

809 responded; this study is considered to have a high response rate (97.24%).

Data Collection: Collection of data was made possible through interviews, physical examination and a self-administrated semi-structured questionnaire. Physical examination included assessment of weight and height. Students of the Department of Public Health were included in obtaining, collecting data and covering the different districts in the Republic of Albania. Qualitative data collection consisted of 5 to 11 individuals' focus groups and face-to-face interviews. Face-to-face interviews were performed with some of the individuals, chosen randomly and question about knowledge, attitudes and eating habits were asked in order to obtain qualitative data about nutritional situation in both groups (elementary and high school adolescents). Also qualitative parts of the questionnaire served as a source for qualitative data.

All quantitative statistical analysis was made with SPSS (Statistical Package for Social Sciences, version 15.0, Chicago, IL). To ensure data quality, data of 30% of the records were entered twice. Chi square and independent t-test were used for proportions and mean comparisons between groups. All the statistical tests in this study were considered significant at $P < 0.05$.

Qualitative data analysis was done through qualitative theories, such as the Grounded Theory, aim of which is to reduce unnecessary qualitative information. Questionnaire's qualitative data was analyzed and all focus groups and interviews information was carefully synthesized were All data was stored and confidentiality and anonymity of adolescents was warranted before and after the writing of this study.

3. Results and Findings

In this study we discovered a high percentage of under nutrition (31,5% CI95%: 23% - 41%) and a different eating pattern, which had a high percentage of use of sweets and fats 56,86% (CI95%: 47% - 66%) and a protective use of fruits and vegetables 76,14% (CI95%: 67% -83%). Also a modest percentage of overweight and obesity was noticed (4, 20%) which is not a considerable threat. In the qualitative part of results we noticed issues like meal skipping, poor quality of meals and an abnormal eating schedule. We also noticed a not considerable height of our population and it seems that we are losing height. There have been other studies that confirm this.

Our undernourished population was noted to have an abnormal growth comparing to BMI and age, which is a normal phenomenon in undeveloped countries. From the other hand we had a eating pattern deviated from international recommendations and this is a risk factor itself.

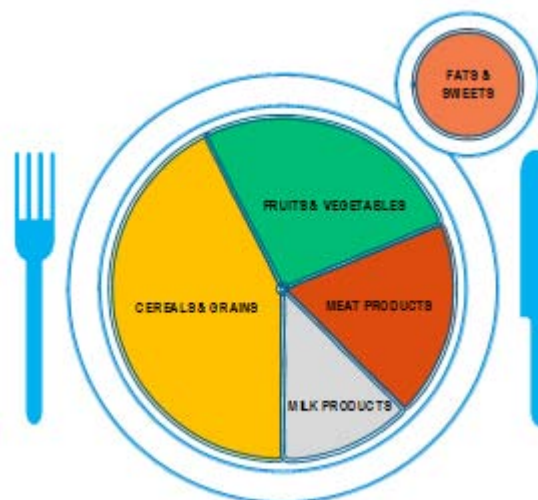


Figure 1: Eating pattern (Our study)

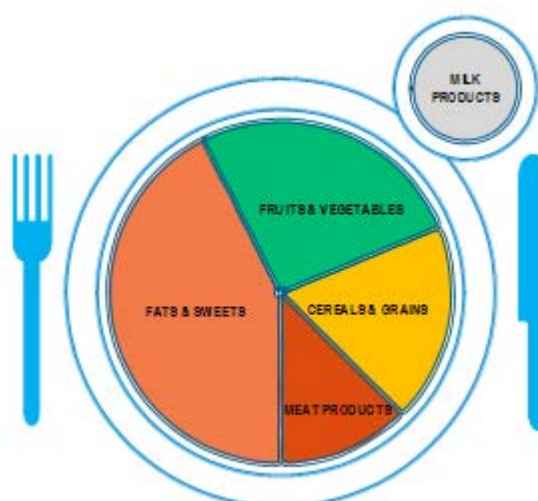


Figure 2: Eating pattern (USDA)

As we can notice the differences between two eating patterns (our study vs. USDA recommendations) there is nearly subversion, with foods to be recommended the least (like fats and sweets) toping the pattern and being one of 'preferred' categories of eating pattern.

Table 1: Distribution based on type of school (elementary vs. high school)

Nutritional status	Nr./%	Elementary/High School		Total
		Elementary	High School	
BMI < 18,5 - Underweight	Nr. 169 % 20,9%	169	86	255
BMI 18,5 - 25 - Normal	Nr. 206 % 25,5%	206	314	520
BMI >25 - 29,9 - Overweight	Nr. 9 % 1,1%	9	21	30
BMI > 30 - Obesity	Nr. 0 % 0%	0	4	4
Total	Nr. 384 % 47,5%	384	425	809
Significance (Kruskall-Wallis)		P=0,0001		

The results of BMI classification of the participants according to school level (elementary vs. high school) (Table 1), indicates that age variations exist in the different

BMI classifications. Majority of the elementary and high school adolescents exhibited normal level of BMI, which was predominant. Generally (Chart 1), 31.52% fall within the underweight BMI category. Only a few (4.2%) were in

the overweight and obesity group which marks a need for physical activity activities revitalization in schools.

Nutritional status according to BMI

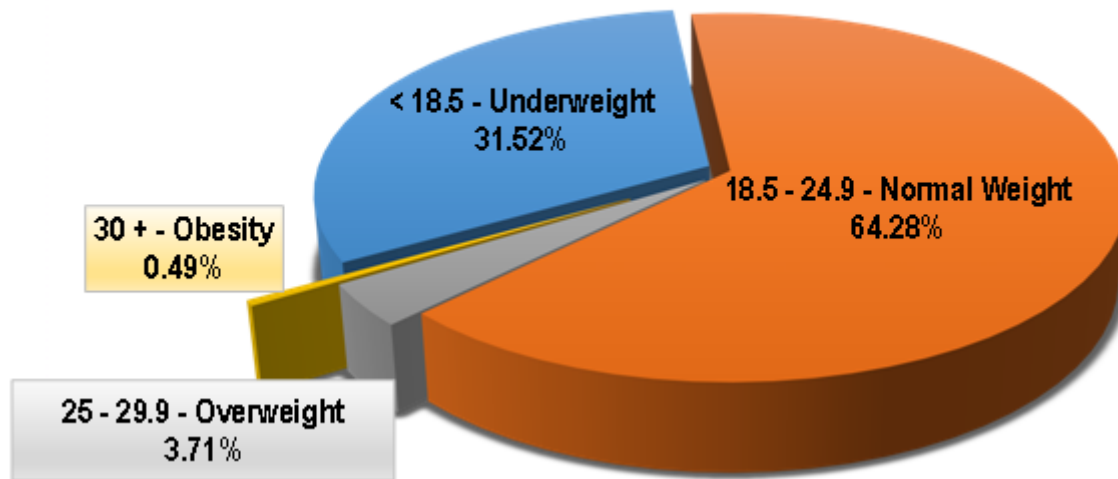


Chart 1: Nutritional Status of our sample

Table 2: Statistical data for BMI of the population by sex

Descriptive Statistics, Sex = Males					
	No.	Minimum	Maximum	Mean	Std. deviation
BMI	284	13.33	37.44	20.7504	3.17315
Weight	284	30	110	58.17	13.595
Height cm	284	120	195	166.49	11.984
Valid N (listwise)	284	-			
Descriptive Statistics, Sex = Females					
	No.	Minimum	Maximum	Mean	Std. deviation
BMI	525	11.29	29.55	19.4271	2.51165
Weight	525	29	80	50.73	8.080
Height cm	525	130	180	161.41	8.034
Valid N (listwise)	525	-			

They have a high tendency for skipping meals. Their meal quality was poor and they had an abnormal eating schedule. They prefer eating meals too late at night and many of them skip breakfast. Adolescents failed to define healthy nutrition. Their nutritional knowledge are still unformed based on their answers. Also their concept of healthy nutrition was different. A very important influence on their conception of nutrition has also been teaching various school subjects.

Even though they had a bad conception of healthy nutrition when they were asked about the reasons that prevent them to eat healthier they pointed out economic reasons and lack of nutritional knowledge. On the other hand when asked to classify 5 favorite and 5 less favorite foods (Figure 3) adolescents preferred foods rich in fat and sweets. The 5 less preferred foods are fruits and vegetables and dairy products (especially cheese).

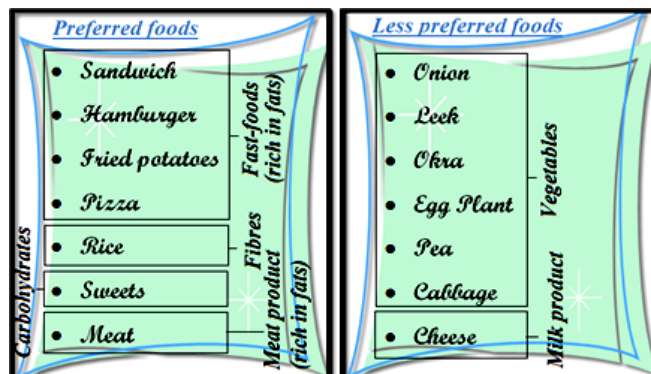


Figure 3: Most and less preferred foods

Skipping meals — adolescents admitted they skip meals mainly because of irregular schedules. Breakfast and lunch are the meals most often missed, but social, school, and work activities caused evening meals to be missed as well, according to their responses in face-to-face interviews. On any given day, a great majority of adolescents in our study declared skipping breakfast; older adolescents (those age 15 to 18 years) were more likely to skip breakfast as are younger adolescents, and girls were more likely to do so than are boys. More than one-half of the adolescents reported that they ate breakfast less than twice per month. Reasons for skipping breakfast included lack of time, early school activities, lack of companion during breakfast or a poor appetite first thing in the morning.

Snacking — most adolescents seemed to snack. Our participants seldom conformed to a regular pattern of three meals per day; the majority admitted eating at least five times per day different snacks, including fast-foods, sweets and other junk foods. As a result we can say that snacks are a major source of energy and nutrients, providing a lot of energy intake for these adolescents.

Fast foods and homemade food practices — as they become more independent, adolescents increasingly make their own decisions about what, when, where, and with whom to eat. With busy after-school schedules, adolescents frequently eat away from home. This seems to discourage homemade foods practices.

Fast foods were popular choices because, according to their responses they are inexpensive, familiar and available at almost any hour of the day or night and because many adolescents socialize with their peers at fast food establishments, but on the other hand homemade food practices were tagged as ant-social and out of date.

In this study we also used CKNEM[®] v.4.1.0 (Calorie King Nutrition and Exercise Manager Version 4.1.0). This software determines and translates the qualitative reports of the last 24 hours food consumption of the subjects into approximate calorie intake and breaks down the report into micronutrients and macronutrients. We performed this analysis with the CKNEM software and determined the calorie intake, based also on physical activity and BMI. Table 3 represents the results from this analysis by level of education (elementary vs. high school)

Table 3: Nutrients by level of education (elementary vs. high school)

Nutrients	Elementary [N=384] (Mean ± SD*)	High school [N=425] (Mean ± SD*)
Energy (kcal)	1752 ± 613	1913 ± 929
CHO (g)	238 ± 84	250 ± 113
Proteins (g)	77 ± 29	75 ± 46
Fats (g)	55 ± 30*	71 ± 50*
Cholesterol (mg)	308 ± 157	333 ± 323
Iron (mg)	12 ± 4.2	11 ± 4.5
Calcium (mg)	932 ± 739	836 ± 478
Vitamin A (RE♦♦)	505 ± 482	495 ± 357
Vitamin C (mg)	131 ± 115*	71.3 ± 84*
BMI	19.08 ± 2.5*	20.63 ± 2.9*

♦ Means with an * are significant to student's t test for $p < 0.05$

♦♦ Our program calculates all this based on Retinol equivalents

4. Discussion

Our study results are comparable to different studies recognized from WHO, in undeveloped countries and can serve as a reference for policy makers and researchers in Albania and abroad. This study can be extended and can include more adolescents' categories, because we included only adolescents that attend school. Adolescents of Albania should get an adequate Health Promotion because of their poor eating habits and low quality nutritional choices.

Reforms in adolescents' nutrition strategies should be reviewed, enriched and re-implemented. Cooperation of all

actors is necessary for obtaining the adequate nutrition quality and healthy eating choices and habits among adolescents. Ministries and NGO's should work and cooperate in adolescents' nutrition with two main focuses:

1. Nutritional choices
2. Lifestyle aspects linked to nutrition

This study is more an effort to promote nursing research importance in Albania, as new challenges are emerging and they need the attention of nurses. To our knowledge, this nutrition study is the first of its kind among city schoolchildren of Albania. Although the schools were not randomly selected, they represent a broad array of features: public and private, as well as urban and peri-urban schools. Furthermore, sample size was large enough and in a narrow age-range. However, because of these study features, the results cannot be extrapolated.

5. Conclusions

Based on our findings, it appears that under nutrition and micronutrient deficiencies are potential even in urban schoolchildren, especially among females (due to their focus on weight and appearance). Overweight/obesity is appearing in some schools and amongst younger children. It may be concluded that the nutrition transition characterized by shifts in dietary habits and lifestyles with resulting increases in the prevalence of obesity and comorbidity is instilled now in Albania. The high prevalence of underweight 31.52% should be of concern and underlines the compelling need for corrective and preventive measures in Albanian schools, which should no longer be neglected in favor of rural areas. Considering our findings we can conclude that our adolescents have inadequate nutrition and poor eating habits. As we see that they experience phenomena such as meal skipping, poor quality of meals, dangerous eating habits, like eating more foods rich in fats and sweets, which is a good predictor for an abnormal health status in the future, for these adolescents.

Eating disorders in adolescents can be of long duration, potentially life-threatening depending on severity and with likely production of morbidity and mortality in adulthood that affects community. A planned and skillful approach to prevention is necessary to obtain a cost-effective, healthy outcome. Ultimately, the goals include primary prevention and adequate nutritional strategies steered by collaboration of field work of nurses and physicians.

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