3	2.6	4.6	1.8	3.2
Not sure	10.6	9.0	9.8	11.4	13.2	7.5	10.2
Don't know	7.9	6.1	7.0	9.0	11.6	3.7	7.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

For selected health issues such as overweight and obesity, both parents and children were asked to report on the same topics. Hence, parents and children were asked about the degree of seriousness of being overweight or obese. Figure 5 presents the reported information from both parents and children. There is evidence of a similar assessment of these health conditions from both parents and children, with about one-quarter of both groups responding that it is a "serious issue" (23.4% of children and 27.7% of parents) and more than two-thirds of both groups (69%) saying that it is "very serious" to be overweight or obese.

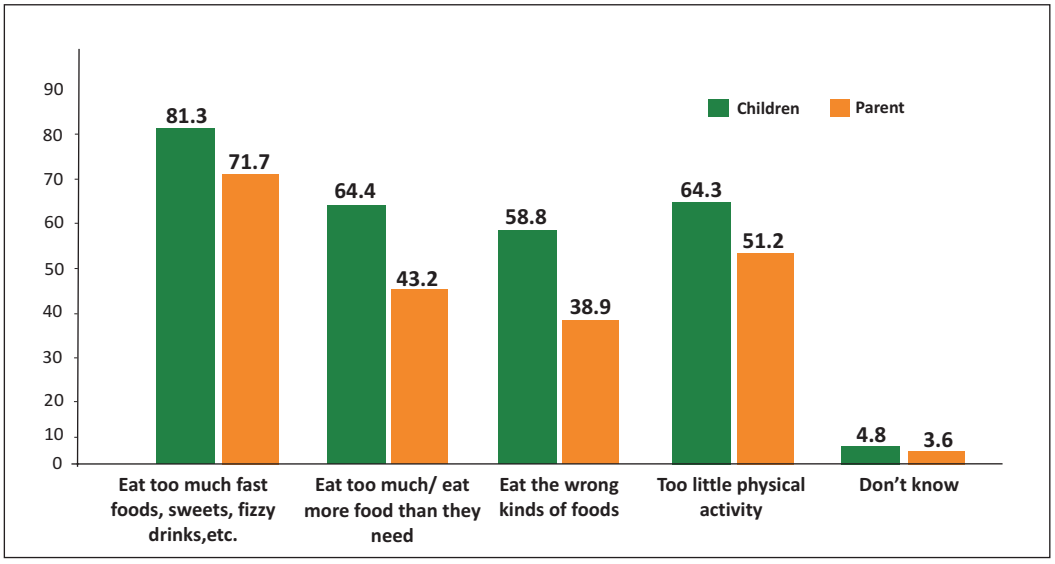
Figure 5. Children and parents report on degree of seriousness of being overweight or obese (%)



However, the proportion of children indicating from a selected list the reasons why people are overweight or obese was much higher than parents. The reason most frequently mentioned by both children and parents is the consumption of energy-dense foods and fast foods (81.3% of children and 71.7% of parents).

Children mentioned eating too much, and too little physical activity to an equal degree (64%), while parents' indicated these reasons to a far lesser extent (43.2% and 51.2%, respectively Figure 6).

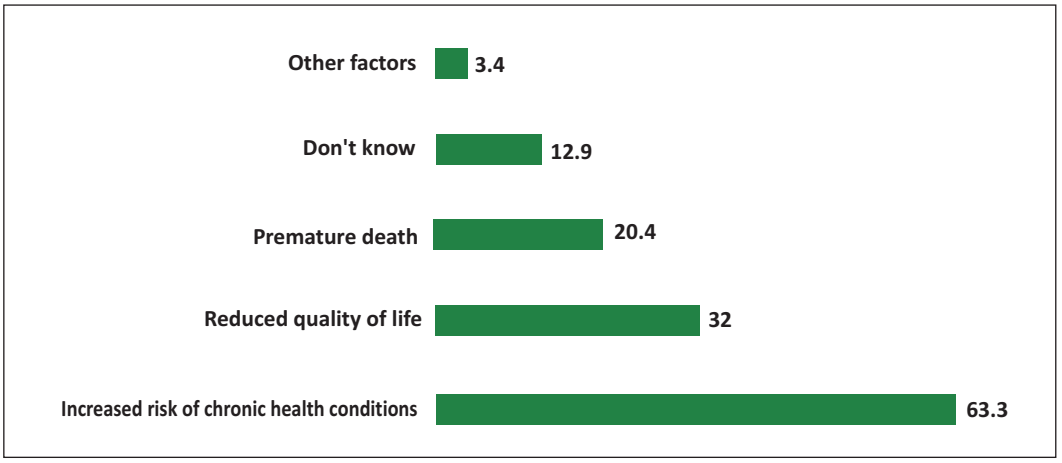
Figure 6. Distribution of the children and parents' opinions (in percent) on reasons why people are overweight or obese



According to parent's opinion, the most frequent health problem affecting a person who is overweight or obese concerns the increased risk for development of chronic diseases (63.3%), followed by a decrease in the quality of life (32.0%) and premature death (20.4%).

Thirteen percent of parents say they do not know the health problems that can be caused by being overweight or obese (Figure 7).

Figure 7. Distribution of parents' opinions (in percent) regarding health problems that can occur when a person is overweight or obese



- *Parent*

A majority of parents have heard about iron-deficiency anaemia and iodine deficiency, although more of them are familiar with iron-deficiency anaemia(88.0%), than iodine deficiency (74.1%) [Table 25]. Only about 40% of parents have heard about iodized salt, although 77.3% of the families report use of iodized salt (data not shown).

Table 25. Parents' knowledge about iodine deficiency and iron-deficiency anaemia

Have you heard	YES [n(%)]	NO [n(%)]	Don't know [n(%)]	Not completed [n(%)]	TOTAL [n(%)]
About iodine deficiency?	5043 (74.1)	789 (11.6)	730 (10.7)	248 (3.6)	6810 (100.0)
About iron-deficiency anaemia?	5991 (88.0)	351 (5.2)	307 (4.5)	161 (2.4)	6810 (100.0)

Parents believe that their children are more likely to experience iron-deficiency anaemia (15.2%) than iodine deficiency (8%, although many parents are not sure if their child is likely to be deficient in iodine (46.2%) or iron (24.5) [Table 26].

Table 26. Parents' perceptions of the likelihood of iodine deficiency and iron-deficiency anaemia among their children

How likely do you think your child	Is to lack iodine?		Is to be iron- deficient/anaemic?	
	Frequency	Percent	Frequency	Percent
Not likely	2941	43.2	3930	57.7
Not sure	3146	46.2	1668	24.5
Likely	548	8.0	1032	15.2
Not completed	175	2.6	180	2.6
Total	6810	100.0	6810	100.0

Most parents (79.4%) think that iron-deficiency anaemia is a very serious problem. Only one-quarter (25.9%) of parents think that iodine deficiency is a very serious health problem, and one-fifth (22.0%) say they do not know how serious iodine deficiency is (Table 27).

Table 27. Parents' perceptions of the seriousness of iron-deficiency anaemia and iodine deficiency

How serious do you think:	A lack of iodine in the body is?		Iron-deficiency/anaemia is?	
	Frequency	Percent	Frequency	Percent
Not serious	216	3.2	155	2.3
Serious	3088	45.3	613	9.0
Very serious	1766	25.9	5408	79.4
Don't know	15 01	22.0	456	6.7
Not completed	239	3.5	178	2.6
Total	6810	100.0	6810	100.0

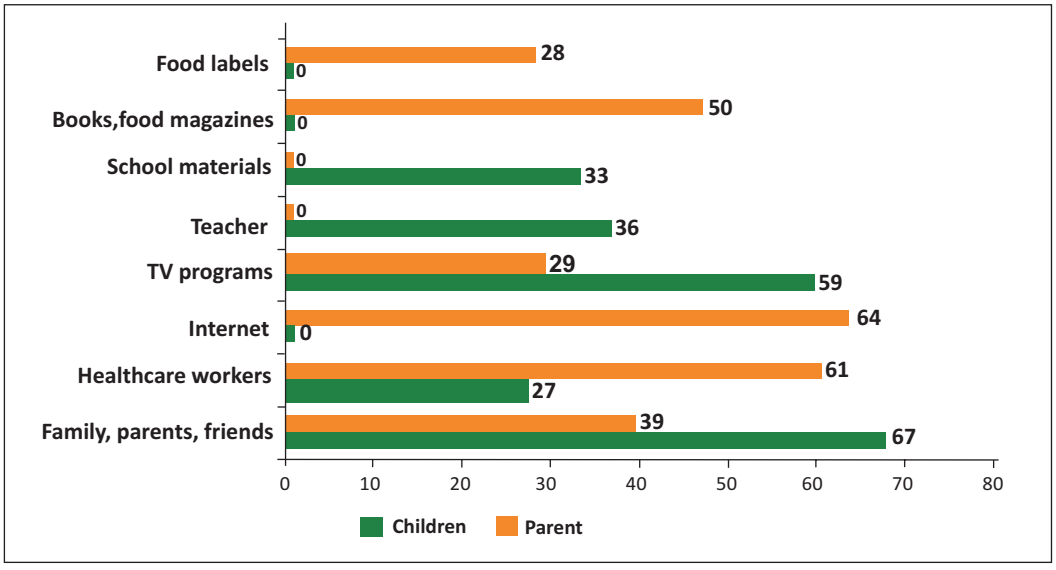
Sources of information

- *Child*
- *Parent*

The main sources of children's information regarding food, nutrition and health are family, parents and friends (67%) and TV programs(59%). About one out of three children cite teachers (36%), and school materials (33%) as sources of information, and one out of four say they get information from health care workers (27%) [Figure 8]. Among parents, the main sources of information are the Internet (64%), health care workers (61%), and books and food magazines (50%). Two out of five parents get their information from family members, friends and colleagues (39%).

Of note, school physicians/nurses (14%), kitchen classes (11%), or visits in food companies or farms (9%) are limited sources of information among children. Furthermore, in parents, limited sources of information included consumer organizations (5.1%) and local government (1%), [data not shown].

Figure 8. Main sources of information (in percent)on food, health and nutrition for children and parents



Dietary and health practices

b. Eating habits (meals and foods consumed+ breastfeeding)

- *Child*

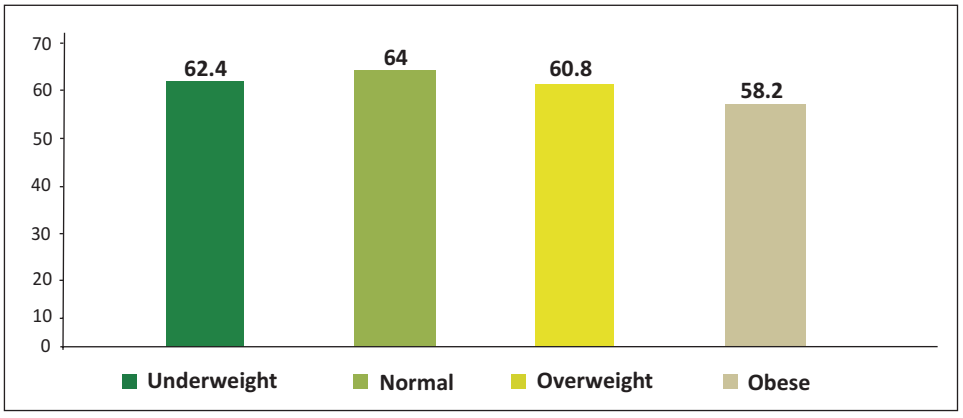
On the measurement day, just under two-thirds of the children (63%) had eaten breakfast (Table 28). The prevalence of breakfast consumption on that day was highest among fourth grade children and lowest in the eighth grade children, with eighth grade girls reporting the lowest rates of breakfast consumption.

Table 28. Breakfast consumption among children by grade and gender (on the day of measurement)

Ate breakfast	Grade 1				Grade 4				Grade 8				All Grade	
	Boys		Girls		Boys		Girls		Boys		Girls		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	833	62.4	771	61.6	907	73.1	871	76.4	725	54.6	648	50.5	4755	62.7
No	503	37.6	480	38.4	333	26.9	269	23.6	602	45.4	636	49.5	2823	37.3
Total	1336	100.0	1251	100.0	1240	100.0	1140	100.0	1327	100.0	1284	100.0	7578	100.0

Breakfast consumption was lower among obese children (58%) and those who were overweight (60.8%), compared with their counterparts who had normal weight (64%) or were underweight (62.4%) [Figure 9].

Figure 9. Breakfast consumption among children by BMI distribution



Children's reports of their practices

Most children usually eat breakfast, lunch and dinner every day. However, breakfast consumption is lower than the other main meals (71.3%, compared with 89.3% for lunch and 87.3% for dinner), although 27.9% of the children usually have a morning snack. Snacks in-between meals are much less common, with only one-third of the children (36.7%) saying they usually have an afternoon snack, while one in ten (10%) have a snack after dinner (Table 29).

Table 29. Distribution of children (percent) according to meal consumptions frequency

Which meals do you usually eat every day? (n=4991)	YES [n(%)]
Breakfast	3557 (71.3)
Morning snack	1390 (27.9)
Lunch	4455 (89.3)
Afternoon snack	1834 (36.7)
Dinner	4359 (87.3)
After dinner snack	507 (10.2)

More than two out of three children (68.5%) reported having eaten breakfast on the day of anthropometric measurements. Almost all children (94%) had eaten lunch and dinner the day before the measurements, and four out of five had consumed some kind of food snack or drink between meals (80.4%). More than half of the children had bought themselves foods to eat (Table 30).

Table 30. Distribution of eating habits among children during the last 24 hours

Eating habits	Yes [n(%)]	No [n(%)]	Don't remember/no answer [n(%)]	Total [n(%)]
Did you have breakfast today before going to school (except just water, milk or juice)?	3421 (68.5)	1503 (30.1)	67 (1.3)	4991 (100.0)
Did you have lunch yesterday/today?	4668 (93.5)	244 (4.9)	79 (1.6)	4991 (100.0)
Did you have dinner yesterday?	4684 (93.8)	249 (5.0)	58 (1.2)	4991 (100.0)
Yesterday during the day and night did you eat any foods, snacks or drink between meals?	4014 (80.4)	830 (16.6)	147 (2.9)	4991 (100.0)
Yesterday during the day and night, did you buy any foods to eat with your own money?	2931 (58.7)	1980 (39.7)	80 (1.6)	4991 (100.0)

One third of children eat their dinner while watching TV, using a mobile phone, or tablet (37%) every day, or almost every day, less than one-third say they never watch TV or use other devices while eating dinner. Almost all children say they have dinner with their family every day, or almost every day (90.5%), while one in four say they have breakfast at home in the morning only sometimes (15.7%) or never(11%) (Table31).

Table 31. Frequency of selected meal consumption and related habits

How often do you:	Every day (7 days/week)	Almost every day (4-6 times)	Sometimes (1-3 times)	Never
Eat your dinner while watching TV/Mobile phone/tablet, etc.?	23.3%	13.5%	31.9%	31.3%
Eat dinner together with your family?	78.0%	12.5%	7.8%	1.7%
Have breakfast at home in the morning?	63.4%	9.8%	15.7%	11.0%

One in three children (33%) take food from home to eat at school every day or almost every day, while two out of three say they do this only sometimes or never (21.4% and 45.5%, respectively). More than half of the children (58%) carry money to school for buying food, beverages, or lunch every day or almost every day, and one-fifth (22%) sometimes do. Sharing foods at school is not common; the majority of children (74.8%) say they never or only sometimes share their food with others (Table 32).

Table 32. Selected habits related to bringing and sharing food at school

How often do you:	Every day	Almost every day (3-4 times)	Sometimes (1-2 times)	Never
Take foods from home to eat at school?	22.9%	10.3%	21.4%	45.5%
Share your food at school with others?	13.6%	12.6%	35.6%	38.2%
Carry money to school to buy snacks, drinks or lunch?	45.1%	13.0%	21.5%	20.4%

Most children help their families very often or often in food-related activities such as food shopping (75.6%), choosing the foods for purchasing and eating (67.4%), preparing the table and washing the dishes (56.4%), as well as meal preparation (50.8%). They are less involved with cooking (43.3%) and in home farming activities (31.2%) in cases the families had such activities (Table 33).

Table 33. Distribution of children support to their families

How often do you help your family with:	Very often	Often	Sometimes	Never/ Don't have
Food shopping?	45.4%	30.2%	20.4%	4.1%
Choosing foods to buy and eat?	33.8%	33.6%	26.7%	6.0%
Preparing food and meals?	25.1%	25.7%	35.1%	14.0%
Cooking?	23.0%	20.3%	32.5%	24.2%
Preparing table, washing dishes?	34.7%	21.7%	24.9%	18.7%
Home farming activities?	15.9%	15.3%	24.3%	44.4%

Parents' reports of children's practices

- *Parent*

More than three out of four parents (78%)report that their children were exclusively breasted for the first six months of life.

About 4.3% of children, according to their parents, have food allergies (verified by medical tests).

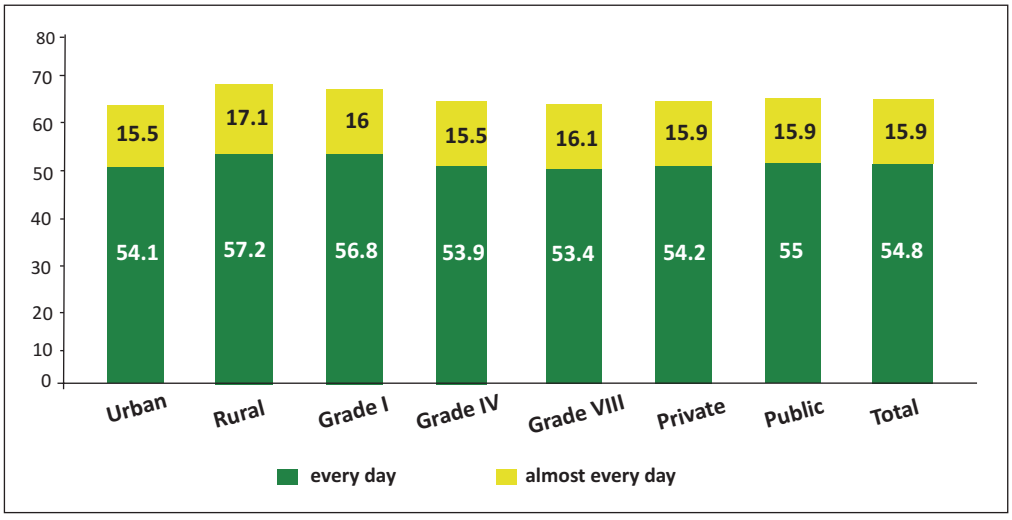
One in five parents (21%) say that "it is very difficult to make my child eat food". About 15% of the parents "require a lot of fantasy" to stimulate their children to change their food habits, whereas 5% admit that their children always eat the same foods. Two in five parents say that their children like eating outside the home (data not shown).

When children do not want to eat or refuse to eat certain foods, half of parents say they offer a different type of food; about one-third do not insist, and 7% say they force their children to eat against their will (data not shown).

Regarding breakfast consumption, almost three-quarters of parents (71%) report that their children have breakfast at home every day or almost every day, with a slightly higher proportion of children from rural areas than urban areas doing so (74.3%, compared with 69.6% respectively). There was no difference in the levels of daily consumption of breakfast

among younger and elder children, but a significant difference was noted for pupils attending the 4th grade. Conversely, there were no differences between school types (public vs. private schools (Figure 10).

Figure 10. Distribution of children's breakfast consumption at home (percent), according to parents' report



The foods most children eat for breakfast are milk or yoghurt (77.3%),followed by baked products (bread, biscuits, croissant, and pies) (69.1%).Half of the children eat eggs or sausage (53.6%), two-fifths have cheese or butter, jam, honey or marmalade (44.4%) or fruit (39.6%). Roughly half drink water or juice at breakfast (56.5% and 47.5%, respectively, while one-third drink tea(Table 34). There was evidence of a significant difference between children in rural areas (43.6%) and those in urban areas (38.3%). Also, such a difference was noticed for fizzy drinks: 10.5% in rural areas vs. 7.9% in urban areas, and this difference was also statistically significant (data not shown).

Table 34. Distribution of foods children eat for breakfast (parents' report)

What foods or drinks does your child usually eat for breakfast (more than one answer)			
Foods	**Percent**	**Drinks**	**Percent**
Baked products (bread, biscuits, croissant)	69.1	Milk or yoghurt	77.3
Jam, chocolate cream, honey, marmalade	44.4	Tea	34.0
Fruit	39.6	Juice	47.5
Eggs, sausage	53.6	Water	56.6
Cheese, butter	41.6	Fizzy drinks	8.5

About four out of five parents (78.2%) report that their children eat some food while at school. The majority of children eat lunch at home with their families (77.7%),while about 10% eat at school food they have purchased from a shop or vendor, and 7% eat food they

have brought from home. Half of the children eat an intermediary meal or snack in the after noon *every day* (30%) or almost *every day* (20%). About 15% of the children eat after dinner every day (7.9%), or almost every day (6.9%) [data not shown].

Table 35 presents children's frequency of consumption of selected foods and beverages, as reported by their parents. About half of parents say that in a typical week, their children eat fresh fruit every day (55%), while only one-fifth eat vegetables every day (19.6%). Milk and other dairy products are frequently consumed, with roughly half of children drinking whole milk or low-fat milk every day (31.0% and 17.2% respectively), two-fifths eating cheese every day (41.0%), and one-fifth eating yoghurt or other dairy products (18.8%). Less than half of the children (42.5%) eat meat 1-3 times a week and about one-third eat fish (Table 36).Just under half of children drink fruit juice frequently, with 26.8% drinking it every day and 20.8% drinking juice 4-6 days a week.

Table 35. Children's frequency of consumption of selected foods and beverages according to their parents' report

In a typical week, how often does your child eat or drink the following items ?					
Frequency	**Never [%]**	**<1/week [%]**	**1-3 days [%]**	**4-6 days [%]**	**Every day [%]**
Fresh fruit	1.3	2.8	16.6	23.6	54.6
Vegetables (except potatoes)	3.1	8.7	36.5	29.0	19.6
100% juice	3.6	12.7	31.4	20.8	26.8
Sweetened beverages	20.4	38.6	21.9	7.2	5.4
Aromatized milk	21.7	19.5	21.7	13.4	19.4
Diet or light sweetened beverages	69.2	13.9	6.6	2.2	1.7
Milk with low fat or semi-skimmed	34.7	14.2	17.7	10.9	17.2
Whole milk	21.3	11.2	17.0	14.6	31.0
Cheese	5.8	6.4	21.1	23.5	41.0
Yoghurt, melted cheese, or other dairy products	8.1	16.9	31.7	19.7	18.9
Meat	5.5	11.9	42.5	26.6	11.3
Fish	8.7	38.7	34.1	8.9	3.8
Chips, pop corn, peanuts	12.6	34.6	21.2	11.1	15.2
Sweets, caramels, chocolates	6.6	30.3	30.7	15.2	14.2
Biscuits, cakes, pies	4.1	20.9	39.3	20.7	12.7
French fries, pizza, hamburger, meat pies, sandwiches with meat/sausages	6.7	37.1	27.1	14.9	11.8

Family Practices

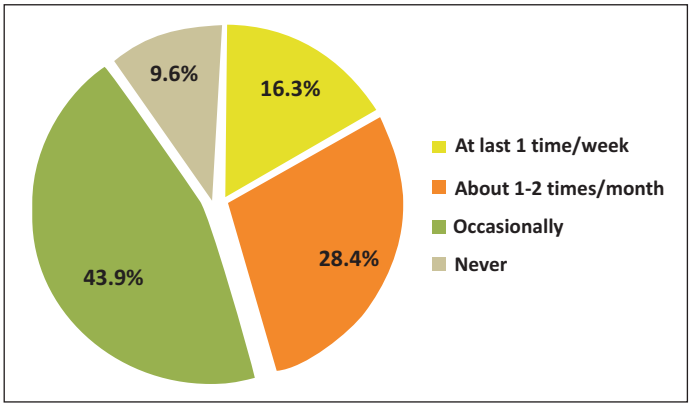
The majority of the parents (85%) affirm that in their families they cook traditional or local dishes. Mothers are the persons who usually cook (84%), followed by the grandmothers (9.4%).

During weekdays, most families have dinner together, (84%), half eat lunch together (53%)

and one-fifth eats breakfast together (23%). There are significant differences between rural areas and urban areas for both eating breakfast together (25% vs. 22%, respectively) and dinner (85.7% vs. 82.5%, respectively) [data not shown].

Slightly more than two-fifths of families (44%) have lunch or dinner at a restaurant occasionally (Figure 11).

Figure 11. Frequency of eating at a restaurant



The TV is switched on during meals every day in 43% of the families. Only 4% of the parents report that they never switched on the TV at mealtime (Table 36).

Table 36. Frequency of switching on the TV during meals

Is TV switched on during your meals?		Frequency	Percent	Valid Percent	Cumulative Percent
	Every day	2914	38.5	42.8	42.8
	Almost every day	1833	24.2	26.9	69.7
	Sometimes	1660	21.9	24.4	94.1
	Never	267	3.5	3.9	98.0
	Incomplete answer	136	1.8	2.0	100.0
	Sub-total	6810	89.9	100.0	
	Missing System	768	10.1		
Total		7578	100.0		

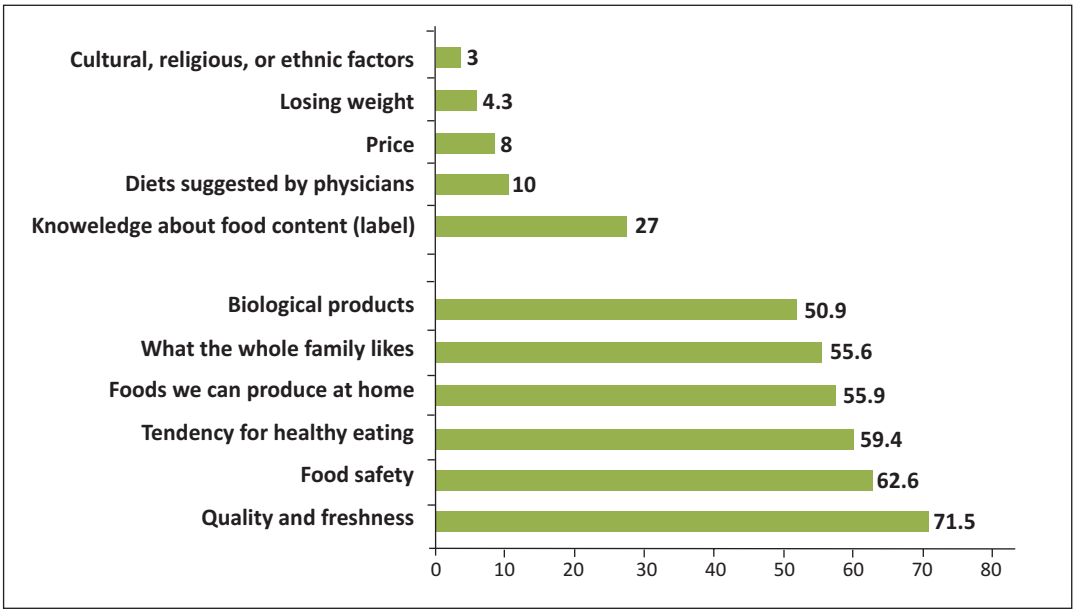
c. Food choices, preferences and influencing factors

- *Child*

The main factors that children report as affecting their food choices and consumption of meals and snacks are family and parents (73.0%) and food taste (60.4%). One-quarter of children (24.5%) say that TV food and beverage advertisements affect their food choices (data not shown).

The majority of parents indicate that food quality and freshness is a factor in their family food choices (71.5%), followed by food safety (62.6%), and tendency for healthy eating (59.4%). About half say that foods preferred by the whole family (55.6), foods that they can produce at home (55.9% each) and biological products (50.9%) influence family food choices. Factors less likely to influence food choices are: knowledge of food content (27.3%);diets recommended by physicians(10.3%); prices (8.4%); losing weight (4.3%); cultural religious or ethnic factors (3.0%); advertisements (1.8%), etc. (Figure 12).

Figure 12. Distribution of factors (percent) influencing parents' food choices



Children indicate that fruits are preferred foods, with almost all saying that they "like a lot" oranges and mandarins (92.7%), apples and pears (89.4%),banana (84.9%), peaches and apricots (85.4%) and grapes (80.3%); only 45.2% like dried fruit. Among vegetables, lettuce (77.3%), carrots (72.2%), and tomatoes (63.8%) are more liked than peppers (32.9 %), squash (32.3%), cabbage (36.1%), long beans(32.7%) and cauliflower (37.7%). Many children say they like a lot fresh fish (68.7%) but many do not like canned fish at all (29.4%). Less than half of children like peas/ beans/lentils or spinach a lot (45.6% and 47.6%, respectively).

Conversely, their least preferred foods ("Don't like at all") are: canned fish (29.4%), squash (23.2%), peppers (22.9%), cauliflower (21.8%) long beans (21.7%) cabbage (20.3%) and sea foods (17.4%). One in six children has never tried long beans or seafood, and one in ten has never tried cauliflower or squash (data not shown).

- ***Parent***

Parents reports on family eating habits

The most important changes in nutritional habits in the past two years identified by parents consist of an increase in fruit and vegetable consumption (70%), a decrease in consumption of fat and fatty foods (53%), a decrease in sugar consumption, including sweets (51%), an increase milk and yoghurt consumption (43%) and an increase in water intake (41%). One in three families has increased their fish consumption and has decreased salt consumption (Table 37). More than three out of four families report using iodized salt (data not shown).

Table 37. Changes in the family eating habits in the past 2 years

Over the past 2 years, has your family made any of these changes in the way you eat? (n=6810)	YES (%)
We use less sugar and sweets	50.7
We use less bread/pasta	16.2
We don't use foods with preservatives or colorants	50.1
We use less coffee and tea	8.4
We use less fats and fatty foods	52.8
We use more milk, cheese, or yoghurt	43.3
We use lower food quantities	7.7
We use more foods with low calories	17.8
We use less milk, cheese, or yoghurt	5.1
We use more fruit and vegetables	69.4
We avoid eating outside the meals	16.9
We drink more water	41.3
We use more foods with fibers	18.4
We use less meat	21.5
We use more meat	14.9
We use more fish	31.7
We use less salt	36.6
We drink less alcohol	18.7

Better nutritional knowledge is cited by half the parents as the main reason for making changes in the family's eating habits (52.5%).Very few say they have made changes for weight or health concerns (13.3% and 15.7%). Food prices, food availability, or food convenience reportedly have a negligible influence on changes in family seating habits(each factor with a range of 3%-4%) [Table 38].

Table 38. Factors inflecting nutritional changes according to parents' perspective

What is the main reason for making these changes?		Frequency	Percent	Valid Percent	Cumulative Percent
	Weight concern	905	11.9	13.3	13.3
	Health concern	1071	14.1	15.7	29.0
	We have better nutritional knowledge now	3574	47.2	52.5	81.5
	Price/cost	236	3.1	3.5	85.0
	Availability	195	2.6	2.9	87.8
	Convenience	315	4.2	4.6	92.5
	Other reason	277	3.7	4.1	96.5
	Incomplete answer	237	3.1	3.5	100.0
	Sub-total	6810	89.9	100.0	
	Missing System	768	10.1		
	Total	7578	100.0		

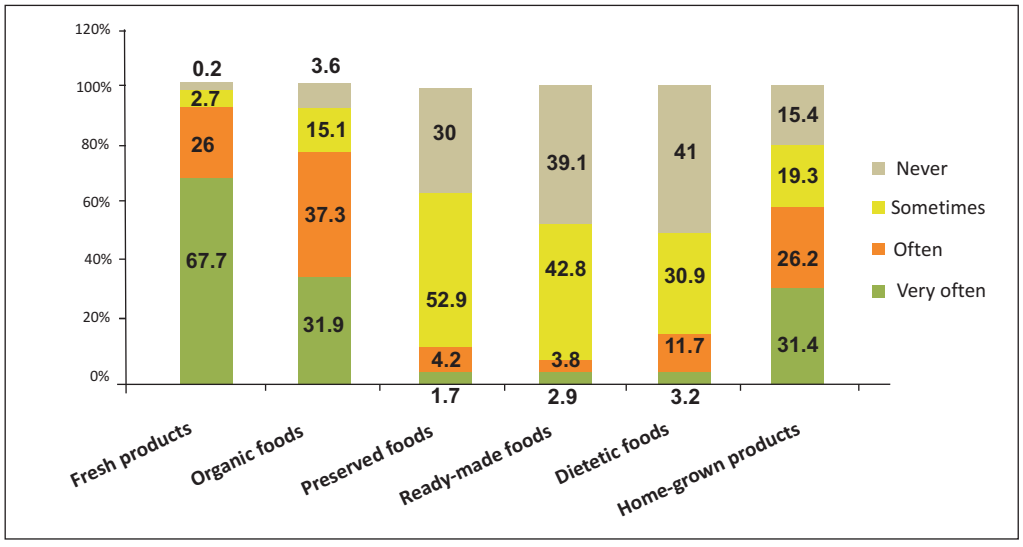
Table 39 lists the factors which, according to parents, prevent their families from eating as healthy as they would like. The most often mentioned factor is irregular working or school hours (37%), followed by the family's food preferences (20.8%), and the price of healthy foods (17.6%). Fully 38.5% of parents appear to be satisfied with the way their families eat, saying that "we do not want to change the way we eat".

Table 39. Factors inflecting nutritional changes according to parents' perceptive

Here are some reasons why some families are not able to eat as healthy as they would like to. Please indicate which of these is true for your family (n=6810)	TRUE (%)
Irregular working/school hours	37.0
Healthy food are not our favorites	5.2
Life is busy with little time for cooking	15.0
Food preferences/taste of the family	20.8
Giving up from favorite foods	15.1
High price of healthy foods	17.6
Quality (healthy) foods rotten faster	6.3
Specialists change often their healthy nutrition recommendations	4.1
Poor knowledge about healthy nutrition	3.8
Cooking difficulties (I don't know how to cook)	0.7
Long time of preparation and cooking	4.3
We don't want to change what we eat	38.5

Virtually all parents (93.7%) say they use fresh products "very often or often", and the great majority (86.9%) rarely use ready-made foods ("never or only sometimes"). Two-thirds frequently use organic foods (69.2), and more than half use products grown at home very often or often (57.6%) (Figure 13).

Figure 13. Types of foods families use, according to parents' report



Most families say they do not face any difficulties or barriers to eating vegetables (78.2%) or fruits (80.2%). Two-thirds report no difficulties to eating meat (65.3%), and slightly more than half face no difficulties in eating fish (58.4%). However, nearly 20% say that high prices are barriers for them for eating meat or fish, and 16.2 % say they do not have fish very often at home (Table 40).

Table 40. Difficulties and barriers related to consumption of selected food items

Please indicate any difficulties or barriers which do not allow you to consume the following food items (in %):						
Foods	High price	We don't like	They need a lot of time for cooking	We don't have them often at home	Nobody eats them in our family	No difficulties
Vegetables	9.5	2.6	2.4	6.7	1.0	78.2
Fruit	10.5	0.6	0.6	5.7	0.4	80.2
Meat	19.6	3.4	4.9	7.6	0.9	65.3
Fish	18.3	3.7	4.1	16.2	2.0	58.4

- ***Teacher***

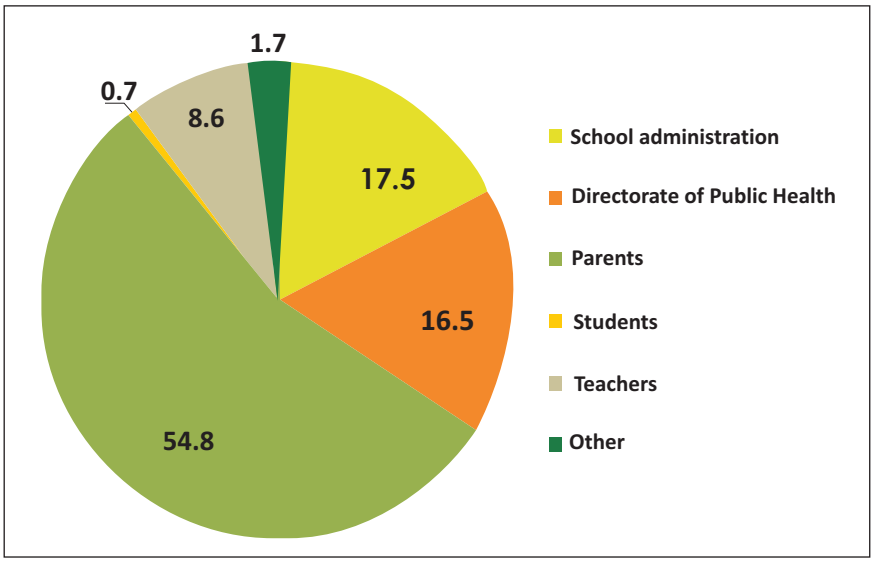
Teachers' opinions and attitudes

Teachers were also asked about the influencing factors for healthy food choices of the children attending their respective schools.

Concerning the main authorities for encouraging healthy food choices in schools, more than one in two teachers (55%) believe that the responsibility should lie with the parents; 18% consider the school administration as having the main responsibility; 17% the Directorate of

Public Health; and less than one in ten teachers believes that such a responsibility should stand with themselves (i.e., with the teachers) [Figure 14].

Figure 14. Main authorities for encouragement of healthy food choices



Most teachers (71.4%) believe that they should have a significant influence serving as a role model for their pupils regarding healthy eating behaviors, whereas one-quarter (23.6%) believe that they should have some influence. Moreover, 58.8% of teachers feel they have significant influence as role models, and 32.5% feel they have some influence on their students. Concerning teachers' influence in promoting healthy eating behaviors among their pupils, 54.0% feel that they have a significant influence, and 37.3% feel they have some influence. Most teachers (71.1%) also feel that parents are significantly influential as role models for the healthy eating behavior development of their children (data not shown).

Virtually all (99.1%) teachers strongly agree that nutrition and healthy eating have an impact on children's ability to learn and perform at school (Table 41).Most teachers feel that they have the responsibility to model healthy eating habits to students in their class (82.5%), and they also feel that they do model healthy eating habits to their students (85.9%).

Most teachers (81.3%) also agree or strongly agree that they can influence the food choices of their pupils for the snacks they eat in their classroom, but only 62.4% of the teachers agree or strongly agree that they actually do have an influence on their pupils' snack choices.

One-third (35.6%) of teachers disagree or strongly disagree that they are able to assume the responsibility for creating a healthy nutritional environment at school; 33.1% of the teachers disagree or strongly disagree that they have the authority to provide input regarding their school nutrition environment; and 28.4% of the teachers disagree or strongly disagree that pupils imitate their teachers' eating and those of others around them (Table 41).

Table 41. Teachers' attitudes toward their pupils' food choices

Please indicate how strongly you agree or disagree with each of the following statements:	Strongly disagree	Disagree	Agree	Strongly agree	Do not know	Total
Nutrition and healthy eating have an impact on children's ability to learn and perform at school	1 0.3%	1 0.3%	72 23.3%	234 75.7%	1 0.3%	309 100%
I feel that food/drinks consumed in the classroom ha ve an influence on student food choices.	2 0.7%	27 9.0%	153 51.2%	91 30.4%	26 8.7%	299 100%
I can influence the snack choices in my classroom	7 2.3%	38 12.5%	158 52%	89 29.3%	12 3.9%	304 100%
I do influence the snack choices that are allowed in my classroom	28 9.6%	59 20.1%	124 42.3%	59 20.1%	23 7.8%	293 100%
I have the authority to provide input regarding my school nutrition environment	38 12.7%	61 20.4%	104 34.8%	43 14.4%	53 17.7%	299 100%
I have the authority to influence my classroom's school nutrition environment	28 9.3%	55 18.2%	130 43%	56 18.5%	33 10.9%	302 100%
I'm able to assume the responsibility for creating a healthy nutrition environment in my school	50 16.4%	59 19.4%	106 34.9%	35 11.5%	54 17.8%	304 100%
I have influence in creating a healthy nutrition environment in my school	27 8.9%	44 14.6%	128 42.4%	48 15.9%	55 18.2%	302 100%
Children imitate my eating and those of others around them	33 11%	52 17.4%	117 39.1%	50 16.7%	47 15.7%	299 100%
I have the responsibility to model healthy eating habits to students in my class.	11 3.6%	28 9.2%	150 49.3%	101 33.2%	14 4.6%	304 100%
I model healthy eating habits to my students	5 1.6%	19 6.2%	153 49.2%	112 36.7%	16 5.2%	305 100%

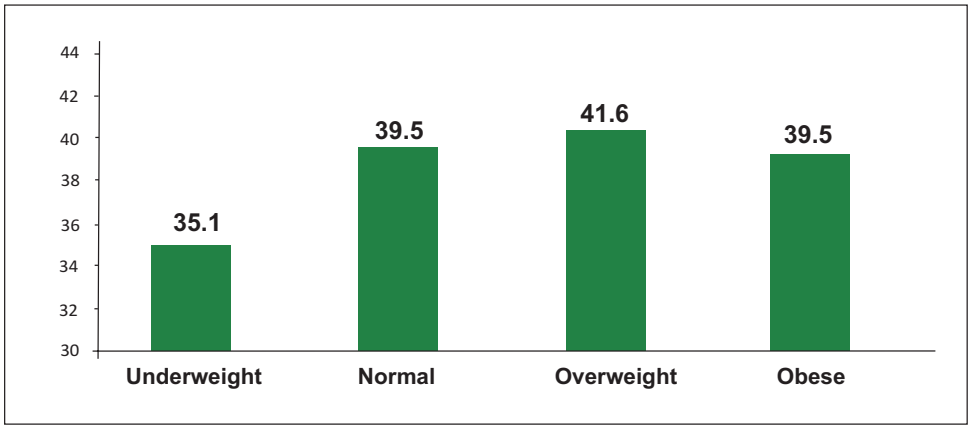
d. Physical activity

- *Child*

Almost all children (93.4%) say they like to participate in sport activities and like being active. But, according to their parents, only 40% of the children attend sport clubs or dancing clubs, with no significant difference by place of residence (urban vs. rural areas) or school type (public vs. private schools) [data not shown].

Of note, more overweight children attend sporting and dancing clubs than the other groups of children (41.6%), whereas thin (underweight) children are least likely to attend such clubs (35.1%) [Figure 15].

Figure 15. Distribution of children (in percentages) according to the sport/dancing club attendance and BMI status – parents' report



- *Parent*

Among those children who attend sports or dance clubs, slightly less than half (47.9%) spend 1-3 hours a week (including weekends) engaging in sports, dance or other physical activities, and about one-third (30.9%) spend 4-6 hours a week; 5.3% of children attending these clubs spend 7 hours a week and 12.9% spend 8 or more hours a week in these activities (Table 42).

Table 42. Distribution of hours spent per week on sports and physical activities according to the parents' reports

During a week (including the weekend), how many hours does your child spend on sports and physical activities in these sports or dancing clubs?					
		Frequency	Percent	Valid Percent	Cumulative Percent
	None	33	.4	1.2	1.2
	1 hour/week	292	3.9	10.6	11.8
	2 hour/week	498	6.6	18.1	29.9
	3 hour/week	527	7.0	19.2	49.1
	4 hour/week	325	4.3	11.8	61.0
	5 hour/week	269	3.5	9.8	70.7
	6 hour/week	256	3.4	9.3	80.1
	7 hour/week	146	1.9	5.3	85.4
	8 hour/week	91	1.2	3.3	88.7
	9 hour/week	69	.9	2.5	91.2
	10 hour/week	87	1.1	3.2	94.4
	11 hour/week	102	1.3	3.7	98.1
	Incomplete answer	53	.7	1.9	100.0
Total		2748	36.3	100.0	

Parents report that children are more active during weekends than during the week. During week days, in their leisure time, about 20% of children never play or play less than 1 hour/day in an energetic manner, compared with only 7% during weekends. Furthermore, the

proportion of children who play at least 3 hours is about 36% during weekends compared with only 9% during week days (Table 43).

Table 43. Distribution of hours that children play in an active/energetic manner in week days and weekends

In his/her leisure time, about how many hours does your child play in an active/energetic manner?		For the week days		For the weekends	
		Frequency	Valid Percent	Frequency	Valid Percent
	Never	75	2.7	26	.9
	<1h/day	465	16.9	175	6.4
	About 1 h/day	1109	40.4	457	16.6
	About 2 h/day	736	26.8	876	31.9
	About 3 or more h/day	248	9.0	981	35.7
	Incomplete answer	115	4.2	233	8.5
	Sub-total	2748	100.0	2748	100.0
	Missing System	4830		4830	
	Total	**7578**		**7578**	

- *Teacher*

Almost all teachers (95%) report that their class has at least three hours of physical exercise a week. Of those teachers whose classes do not meet this regulation, 11 are from public schools and 3 are from private schools;

Ten are in urban areas and four in rural areas. All of these teachers are in the elementary track (seven teachers each in grade I and grade IV).

The main reasons they cite for not conducting entirely the required number of physical exercise hours are weather conditions/only outdoor space(45%); inappropriate gym space (not safe, no equipment...)(45%); or lack of gym space /insufficient gym space(38.1%) [data not shown].

- School Director

With only one exception, almost all school directors (97.3%) report that all of the classes in their school have at least three hours of physical exercise a week. One director in a public school in a rural area admitted that in his school only about half of the classes carry out at least 3 hours of physical exercise per week, noting that lack of space and bad weather conditions are the main reasons for the other classes not conducting the required number of physical activity hours (data not shown).

The school directors also report that besides physical exercise classes, pupils are also engaged in other physical activities, including sports, in their respective schools (Table 44). The most common locations for these activities are the schoolyard (87.5%), nearby playgrounds or open spaces (56%), gym space (53%), or in the classrooms (15.6%) [data not shown].

Table 44. Engagement in other physical activities and sports at school

Besides gym classes, do pupils engage in other physical activities or sports at school?	Yes [n (%)]	No [n (%)]
No (go to question 16)	5 (13.5)	32 (86.5)
Yes, during school hours	14 (37.8)	23 (62.2)
Yes, during class breaks	10 (27)	27 (73)
Yes, when they arrive at school	5 (13.5)	32 (86.5)
Yes, in the afternoon	20 (54.1)	17 (45.9)
Other_____	6 (16.2)	31 (83.8)

According to the directors' reports, there is a structured and effective physical activity teaching program (school curriculum) in 30 schools (81%). Teachers have been trained about this curriculum and physical abilities of children are assessed in 22 schools (60%). Only 2 out of 37 schools employ outside experts for this subject (discipline) [Table 45].

Table 45. Engagement in other physical activities and sports at school

Which of these describe the physical activity at your school (Indicate all that apply)	Yes [n (%)]	No [n (%)]	No response [n (%)]
There is a structured and effective curriculum/program	30 (81.1)	6 (16.2)	1 (2.7)
Teachers have been trained about this curriculum	22 (59.5)	14 (37.8)	1 (2.7)
Outside experts are employed	2 (5.4)	34 (91.9)	1 (2.7)
Physical abilities of children are assessed	14 (37.8)	22 (59.5)	1 (2.7)
There is no structured physical activity curriculum/program at our school	2 (5.4)	34 (91.9)	1 (2.7)

e. Hand washing and oral hygiene

- *Child*

One in ten children does not wash his/her hands before eating, after toilet usage, and does not use soap when washing his/her hands; one in seven children does not wash his/her hands after eating; and one in five children does not wash his/her hands after having played different games (data not shown).

There is a tendency of better hygienic practices among children in the 8th grades compared to their counterparts in the 4th grade (Table 46).

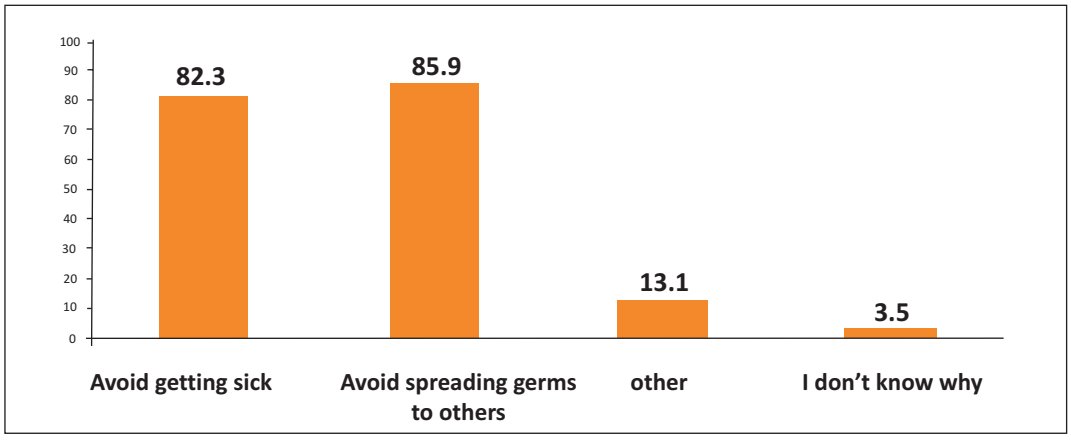
Also, better hygienic practices are evident among girls compared to the boys, and children in public schools compared with those from private schools, for all the questions related to hand-washing practices (data not shown).

Table 46. Hand-washing practices by children's grade

Do you wash your hands (n=4991):	Grade	Always (%)	Sometimes (%)	Never (%)
Before eating?	Grade 4	89.5	9.5	1.0
	Grade 8	90.8	9.0	0.2
After eating?	Grade 4	84.5	12.1	3.5
	Grade 8	88.1	11.1	0.7
After using the toilet?	Grade 4	85.9	11.1	3.0
	Grade 8	95.2	4.2	0.6
After playing?	Grade 4	81.4	14.8	3.8
	Grade 8	82.0	16.8	1.2
Do you use soap while washing your hands?	Grade 4	90.1	7.9	2.1
	Grade 8	92.6	6.6	0.8

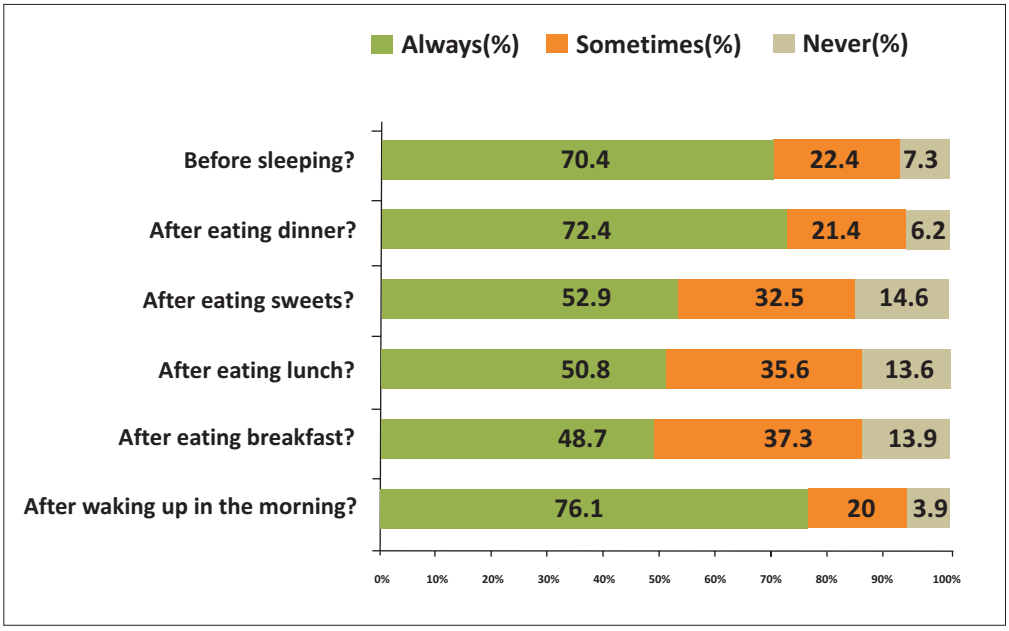
One in six children does not know or does not think that it is important to wash his/her hands; furthermore, 82% of the children do not think that hand-washing prevents occurrence of different diseases, and 86% of the children do not think that hand-washing avoids the spread of germs to others (Figure 16).

Figure 16. Distribution of children (in percent) according to the reasons why they think it is important to wash their hands



The majority of both 4th and 8th grade children brush their teeth "always" when they wake up in the morning (76%) and in the evening after dinner (72%) [Figure 17].

Figure 17. Distribution of the children (in percent) according to their tooth-brushing practices



However, children in the 4th grade seem to take more care of their teeth compared with those attending the 8th grade, as indicated by teeth-brushing practices at other times of day and after other meals or snacks (Table 47). A similar finding was evident for girls, compared to boys (not shown).

Table 47. Tooth-brushing practices by grade of the children

Do you brush your teeth:	Grade	Always (%)	Sometimes (%)	Never (%)
After waking up in the morning?	Grade 4	76.1	19.3	4.6
	Grade 8	76.2	20.6	3.3
After eating breakfast?	Grade 4	59.8	28.7	11.5
	Grade 8	38.6	45.2	16.2
After eating lunch?	Grade 4	60.8	27.6	11.6
	Grade 8	41.6	42.9	15.5
After eating sweets?	Grade 4	66.3	23.2	10.5
	Grade 8	40.8	41.0	18.2
After eating dinner?	Grade 4	73.9	20.3	5.8
	Grade 8	71.1	22.4	6.5
Before sleeping?	Grade 4	72.7	19.8	7.4
	Grade 8	68.2	27.7	7.1

Most children use toothpaste for brushing their teeth (89%); a few (6%) use inter-dental string, or toothpicks (2%). The average time of tooth-brushing is more than one minute for 63% of the children, or more than two minutes in 45% of the children. Conversely, one in ten children brushes his/her teeth for less than one minute (data not shown).

School food, facilities and environment

f. Meals and snacks at school

- *Parent ("at school" responses)*

Very few parents (4.6%) confirm that their children consume a meal or snack provided by the school (data not shown). About 40% of parents indicate they are willing to pay for the school providing meals for their child/children. On the other hand, about 11% of the parents are not willing to do so, due to economic constrains, whereas about 38% of the parents are not willing to pay because they prefer that their children eat homemade foods (Table 48).

Table 48. Parents' willingness to pay the school for food provision

Would you be willing to pay fo r school providing meals for your child/children?	Public	Private	Urban	Rural	Total
	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)	Frequency (%)
Yes	40.1	41.4	41.3	37.2	40.4
No, I can't afford it	11.4	11.2	10.6	13.9	11.4
No, I prefer my child consume homemade foods	37.6	37.2	37.2	38.7	37.5
Don't know	8.3	7.5	8.5	7.0	8.1
Incomplete answer	2.6	2.7	2.4	3.3	2.6
Total	100.0	100.0	100.0	100.0	100.0

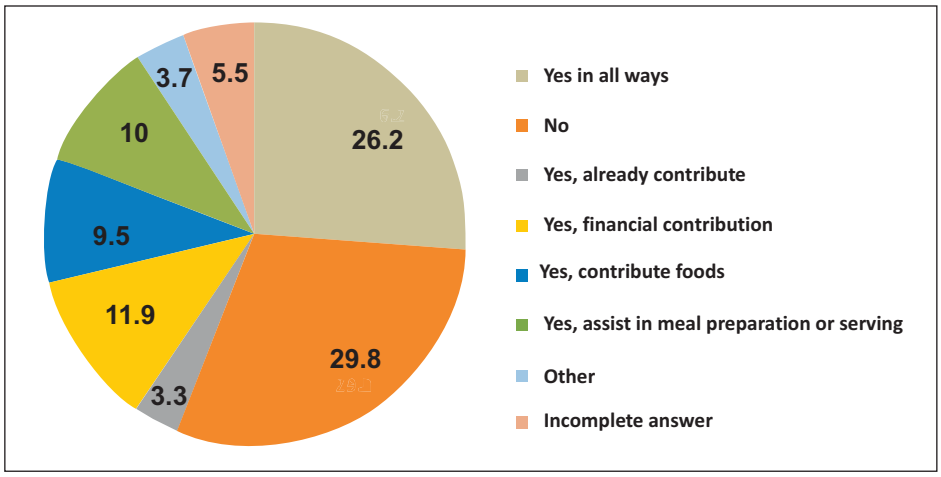
The majority of the parents (64.7%) are willing to help their child's school provide meals or snack at school in different ways. More than one in four parents (26.2%) report that they are willing in all ways to help and support their children's school to provide meals and snacks, 3.3% say they are willing to contribute and already do so, 11.9% say they are willing to provide a financial contribution.

Also,3.7% of parents are willing to support in different ways, but only if "the food is organic", "food is safe and controlled", or "parents have the possibility to check the food quality provided to their children". Conversely, 29.8% of the parents are not willing to do so.

Very few (3.3%) parents are already contributing, and 10% say they are willing to assist in meal preparation or serving of school foods [Figure 18].

There are no significant differences between urban and rural areas and school type (private vs. public schools).

Figure 18. Parents' willingness to support schools for food provision



g. Foods available on school premises (canteens/cafeterias/vendors)

- *School Director*

Table 49 presents facilities and devices (equipment) available in schools according to school directors. One in ten schools (10.8%) has a partially equipped kitchen; 13.5% of the schools have a fully equipped kitchen; one in four schools have cafeteria or a designated eating area (space). Less than half of the schools have free drinking water (48.6%). Private schools are better equipped, whereas the most deprived schools in terms of the space and equipment are found in rural areas, according to the school directors (Table 49).

Table 49. Facilities available at school premises according to the directors' reports

Facilities available in your school (directors' reports):	Yes, available [n (%)]				
	Public	Private	Urban	Rural	Total
Cafeteria or designated eating space	1 (4.0)	9 (75.0)	9 (37.5)	1 (7.7)	10 (27)
Gym or palestra	9 (36)	10 (83.3)	17 (70.8)	2 (15.4)	19 (51.4)
Outdoor playground or open space	15 (60)	10 (90.9)	16 (69.8)	9 (69.2)	25 (67.6)
School garden	25 (100)	12 (100.0)	24 (100.0)	13 (100.0)	37 (100.0)
Space or land for school garden	3 (12.0)	6 (50-0)	9 (37.5)	0 (.0)	9 (24.3)
Free drinking water	9 (37.5	9 (75.0)	15 (62.5)	3 (25.0)	18 (48.6)
Clean water for hand washing	29 (92.0)	12 (100.0)	24 (100.0)	11 (84.6)	35 (94.6)
Adequate toilets	17 (68)	12 (100)	19 (79.2)	10 (76.9)	29 (78.4)
Fully equipped kitchen (cooking, preparation and refrigeration facilities)	0 (.0)	5 (45.5)	4 (17.4)	1 (7.7)	5 (13.5)
Partially equipped kitchen	0 (.0)	4 (40)	4 (18.2)	0 (.0)	4 (10.8)
No kitchen, but food preparation space	1 (4.0)	0 (.0)	1 (4.5)	0 (.0)	1 (2.7)
Storage space	5 (20.0)	6 (50.0)	8 (33.3)	2 (23.1)	11 (29.7)

Table 50 presents the types of foods and beverages that children can find on their school premises.

Table 50. Foods and beverages available at school premises

Foods or beverages	Free [n (%)]	Paid [n (%)]	Not available [n (%)]	No response [n (%)]
Water	12 (32.4)	5 (13.5)	13 (35.1)	7 (18.9)
Tea	2 (5.4)	7 (18.9)	17 (45.9)	11 (29.7)
100 % Fruit Juices with no added sugar	0 (0)	4 (10.8)	24 (64.9)	9 (24.3)
Fruit juices or other non - carbonated drinks containing added sugar	1 (2.7)	8 (21.6)	18 (48.6)	10 (27)
Carbonated (soft) drinks containing added sugar	1 (2.7)	11 (29.7)	16 (43.2)	9 (24.3)
Flavoured milk with added sugar	0 (0)	1 (2.7)	26 (70.3)	10 (27)
Hot drinks (cacao, tea, latte)	0 (0)	4 (10.8)	23 (62.2)	10 (27)
Milk, yogurt or ayran	0 (0)	4 (10.8)	23 (62.2)	10 (27)
Energy drinks	0 (0)	4 (10.8)	22 (59.5)	11 (29.7)
Fresh fruit	1 (2.7)	2 (5.4)	21 (56.8)	13 (35.1)
Vegetables	1 (2.7)	3 (8.1)	20 (54.1)	13 (35.1)
Sweet snacks (e.g. chocolate, sugar confectionery, cakes	1 (2.7)	7 (18.9)	18 (48.6)	26 (70.3)
Ice cream	0 (0)	2 (5.4)	22 (59.5)	13 (35.1)
Savoury snacks (e.g. potato chips, salted popcorn, salted nuts	0 (0)	8 (21.6)	18 (48.6)	11 (29.7)

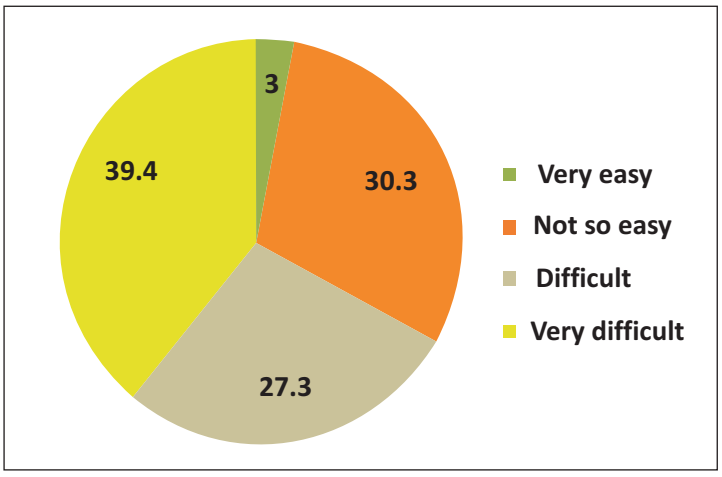
Only 4 out of 37 schools (10.8%) have a canteen. These schools are all private (one in rural areas and three in urban areas). Children in these schools eat in the canteen five days a week. The number of pupils who eat breakfast in the school canteen on a daily basis is different in each of these schools (25%, 50%, 75% and 100%, respectively).

The menu is mainly prepared by the canteen staff (in three schools), contracted companies (in two schools), or a contracted dietologist (in one school). In one of the schools, catering is used as the main method of food provision, whereas in the other three schools the kitchen of the canteen is used for this purpose.

Parents are involved in the preparation of the school meals in three of the schools (in one school involving also financial contribution from the parents) [data not shown].

In schools that do not have a canteen, two-thirds (66.7%) of their directors state that it is difficult or very difficult for their schools to have a canteen. Only one director (3%) thinks that it is easy to establish a canteen (Figure 19).

Figure 19. How easy or difficult would it be for your school to establish a school canteen or cafeteria?



Among the difficulties they face for establishing a school canteen, the directors list the following: economic situation of the pupils' families, lack of basic sanitary-hygienic conditions, a large number of pupils (over 1,200 pupils), school shifts, and lack of a free space at school premises.

Besides the canteen (cafeteria), in three private schools only, there is evidence of implementation of programs which provide a meal (or snack) to the pupils (a meal/snack during the day and another meal/snack in the afternoon) [not shown].

Directors were skeptical about provision of such meals/snacks, similar to the aforementioned issue of canteen. Hence, about two-thirds (63.4%) of the directors report that it would be difficult or very difficult to provide such meals/snacks in the school, and only 6.7% believe that it would be easy to do so (Table 51).

Table 51. Easiness or difficulties to provide healthy snacks at school – directors' perspective

How easy or difficult would it be to provide healthy snacks in your school?	School Type[n (%)]			Location [n (%)]		
	Public	Private	Total	Urban	Rural	Total
Very easy	2 (9.1)	0 (.0)	2 (6.7)	2 (10.5)	0 (.0)	2 (6.7)
Not so easy	7 (31.8)	2 (25.0)	9 (30.0)	5 (26.3)	4 (36.4)	9 (30.0)
Difficult	3 (13.6)	5 (65.2)	8 (26.7)	7 (36.8)	1 (9.1)	8 (26.7)
Very difficult	10 (45.5)	1 (12.5)	11 (36.7)	5 (26.3)	6 (54.5)	11 (36.7)
Total	22 (100.0)	8 (100.0)	30 (100.0	19 (100.0)	11 (100.0)	30 (100.0

The difficulties in providing these meals/snacks are similar to those for setting up a canteen in the school premises. In addition, some of other factors making it difficult to provide meals/snacks mentioned by the school directors include the lack of a canteen in the school premises, or the great responsibility involved with provision of meals/snacks at school, given the current situation and infrastructure of the schools in Albania.

Most schools have some kind of food vending unit, such as shops, cafeteria or vending machines in their vicinities which can be used by adults and children (28 or 75.7% of the schools), or by adults only (5, or 13.5% of the schools). Conversely, 4 (10.8%) of the schools do not have any food vendors or units in their surroundings (data not shown).

The most commonly offered foods from these vending units are caramels, chips, chocolates, or peanuts (81%); pies, pizza, or sandwiches (78.4%); sweetened or fizzy beverages (73%); but far fewer offer fresh fruit (21.6%) [Table 52].

Table 52. Availability of food vendors around school premises

Are there any food vendors (shops, cafeteria, or vending machines) around the school premises?		Frequency	Percent	Cumulative Percent
	Yes, accessible to adults only	5	13,5	13,5
	Yes, accessible to adults and children	28	75,7	89,2
	No (go to question 29)	4	10,8	100,0
	Total	37	100,0	

Besides access to food vendors, in five public schools (two in urban areas and three in rural areas), the directors report that some form of food and beverage advertisements are allowed in the school or on the school grounds, including Coca-cola, sausage products (Hako company), ice-cream "Algida", and fast-food (data not shown).

h. Nutrition and health- supporting facilities (Gym, gardens, eating spaces, kitchens, sanitation &hygiene)

- *Teacher*

Regarding the suitability of the environment and services at school premises, more than half the teachers report as only somewhat or not at all adequate the following facilities in their school (Table 53): hand-washing facilities (58.3%); toilet facilities (57.4%); gym (54.1%), outdoor space or playground for physical activity and sports (52.2%); and cafeteria or designated eating space (52.4%); 46.9% report that access to free drinking water is somewhat or not at all adequate. Two-fifths say that health education and food and nutrition education are only somewhat or not at all adequate.

Table 53. Adequacy of spaces and facilities on school premises, according to teachers' opinion

How adequate do you think each of the following is in your school?	Very adequate	Somewhat adequate	Not at all adequate	Not sure	Total
Cafeteria or designated eating space	80 31.5%	49 19.3%	84 33.1%	41 16.1%	254 100%
Gym or palestra	111 41.1%	75 27.8%	71 26.3%	13 4.8%	270 100%
Outdoor area or playground for physical activity and sports	142 47.5%	131 43.8%	22 7.4%	4 1.3%	299 100%
Access to free drinking water	131 44.6%	65 22.1%	73 24.8%	25 8.5%	294 100%
Hand-washing facilities	118 39.1%	92 30.5%	84 27.8%	8 2.6%	302 100%
Sanitation/waste disposal/clean school environment	178 57.8%	109 35.4%	18 5.8%	3 1.0%	308 100%
Toilet facilities	126 41.3%	111 36.4%	64 21.0%	4 1.3%	305 100%
Health education	173 58.2%	110 37%	10 3.4%	4 1.3%	297 100.0
Food and nutrition education	174 58%	114 38%	5 1.7%	7 2.3%	300 100.0

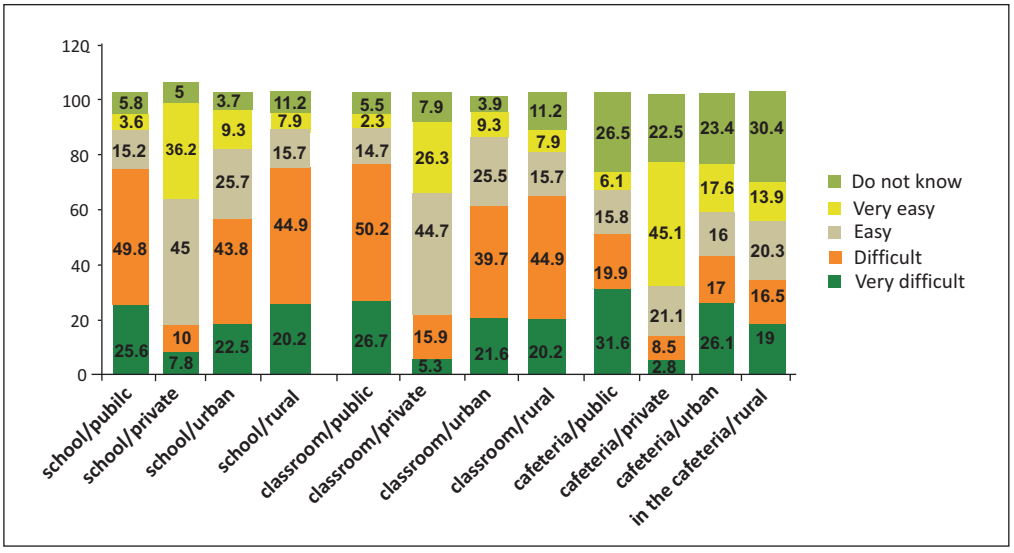
Very adequate spaces and services were substantially higher in private schools compared to the public schools. Also, more adequate spaces and services are evident in schools in urban areas, compared to the schools in rural areas (Table 54).

Table 54. Level of very adequate spaces and facilities on school premises, by school type and location according to teachers' opinion

How adequate do you think each of the following is in your school?	Very adequate				
	Public	Private	Urban	Rural	Total
Cafeteria or designated eating space	15.9	78	34.4	24.3	31.5
Gym or palestra	26.2	77.2	44.3	31.1	41.1
Outdoor area or playground for physical activity and sports	34.5	83.5	51.9	37.1	47.5
Access to free drinking water	29.4	85.0	46.6	39.8	44.6
Hand-washing facilities	19.5	90.2	43.7	26.4	39.1
Sanitation/waste disposal/clean school environment	43.4	97.6	63.6	44.0	57.8
Toilet facilities	22.0	93.9	47.5	26.1	41.3
Health education	46.1	91.2	60.6	52.8	58.2
Food and nutrition education	49.5	80.0	58.6	55.6	58.0

Teachers from public schools have different opinions from those in private schools regarding the degree of difficulty for providing a healthy eating environment in their respective school premises, classroom, or in the canteen. Private school teachers are far more likely than public schoolteachers to perceive that it would be easy for their schools to provide these conditions (Figure 20).

Figure 20. How easy or difficult would it be for your school to establish a school canteen or cafeteria?



i. Promotion activities for health and healthy diets

- *Teacher*

In the current academic year, many teachers confirm that initiatives or projects for promoting healthy nutrition have been organized in their classes. Two-thirds of teachers report organizing demonstration activities for their classes and three-fifths have had activities involving parents and families (65.7% and 59.9%, respectively). About half have disseminated information materials and have organized field trips, and about one-third have organized meetings or talks with external experts. About one-third also report that fresh fruit and vegetables have been distributed to their class.

These initiatives and projects are more common in private schools and in urban areas (Table 55).

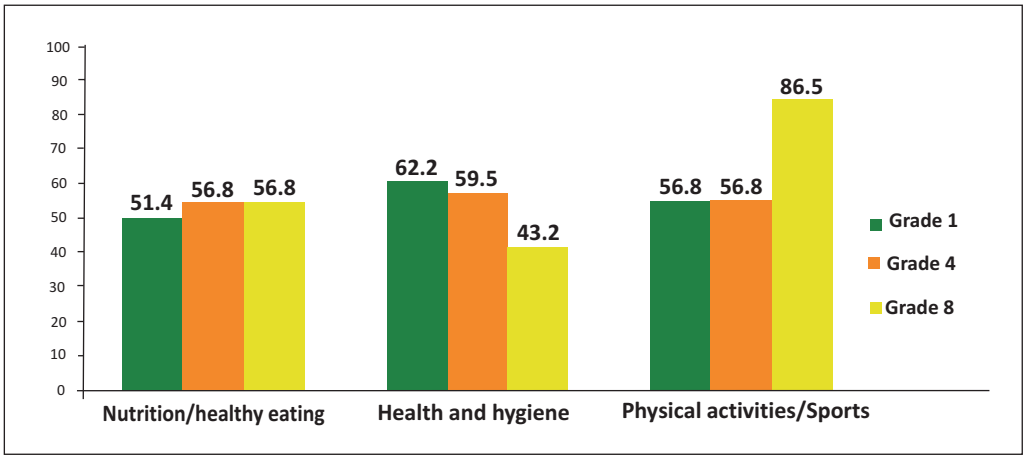
Table 55. Initiatives or projects organized in the class for promotion of healthy nutrition

In this current school year, have any initiatives/pr ojects been organized in your class to promote a healthy eating?	Yes [n(%)]				
	Public	Private	Urban	Rural	Total
Fruit and vegetable distribution	56 29.2	26 37.7	62 34.1	20 25.3	82 31.4
Disseminating information materials	99 50.5	48 60.8	105 55.6	42 48.8	147 53.5%
Meetings/talks with external experts	49 27.5	29 40.3	61 35.3	17 22.1	78 31.2
Field trips	88 46.3	54 71.1	100 53.8	42 52.5	142 53.4
Activities with parents and families	121 61.1	40 56.3	105 56.5	56 67.5	161 59.9
Demonstration activities	125 62.8	51 73.9	123 66.5	53 63.9	176 65.7
Any other	11 12.2	11 27.5	16 18.2	6 14.3	22 16.9

- *School Director*

Figure 21 presents the distribution of activities, initiatives, or projects that have been organized, or will be organized, to promote a healthy lifestyle. In first grades, the focus is on activities related to the health and hygiene (62.2%), whereas in the eighth grades the focus is mainly on physical activities and sports (86.5%). About half of school directors indicate having organized projects or activities in nutrition or healthy eating almost equally among the three grades. Initiatives in health and hygiene are more commonly carried out in the lower grades, whereas sports and physical activities are more commonly organized for the 8th Grade (Figure 21).

Figure 21. Distribution of activities, initiatives, or projects that have been organized, by grade, to promote a healthy lifestyle (School Directors' reports)



All school directors from public schools in rural areas do not consider this process easy at all, as presented below in Table 56.

Table 56. Easiness or difficulty to organize these activities in the school

School type and location	Very easy	Not so easy	Difficult	Very difficult	Total
Public	3 12.5%	18 75.0%	2 8.3%	1 4.2%	24 100.0%
Private	7 58.3%	5 41.7%	0 .0%	0 .0%	12 100.0%
Urban	10 41.7%	14 58.3%	0 .0%	0.0%	24 100.0%
Rural	0 .0%	9 75.0%	2 16.7%	1 8.3%	12 100.0%

Food and nutrition education

j. Methods and approaches to food and nutrition education

- Teacher

Virtually all teachers confirm that they provide some food and nutrition education to their classes(97.4%). About half say that this is provided by other teachers in their school (47.9%), while one-third say health professionals do so (37.2%); only one-fifth say that food and nutrition education is provided to their classes by specialized teachers (19.7%).Almost two-thirds say that parents provide this to their classes (63.4%).

However, there is some contradiction in the report of teachers, mainly in public schools and in schools in rural areas, almost all of whom report that they provide nutrition-related information to their pupils while, at the same time, 6% of them report that no nutrition-related education is provided in their respective classes (Table 57).

Table 57. Food and nutrition education provided to the class (teachers' reports)

Food and nutrition education provided by:	Yes(%)							
	Grade 1	Grade 4	Grade 8	Public	Private	Urban	Rural	Total
You	99.1	98.0	95.1	95.6	100	97.7	96.7	97.4
Other teachers in your school	32.1	36.6	75.5	42.7	62.2	48.9	45.6	47.9
Specialized teachers	10.4	15.8	33.3	17.6	25.6	21.0	16.7	19.7
Community volunteers	31.6	44.7	23.7	11.5	14.6	14.2	7.8	12.3
Parents	63.2	72.3	54.9	62.1	67.1	64.4	61.1	63.4
Health workers	32.1	35.6	44.1	36.6	39.0	42.5	24.4	37.2
Local government staff	5.7	3.0	29.0	26.0	7.3	3.7	4.4	3.9
NGO staff	3.8	2.0	9.8	5.7	3.7	4.6	6.7	5.2
Others	4.7	3.0	2.9	1.8	8.5	4.1	2.2	3.6
No food and nutrition education provided	3.8	13.0	2.0	8.0	1.2	3.2	13.3	6.2

Most teachers state that the knowledge about healthy nutrition is provided in an integrated manner within the teaching curricula (76.5%); within a single (specific) discipline (73.9%); through extra-curricular activities or project-based activities (71.6%), or; through specific projects, events or dedicated presentations/demonstrations (69.9%). Very few (14.5%) say that food and nutrition education is provided as a stand-alone or separate subject (Table 58).

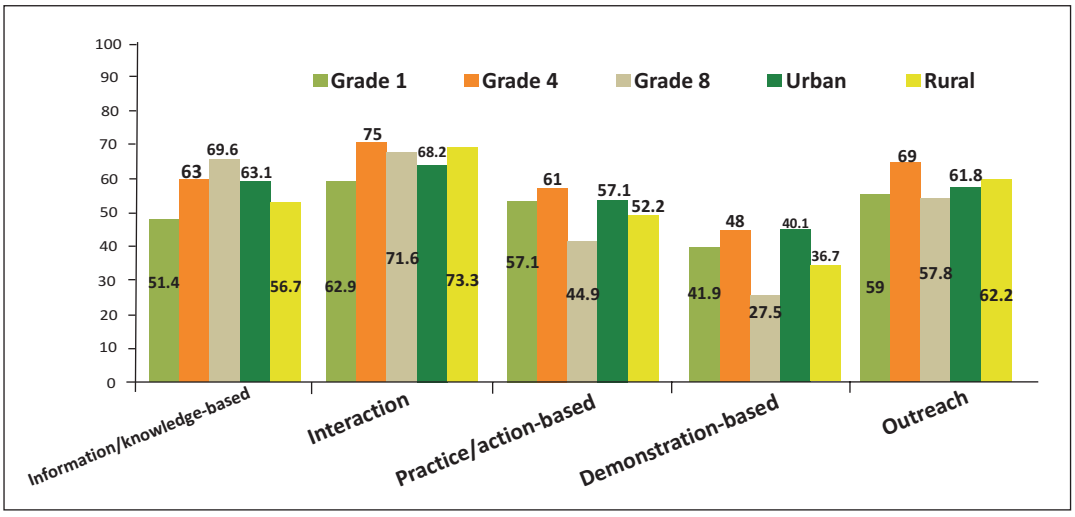
Table 58. Provision of food and nutrition education in the schools

How is food and nutrition education provided to your class?	Yes [n(%)]			
	Grade 1	Grade 4	Grade 8	Total
As a stand-alone/separate subject in the curriculum	13 21.1	17 16.8	15 14.7	45 14.5
Integrated across the total school curriculum	79 73.8	88 87.1	70 78.6	237 76.5
Within a specific subject (health, biology, home economics, agriculture)	72 63.7	69 68.3	88 86.3	229 73.9
Through extracurricular or project-based activities (e.g. clubs, projects)	73 68.2	75 74.3	74 72.5	222 71.6
Education is provided during snack or meal times	51 47.7	41 40.6	7 6.9	99 31.9
Through school gardens as a learning place	22 20.6	18 17.8	12 11.8	52 16.8
Food and nutrition information is displayed in my classroom	31 21.0	33 37.2	19 18.6	83 26.8
Food and nutrition information is displayed in the meal or eating areas	16 15.0	16 15.8	11 10.8	43 13.9
Food and nutrition information is displayed in school common areas	11 10.3	12 11.9	12 11.8	35 11.3
Nutrition information is provided on school meals or snacks served	23 21.5	17 16.8	8 7.8	48 15.5
Through special projects, events or demonstrations	62 57.9	75 75.0	79 77.5	216 69.9

The distribution of learning approaches/methods was as follows: interactive classes (group discussions, debates, experience sharing, life stories, or acting/role playing): 69.7%; extra-school activities (homework, parental involvement, "research" work, practical work in family settings: 61.95%; knowledge and information-based (lectures, presentations, distribution of informative materials): 61.2%. The fourth grade had a higher level of practicing these learning methods compared with the other grades.

Similarly, these methods were used more frequently in urban schools than in rural schools. Among eighth grade classes, the knowledge and information-based approach was much more common (69.6%) compared with the other learning approaches such as demonstrations (27.5%) or action-based practice (44.9%) [Figure 22].

Figure 22. The main learning approaches/methods for food and nutrition education



The most frequently mentioned barriers that teachers face for integrating nutrition into their teaching are: lack of sufficient financial resources (58.6%); lack of curriculum resources (28%); lack of time (25.7%); and other responsibilities and duties they have during their working hours (22.1%).Of note, a significantly greater number of teachers in rural schools face financial difficulties and challenges, compared with all the other categories of schools, and significantly fewer rural teachers say there are no barriers (Table 59).

Other barriers mentioned by the teachers include: culture and knowledge related to this topic (nutrition); lack of space; inappropriate infrastructure for cooking; inadequate hygienic conditions at school premises; lack of willingness to devote attention to nutrition.

Table 59. Barriers to the integration of nutrition into the teaching program

What barriers do you think exist for integrating nutrition into lessons?	Yes (%)							
	Grade 1	Grade 4	Grade 8	Public	Private	Urban	Rural	Total
Lack of curriculum resources	23.6	34.0	26.7	27.6	29.3	27.0	30.4	28%
Inadequate financial resources	60.4	56.0	59.4	69.8	28.0	53.5	70.7	58.6%
Lack of time	26.4	25.0	25.7	24.0	30.5	26.0	25.0	25.7%
Does not fit to the curriculum	13.2	12.0	9.9	10.7	14.6	12.1	10.9	11.7%
Too many other responsibilities	17.9	16.0	32.7	23.6	18.3	22.3	21.7	22.1%
No barriers exist	18.1	22.0	16.8	15.1	29.6	23.4	8.7	19%

- *School Director*

There is evidence of a significant difference between teachers and directors regarding the methods/approaches employed for providing food and nutrition education in schools (Table 60).

Table 60. Methods/approaches of providing food and nutrition education in schools

Please indicate if food and nutrition education is provided in any of the following ways in your school?	Teachers	School Directors			
	Yes [n(%)]	Yes [n(%)]	No [n(%)]	Varies from grade to grade [n(%)]	No response [n(%)]
As a stand-alone/separate subject in the curriculum	45 (14.5)	1 (2.7)	33 (89.2)	1 (2.7)	2 (5.4)
Integrated across the total school curriculum	237 (76.5)	29 (78.4)	5 (13.5)	2 (5.4)	1 (2.7)
Within a specific subject (health, biology, home economics, agriculture)	229 (73.9)	31 (83.8)	2 (5.4)	4 (10.8)	0 (0)
Through extracurricular or project-based activities (e.g. clubs, projects)	222 (71.6)	32 (86.5)	4 (10.8)	1 (2.7)	0 (0)
Education is provided during snack or meal times	99 (31.9)	5 (13.5)	29 (78.4)	2 (5.4)	1 (2.7)
Through school gardens as a learning place	52 (16.8)	3 (8.1)	33 (89.2)	1 (2.7)	0 (0)
Food and nutrition information is displayed in the meal or eating areas	43 (13.9)	6 (16.2)	27 (73.0)	2 (5.4)	2 (5.4)
Food and nutrition information is displayed in school common areas	35 (11.3)	15 (40.5)	19 (51.4)	2 (5.4)	1 (2.7)
Nutrition information is provided on school meals or snacks served	48 (15.5)	5 (13.5)	29 (78.4)	1 (2.7)	2 (5.4)
Through special projects, events or demonstrations	216 (69.9)	27 (73)	9 (24.3)	1 (2.7)	0 (0)
For foodservice staff	N/A	6 (16.2)	28 (75.7)	0 (0)	3 (8.1)
For teachers	N/A	8 (21.6)	26 (70.3)	1 (2.7)	2 (5.4)

Also, directors have different opinions compared with the teachers about who provides food and nutrition education their respective schools. Hence, school directors believe that parents play a smaller role in provision of nutrition education (35.1%) compared with the teachers (63.4%).

The most important role, according to the school directors, is played by the specialized teachers (27.9% vs. 19.7% according to teachers' opinion). Concerning the role of health workers, school directors agree with the teachers (about 37%) [Figure 23].

Figure 23. Role of different players in nutrition education provided to the children according to school directors' views and teachers' opinions

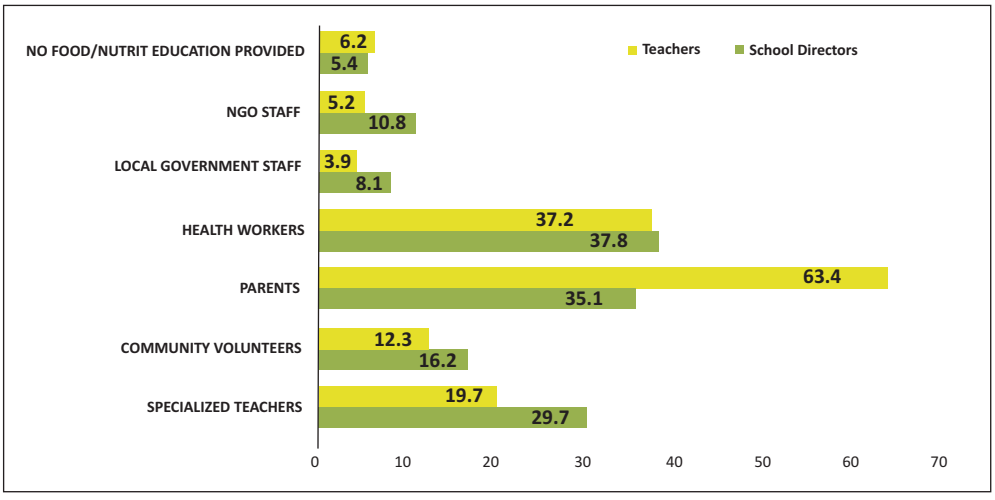


Table 61 displays the opinions of school directors regarding the degree of implementation of some main approaches/methods used in their respective schools for educational activities about food and nutrition. The information and knowledge-based approach is the most frequently mentioned method applied, regardless of its degree of implementation.

Table 61. Methods/approaches of providing food and nutrition education according to school directors

Learning approaches	Applied a lot[n(%)]	Applied somewhat[n(%)]	Applied very little[n(%)]	Not at all applied[n(%)]	No response [n(%)]
Information/ knowledge-based including lectures and presentations, dissemination of messages, and/or using information materials and channels	8 (21.6)	19 (51.4)	9 (24.3)	1 (2.7)	0 (0)
Interaction (discussions, debates, group work, sharing experiences, stories, role-play) and problem-solving, self-assessments	3 (8.1)	22 (59.6)	9 (24.3)	2 (5.4)	1 (2.7)
Practice/action-based, including hands-on learning/ learning-by-doing, skill development (e.g. cooking, planting, gardening, eating, trying out, choosing)	10 (27)	19 (51.4)	6 (16.2)	1 (2.7)	1 (2.7)

More than one in four schools (27%) has not planned any initiatives in the current academic year involving the parents for promotion of healthy nutritional habits among children, or promoted physical activity (29.7%) [data not shown].

Conversely, more than half of the schools (51.4%) have planned for the current academic year programs related to healthy foods and nutrition in cooperation with the Directorates of Public Health; about 30% have planned activities for the promotion of physical activity. Overall, 11 (29.7%) schools have not planned any initiatives at all (6 of them are private schools) [Table 62].Only 5 (1.3%) schools have planned to implement both initiatives (data not shown).

Table 62. Initiatives planned for the current academic year

Initiatives planned for this academic year in collaboration with the Directorate of Public Health	Total			Public	Private	Urban	Rural
	Yes [n (%)]	No [n (%)]	No response [n (%)]	Yes [n (%)]	Yes [n (%)]	Yes [n (%)]	Yes [n (%)]
Food and Nutrition education	19 (51.4)	17 (45.9)	1 (2.7)	14 (58.3)	5 (41.7)	14 (58.3)	5 (41.7)
Promotion of physical activity	11 (29.7)	23 (62.2)	3 (8.1)	10 (43.5)	1 (9.1)	5 (22.7)	6 (50)
No	11 (29.7)	23 (62.2)	3 (8.1)	5 (21.7)	6 (54.5)	7 (31.8)	4 (33.3)

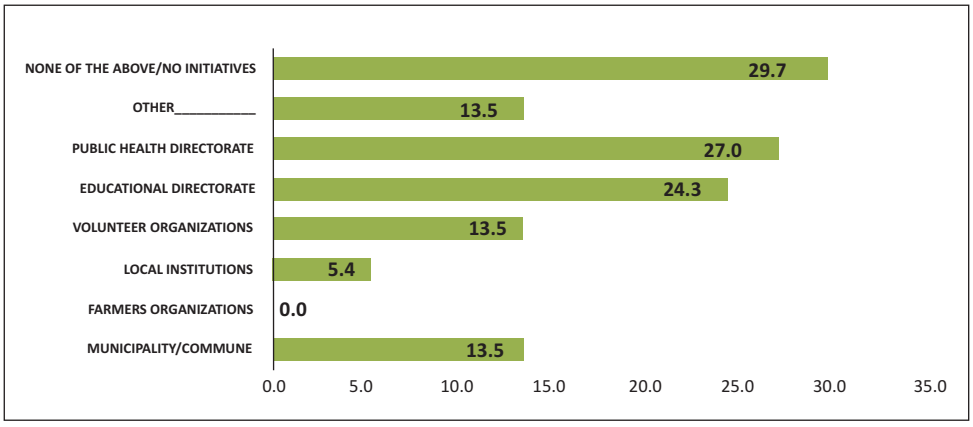
Half of school directors have planned food and nutrition education initiatives in their schools in the current academic year (2017/18), and a third have planned initiatives in

physical activity in collaboration with the Directorates of Public Health; most of these are public schools.

Among those who have planned such activities, collaboration most commonly consists of direct teaching with the pupils (51.4%) and meetings with their parents (21.6%). Collaboration for training of the teachers or provision of technical support to teachers is much less common. Only one private school in an urban area has planned an individual assessment of each pupil and no school has planned to carry out a general surveillance of the overall nutritional status of the pupils (data not shown).

In the current academic year, about one-quarter of the schools is participating in initiatives to promote healthy nutrition habits organized by the Directorates of Public Health (27%) or the Directorates of Education (24.3%). A few will participate in activities by the Municipalities or voluntary organizations (13.5% each). About one in three schools (29.7%) will not participate in any of these initiatives (Figure 24).

Figure 24. Participation of schools in initiatives to promote healthy nutritional habits



k. Teacher capacity and training

- *Teacher*

Less than one in ten teachers (9.5%) has attended at least one training course in nutrition (data not shown). A higher proportion of those who have taken some course work in nutrition, teach in private schools (13.6% vs. 8% in public schools) and in urban areas (11.5% vs. only 4.5% in rural areas [Table 63].

Among the trained teachers, about 60% of them have attended only one course, whereas the remaining 40% have attended two courses (data not shown).

Table 63. Distribution of teachers by training status on nutrition-related courses

Response [n (%)]	School location		School type		Total
	Urban	Rural	Public	Private	
No	192 (88.5)	85 (95.5)	207 (92)	70 (86.4)	277 (90.5)
Yes	25 (11.5)	4 (4.5)	18 (8)	11 (13.6)	29 (9.5)
Total	217 (100)	89 (100)	225 (100.0)	89 (100.0)	306 (100, 0)

Teachers feel confident (stating they know a lot) regarding their knowledge about healthy meals or healthy food choices (72.6%); child nutrition (71.6%); and child health (66.2%).The proportion of teachers who feel they know a lot about the basic principles of nutrition or overweight and obesity is somewhat lower(62% and 51%, respectively) [Table 64].

Table 64. Distribution of teachers by level of knowledge about selected topics on food and nutrition

How much do you feel you know about each of the following?	Know a lot [n (%)]	Know somewhat [n (%)]	Not very much[n (%)]	Not sure [n (%)]	Total [n (%)]
Basic nutrition principles	188 62	107 35.3	8 2.6	0 0	303 100
Child nutrition	219 71.6	79 25.8	7 2.3	1 0.3	306 100
Child health	202 66.2	93 30.5	7 2.3	3 1.0	305 100
Current nutrition issues	142 47.8	132 44.4	18 6.1	5 1.7	297 100
Healthy meals /healthy food choices	223 72.6	79 25.7	4 1.3	1 0.3	307 100
Overweight/obesity	155 51	133 43.8	15 4.9	1 0.3	304 100

Most teachers feel very well-prepared for teaching hygiene and health matters (81.9%), and for promoting a healthy environment at school (68.9%). More than half of the teachers (56.2%) feel somewhat prepared for participation in gardening activities for promotion of healthy nutrition (of whom, a larger proportion was evident in rural areas, 59.3% - data not shown). On the other hand, only two in five teachers (40.7%) feel somewhat prepared for teaching nutrition to their pupils (Table 65).

Table 65. Distribution of teachers according to their self-perceived level of knowledge about teaching abilities on food and nutrition related matters

How prepared do the teachers feel are in each of the following?	Very prepared [n (%)]	Somewhat prepared [n (%)]	Not very prepared [n (%)]	Not sure [n (%)]	Total [n (%)]
Teaching nutrition to your pupils	169 55.4	124 40.7	9 3.0	3 1.0	305 100.0
Teaching health and hygiene to your pupils	253 81.9	53 17.2	3 1.0	0 0	309 100.0
Promoting a healthy school environment	210 68.9	88 28.9	7 2.3	0 0	305 100.0
Participating in gardening activities to promote nutrition	82 27	171 56.2	36 11.8	15 4.9	304 100.0
Promoting physical activity for your pupils	183 59.6	111 36.2	10 3.3	3 1.0	307 100.0

Perceptions, activities and priorities of local authorities

I. Assessment of food, health and nutrition in municipality/district

- *Key Informant*

The great majority of key informants feel that most of the people residing in their districts are moderately healthy (83%) or very healthy (2%), while 15% feel their population is relatively unhealthy. (Data not shown)

Key informants provide the following arguments for their aforementioned opinion:

- There is an increase in health problems related to unhealthy dietary patterns, but also due to consumption of unsafe food items. The increase in non-communicable diseases is also an indicator of this phenomenon.
- There is evidence of a wide range of influencing factors including lifestyle characteristics, nutritional patterns, stress level, as well as socio-economic factors (insufficient food culture, limited economic means, etc
- There is lack of adequate knowledge about healthy nutrition.
- There also positive considerations including favorable perceptions about the safe and clean environment and availably of organic foods.

The majority of key informants (62.3%) think that food habits and dietary patterns in their district have improved in the past five years. However, 18.9% believe that the situation has worsened (Table 66).

Table 66. Perceived change of eating habits and diets of children in the past five years according to key informants

Do you think that the eating habits and diets of children in your district over the last five years are:	Frequency	Percent	Cumulative Percent
Improving	33	62,3	62,3
Remaining the same	9	17,0	79,2
Worsening	10	18,9	98,1
Don't know / no opinion	1	1,9	100,0
Total	53	100,0	

Some of the factors which have contributed to the improvement of children's diets and eating habits in the past five years, according to key informants' opinion are as follows:

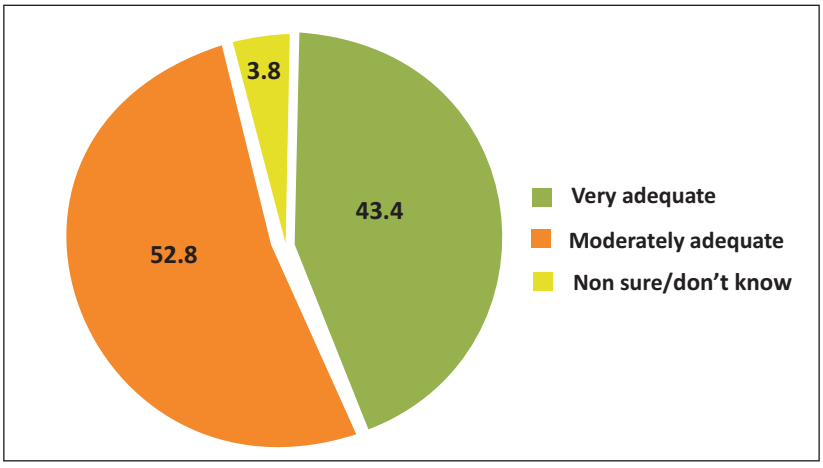
- People have started to pay more attention to nutrition due to an increased access to information and improvement of their economic situation. Most of the families do not use fast-food for feeding their children, leading to an overall improvement of nutritional status of the children.
- The majority of people have started to be pay attention to the quality and hygienic conditions of the food items consumed.
- Food habits have improved due to the promotion of healthy eating in schools, the work of media and the work done by the health institutions.
- There are more controls regarding food safety measures in vending points and markets, particularly in kindergartens and schools.
- Local government policies have also paid attention to nutrition issues of the communities in the past few years.

Nevertheless, there are also factors contributing to a worsening of the situation in the past five years, which are briefly summarized below:

- There is no change in the economic situation of the families and access to healthy food is limited. Hence, given the lack of economic improvement, eating habits have not changed in the Albanian general population.
- In kindergartens which do not provide food, there is evidence of many children brining from home unhealthy foods to the school.
- There is confusion in the messages provided for healthy eating and the time allocated to these messages is limited.
- Children still tend to use fast-foods.
- Most of the information about food and nutrition is provided by questionable sources.

Figure 25 presents the key informants' opinions about the adequacy of the food supply in terms of the quantity and variety of foods available in their respective municipalities.

Figure 25. Quantity and variety of foods available according to key informants' opinion



Key informants in the districts of Durres and Vlora generally consider their food supply as very adequate, while in Gjirokastra, Diber, Kukes and Lezha, they consider their food supply as only moderately adequate (Table 67).

None of them think that the food supply is barely or not at all adequate, although 2 are not sure (data not shown).

Table 67. Adequacy of food supply according to the key informants' opinion by district

How adequate do you think the food supply is in your municipality in terms of the quantity and variety of foods available?				
District	very adequate	moderately adequate	not sure/don't know	Total
Berat	1	2	0	3
	33,3%	66,7%	,0%	100,0%
Diber	0	3	1	4
	,0%	75,0%	25,0%	100,0%
Durres	4	1	0	5
	80,0%	20,0%	,0%	100,0%
Elbasan	3	1	1	5
	60,0%	20,0%	20,0%	100,0%
Fier	3	1	0	4
	75,0%	25,0%	,0%	100,0%
Gjirokaster	0	4	0	4
	,0%	100,0%	,0%	100,0%
Korce	2	2	0	4
	50,0%	50,0%	,0%	100,0%
Kukes	1	3	0	4
	25,0%	75,0%	,0%	100,0%
Lezhe	1	4	0	5
	20,0%	80,0%	,0%	100,0%
Shkoder	2	2	0	4
	50,0%	50,0%	,0%	100,0%
Tirane	3	4	0	7
	42,9%	57,1%	,0%	100,0%
Vlore	3	1	0	4
	75,0%	25,0%	,0%	100,0%
TOTAL	23	28	2	53
	43.4%	52,8%	3,8%	100,0%

The food supply is considered moderately free from harmful chemicals and substances by a little more than half of the key informants (30), while only 2 think the food supply is very safe. A quarter of them (14) think the food supply in their districts is relatively unsafe and 3 consider it very unsafe (Berat, Fier, Gjirokaster). In Tirana, 2 key informants consider the food to be very safe (Table 68).

Key informants provide the following arguments for supporting their opinions:

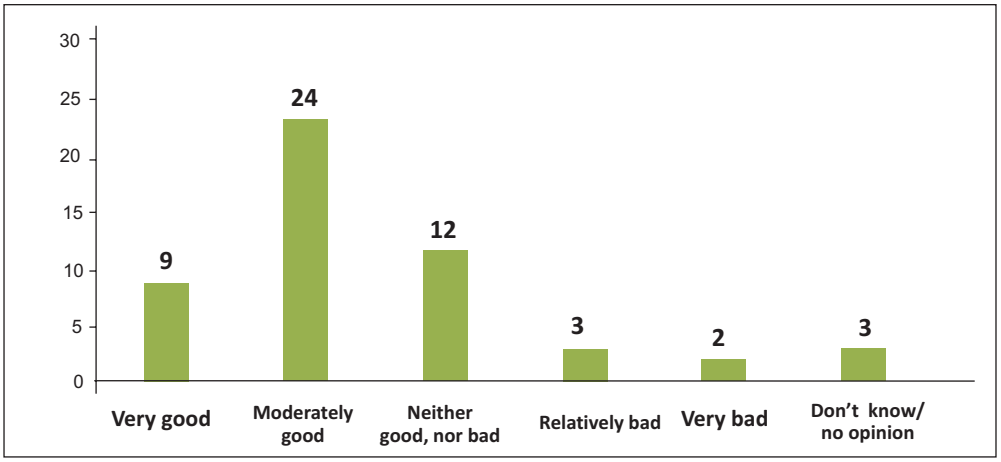
- There are expired food products in the market quite often.
- The National Food Authority does not perform periodic controls and does not provide official information for consumers about the safety of different food products.
- There are no assessments conducted for measuring chemical substances in foods.
- The exact dose of pesticides used from the farmers is unknown.
- Media reports quite often that there is an increase in the foods grown with hormones and the truth is that many food products are launched in the market regardless of the time duration and conditions they need for growing naturally.

Table 68. Food safety perceptions according to the key informants' opinion

How safe do you think the food supply is in your municipality in terms of being free from harmful chemicals and substances?		Frequency	Percent	Cumulative Percent
	Very safe	2	3,8	3,8
	Moderately safe	30	56,6	60,4
	Relatively unsafe	14	26,4	86,8
	Vey unsafe	3	5,7	92,5
	Don't know / no opinion	4	7,5	100,0
	Total	53	100,0	

Concerning the care of the state for healthy diets for children, more than half of the key informants believe that the state takes moderately good care (24) or very good care (9) of children's diets. About one in five considers the state's care is neither good nor bad, and one in ten considers the state's care as relatively bad (or very bad [Figure26].

Figure 26. Care of the state for children's healthy diets according to key informants



Key informants who have negative opinions provide the following arguments for their answers:

- There are serious flaws regarding the food safety measures from the municipality structures as well as from the National Food Authority (district branches).
- The evidence indicates that the problems related to malnutrition are still present in the general population
- Healthy food approach is not a common practice in families with a low socioeconomic status.
- There are many vendors near school premises and children do consume quite often uncontrolled food items.
- The food consumed in the school is sometimes not properly controlled and, more importantly, children's diet in public kindergartens and in public schools is not established by health and nutrition specialists.

m. Activities to promote good food, nutrition and health

- *Key Informant*

Q 6: What role do you see for yourself, in your capacity in (the Municipality or the Directorate of Public Health or Directorate of Education) to improving the food supply, diets and nutrition? How do you think you can best contribute?

Key informants, according to their respective positions and functions(Municipalities / Directorates of Public Health / Directorates of Education), believe that they can contribute in terms of food security, diets and nutrition, in the following ways:

1. Municipalities: new policies on healthy nutrition, the project "We do our homework, safe management of food safety in educational institutions" – an inter-institutional cooperation.
2. Directorates of Public Health: information, awareness raising, promotion and projects on improvement of nutrition by controlling the foods purchased in kindergartens (certificate of food quality) and raising the awareness of the parents about the importance of healthy nutrition.
3. Setting standards of food items during the bidding procedures of food items procured in kindergartens, and food products sold in the market in the territory of Diber municipality.
4. Regional Directorate of Education (RDE): educational activities, seminars, information of children and their parents about healthy nutrition.
5. Great contribution of RDE for the approval of teaching modules related to healthy nutrition.

However, they also note the following considerations:

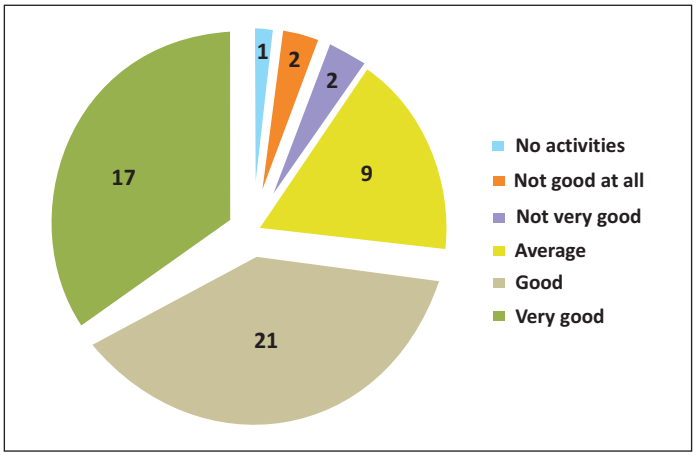
- The RDE has no role because kindergartens offering food are under the auspices

of the agency for welfare and social support which is near the municipality of Gjirokaster.

- There is no influence of RDE except the informing role, which should be conducted by the teachers of biology.

The activities organized by the municipalities for informing the public and promoting healthy nutrition were evaluated by most key informants as good (21)or very good (17), while some (4) rated these activities as not very good or not good at all [Figure 27].

Figure 27. Evaluation of activities for informing the public and promoting healthy diets organized in key informants' respective institutions



Among the most important activities in the field of children, food safety, supply of quality and health beneficial foods, nutrition, physical activity and obesity prevention, where their respective institutions were the most active in the last three years and achieved the most, the key informants report the following:

- Organization of sport activities (Olympic Games, running festival, etc.)
- Food fairs in schools (tradition, festivities, etc.)
- Promotional activities in the form of competitions in 9-year schools; fairs, festivities, Dibra culinary days.
- Awareness raising (promotion, awareness rising about food safety and healthy nutrition).
- Project: "We do our homework", the initiative: "good sight, healthy children".
- Information and awareness raising about food safety raising in schools, the module "healthy nutrition", choosing of healthy nutrition subject among the elective disciplines.

Regarding the focus of activities in the next 2-3 years in the field of children, food safety, supply of quality and health beneficial foods, nutrition, physical activity and obesity prevention of their respective institutions, the key informants mention the following:

- Nutrition (target group: children and pregnant women) and provision of healthy

foods (in the framework of the project "We do our homework"), control of food products, HAP project.

- Physical activity (different sport activities, marching, cycling, school marathons, etc.)
- Assessments of growth and development, as well nutritional status through anthropometric measurements.
- Revision of the menus based on the most recent recommendations.
- Awareness raising campaigns (prevention of obesity, increase of educational hours, promotion of healthy lifestyles, avoidance of fast foods, meetings teachers-pupils-parents about healthy nutrition and physical activity).

Some of the main supporting factors for their respective institutions in implementing policies, programmes and other activities in the fields of → /children /→/food safety/ → /supply of quality and health beneficial food/ → /nutrition, physical activity and obesity prevention mentioned by the key informants were as follows:

1. Institutional cooperation with NGOs, IPH, Health Centers, National Food Authority, Directorate of Public Health, Municipality, Regional Directorate of Education, and the Word Vision.
2. Improvement of nutritional habits of the children (through organized activities, and leaflets) and enhancement of food safety (trainings, approval of plans and programs).
3. Development of joint programs with the Ministry of Agriculture.

n. Collaboration and measures to improve the food supply and diets

- *Key Informant*

Actors with whom the key informants in the local institutions have collaborated the most in the field of food safety and nutrition include the educational institutions health centers, and the Institute of Public Health. To a lesser degree, they have collaborated very often with the media, employers and NGOs.

There has been little or no collaboration so far with the farmers' associations, local farmers, or the food industry (Table 69).

Table 69. Frequency of collaboration with different stakeholders

No.	Stakeholders	Respondents number	Very often	Often	Not very often	Very rarely	Never	Don't know / no opinion
1	Educational institutions	50	27	17	0	0	0	0
2	Health care centers	52	24	14	9	2	3	0
3	Employers	44	12	12	11	8	0	1
4	Food processing Industry	47	1	4	17	11	13	1
5	Traders	50	2	9	19	13	6	1
6	Food providers	49	2	9	21	11	6	0
7	Local farmers/ producers	48	3	4	16	8	15	2
8	Farmer associations	47	2	1	12	11	21	0
9	Faculties/institutes	44	4	12	12	8	7	1
10	Institutes of Public health	48	23	15	7	2	0	1
11	Professional associations	48	5	10	18	3	11	1
12	Media	48	14	15	13	5	1	0
13	NGOs	46	11	17	9	4	5	0

Regarding collaboration with other stakeholders, the majority of key informants report that there are no obstacles to better collaboration.

However, they make the following suggestions for strengthening collaboration: The need to have more representatives from the National Food Authority in awareness raising activities.

- The need for a formal agreement with all institutions: National Food Authority, State Sanitary Inspectorate and Regional Health Directorate in order to finalize the collaboration framework and remove the barriers related to bureaucratic procedures, and specification of priorities for future interventions.
- Revision of the legislative and regulatory frameworks (in order to avoid overlapping of tasks and competencies).
- The need to fill in the missing health staff in the health promotion units in kindergartens and schools.
- Provision of adequate financing because there is currently lack of funds for implementation of planned interventions.
- Strengthening of the institutional relationships according to the specificities of their services and activities, removal of barriers in order to stimulate and strengthen the cooperation.

Most of the key informants (45) completely agree that constructive cooperation with parents would contribute to their achieving the objectives of their work. A large majority completely agree that collaboration in each of the following areas would make a contribution to this: better access to materials on children's health, nutrition, physical activity and dietary practices (44) a better financial support (41) and better collaboration with other sectors (38). Most of them completely agree or agree that more political support would enhance their ability to carry out their work (42).

To a lesser degree, other contributing factors reported by the key informants include better

defined public-private partnership (19) more activities conducted by different NGOs (20); and a more constructive collaboration with the media (20) [Table 70].

Table 70. Perceptions about enhancement of the contribution to their achieving work according to the key informants' opinion

No.	ITEM	Respondents number	I completely agree	Agree	Agree somewhat	Disagree somewhat	I completely disagree	Don't know / no opinion
1	Better cooperation with other sectors	52	38	14	0	0	0	0
2	Better institutionalized measures / structural improvements	52	30	18	4	0	0	0
3	Better defined public-private partnership	51	19	26	6	0	0	0
4	More activities to reduce social inequalities	51	37	12	1	1	0	0
5	More political support	47	25	17	3	1	1	0
6	Better awareness of the professional and lay public	51	30	18	2	0	1	0
7	More activities of non-governmental organizations	51	20	24	4	1	1	1
8	Constructive cooperation with the media	51	20	26	4	0	0	1
9	Constructive cooperation with the parents	52	45	7	0	0	0	0
10	Better financial support	51	41	8	2	0	0	0
11	More access for materials regarding child health, nutrition, physical activities and dietary practices.	52	44	7	1	0	0	0

Regarding possible measures for improving the food supply and people's diets, the majority of key informants are in favor of most of the measures suggested (Table 71). All key informants favor restricting the marketing of unhealthy foods to children and all favor carrying out regular inspections of the energy and nutritional value of school meals. Almost all favor integrating nutrition into the school curriculum.

All the key informants "strongly favor" or "favor" the equipping food and drink vending machines in schools only with health-promoting foods, but most of the key informants strongly favor or favor prohibiting installing automatic vending machines for foods and beverages on school premises, or equipping food and drink vending machines only with healthy foods. They also favor offering of at least one healthy meal or snack at school with contribution from parents/caregivers, as well as offering of a free-of-charge healthy meal or snack at school (Table 71).

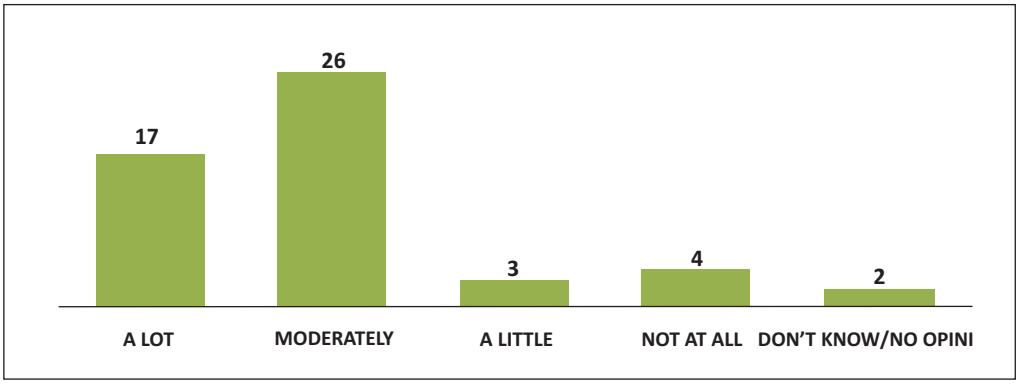
Table 71 Measures for improving food supply and healthy diets according to the key informants' opinion

No.	Measures for improving the food supply and people's diets	Respondents number	Strongly Favor	Favor	Favor somewhat	Do not favor	Not at all in favor
1	Increased taxation of unhealthy foods.	53	37	11	3	1	1
2	Reduced taxation of fruits and vegetables.	53	37	15	1	0.	0
3	Restricting marketing of unhealthy food to children.	53	45	8	0	0	0
4	Exercising regular inspection measures over the energy and nutritional value of school and nursery school meals.	52	48	4	0	0	0
5	Integrating /updating the issues/topics of healthy nutrition into school curriculums.	53	39	13	1	0.	0
6	Equipping food and drink vending machines in schools only with health beneficial foods.	52	42	10	0	0	0
7	Prohibiting the installation of food and drink vending machines in schools.	52	31	10	5	4	2
8	Prohibiting any advertising or marketing of foods or beverages in the school or on the school grounds	53	38	7	4	3	1
9	Installing water fountains in schools and nursery schools.	53	48	4	1	0	0
10	Providing at least one healthy snack in schools and nursery schools for free	52	41	7	3	1	0
11	Providing at least one healthy snack in schools (with contribution from parents/caregivers)	53	27	14	7	3	2

Social inequalities

Half of the key informants acknowledge that they have only moderately considered social status or inequities in their work. About a third of them have considered inequities a lot, whereas about 14% have taken social inequities into consideration only a little or not at all in their work (Figure 28).

Figure 28. Consideration of social status or inequities in key informants work



Some of the examples provided by key informants regarding the consideration of social status and social inequities in their work in food, health and nutrition are listed below:

- Social model of health.
- Support of the Roma community about their limited means and possibilities to access and purchase healthy foods. There have been conducted many activities targeting the vulnerable population subgroups including also the Roma community. These activities concerned healthy nutrition and personal hygiene.
- These activities have involved pupils pertinent to the Roma and Egyptian minorities.
- For Roma and Egyptian families with no financial means, there have been agreements with NGOs to cover their financial needs.
- Different situations among vulnerable children (including violence, bullying and depression) are identified promptly through the psycho-social service and the patronage teachers.
- The program of social model of health is implemented in the Directorates of Durres and Shijak municipalities with support from the Ministry of Health and Social Protection, IPH and UNICEF.

Nonetheless, they also made the following comments:

- Tirana municipality provides comprehensive services for all population categories regardless of their social status.
- There is no effective way to tackle effectively the nutritional habits of the Roma community due to their low socio-economic status.

Annex 1: List of schools enrolled in the study					
ID	School name	District	City/village name	Location (urban/rural)	Type of school (public/private)
189	22 TETORI	Berat	Berat	Urban	Public
162	DRENOVICË	Berat	Drenovicë	Rural	Public
170	IRFAN NGJEQARI	Berat	Berat	Urban	Private
439	SELIM ALLIU	Dibër	Peshkopi	Urban	Public
425	MAQELLARE	Dibër	Maqellarë	Rural	Public
429	AMERIKANE PRIVAT	Dibër	Peshkopi	Urban	Private
572	QEMAL MICI	Durrës	Durrës	Urban	Public
526	NJAZI MASTORI	Durrës	Sukth	Rural	Public
566	VINÇENC PRENDUSHI	Durrës	Durrës	Urban	Private
940	JORGJI DILO	Elbasan	Elbasan	Urban	Public
900	KATUND I RI	Elbasan	KatundiRi	Rural	Public
914	IMELDA LAMBERTINI	Elbasan	Elbasan	Urban	Private
1203	ANDON XOXA	Fier	Fier	Urban	Public
1153	CERMË SEKTOR	Fier	ÇermëSektor	Rural	Public
1191	NUMANI	Fier	Fier	Urban	Private
1363	KOTO HOXHI	Gjirokastër	Gjirokastër	Urban	Public
1347	MUHAMET GJOLLESHA	Gjirokastër	Lazarat	Rural	Public
1354	FRYMË DASHURIE	Gjirokastër	Gjirokastër	Urban	Private
1605	SEVASTI QIRJAZI	Korçë	Korçë	Urban	Public
1577	SERVET AGOLLI	Korçë	Buçimas	Rural	Public
1594	OMIROS	Korçë	Korçë	Urban	Private
1763	AVNI RUSTEMI	Kukës	Kukës	Urban	Public
1753	VEHBI SHEHU	Kukës	Bicaj	Rural	Public
1903	BESLIDHJA(E REJA)	Lezhë	Lezhë	Urban	Public
1872	MARASH GJONI	Lezhë	Rrilë	Rural	Public
1893	ATË SHTJEFËN GJEÇOVI	Lezhë	Lezhë	Urban	Private
2164	ISMAIL QEMALI	Shkodër	Shkodër	Urban	Public
2119	BARDHEJ	Shkodër	Bardhej	Rural	Public
2156	ZEMRA E KRISHTIT	Shkodër	Shkodër	Urban	Private
2366	SARINA	Tiranë (rreth)	Kashar	Rural	Private
2408	HILLARY CLINTON (KAMEZ)	Tiranë (rreth)	Kamez	Urban	Public
2381	AZEM HAJDARI (PASKUQAN)	Tiranë (rreth)	Babrru Qender	Rural	Public
2522	EDITH DURHAM	Tiranë_bashki	Tiranë	Urban	Public
2521	TURGUT OZAL	Tiranë_bashki	Tiranë	Urban	Private
2687	9 TETORI	Vlorë	Sarandë	Urban	Public
2640	5 DËSHMORËT	Vlorë	Ksamil	Rural	Public
2667	DRITA E DIJES	Vlorë	Vlorë	Urban	Private

ISBN 999563259-4