



Childhood Obesity and Health Risks of Overweight Children

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Abstract

Childhood obesity is a serious medical condition that affects children and adolescents. Children who are obese are above the normal weight for their age and height. Overweight and obese children are likely to stay obese into adulthood and more likely to develop non-communicable diseases like diabetes and cardiovascular diseases at a younger age. Many co-morbid conditions like metabolic, cardiovascular, orthopedic, neurological, hepatic, pulmonary, and renal disorders are also seen in association with childhood obesity.

The theme of this project aimed to include in a medical examination all children aged from 6 years old up to 15 years old (children of primary schools in one city of Albania).

Before doing the medical examination, children parents were informed about the project, through an informing meeting, where it was explained the purpose of the project, how it will be done, who was the medical staff doing the medical visits.

Keywords: Childhood Obesity; Overweight; Children

Introduction

Children were called in groups of 50 - 100 per day.

Project lines were:

1. Pediatric physical examination
2. Laboratory test (CBC, urine and stool test).

In total, there were checked XXX children, as per the following table. Medical visits and laboratory tests were performed in place (DHP and GPHD organized that medical consults be in schools environments).

1. Pediatric visit - 1,146
2. Ophthalmology examination - 1,147
3. Complete blood cell count - 1,151
4. Urine analysis - 1,153
5. Stool examination - 823.

Methodology

As shortly described above, project consisted in:

1. Pediatric examination
2. Laboratory examination.

To preserve privacy, children were coded (and the list of match between code and name was available only for the pediatricians). Each child was provided 7 stick with the code. One code was attached to the pediatric examination file, one, to ophthalmology, 3 to each container of biological samples. One code was kept by parents, and when giving the results and comments after the complete of all tests, parents showed up to the doctors with the code.

Child anamnesis

The protocol of the visit began with a detailed anamnesis, asking for actual complains and their history, getting information about health development since the delivery (including antenatal information, asking for possible disorders during pregnancy). An

important focus was asking for the development of child 6-8 first months of life, to get as much as possible details about way of feeding, vaccination, past diseases, physical and mental development, drugs used during this period of life, other treatments used.

Family health history was considered by medical staff as a crucial part of anamnesis, to evaluate the children health in relation with possible hereditary illnesses. In the attention of doctors were mostly diseases like hypertension, diabetes, thyroid disorders, lipid disorders, etc.

The most important part was physical examination and vital signs evaluation.

Physical examination

After taking the anamnesis, children were evaluated physically. All organ systems, were assessed by questions related to that organ normal function (to detect any deviation from normal) and physical examination:

- Skin, muscles and skeletal development inspection (possible deformities of thorax, extremities, vertebral column disorders, muscle strength and development). Since the skin is the mirror for many infectious diseases, it was carefully evaluated for the color, skin elements, turgor and elasticity.
- A very important examination and evaluation was the anthropometric measurement. All children were measured and weighted, and using the Anthro Plus software (WHO), we calculated the Z-scores for Weight-for-Age, Height-for-Age and BMI-for-Age. These parameters are very important to evaluate if there is any growth problem.

Anthropometry

As discussed in the methodology chapter, anthropometry is a very important evaluation. Through it can be given a clear view of

the child growth and development. Analyzing BMI and length for age, can give results and suggestions for the nutritional state of the child, but also for endocrinological development of it.

For 77 children (6.43), BMI was not calculated (several reasons like: possibility to get information from parents for birthdate, possibility to measure either height or weight, due to child physical condition). Only half (52.8%) of children resulted 100% normal. Others, with Overweight and those wasted, were considered in risk for obesity or severe wasting. Almost 11% of children were considered clinically problematic in regards to their growth. As seen in the table obesity and severe wasting represent a considerable number.

Table 7. Body Mass Index for all children

BODY MASS INDEX	Frequency	Percent	Cum. Percent	Fleiss 95% Conf Limits
Missing	77	6.43%	6.43%	5.14% - 8.01%
CLINICALLY OBESE	8	0.67%	7.10%	0.31% - 1.37%
NORMAL	632	52.80%	59.90%	49.92% - 55.65%
OBESITY	50	4.18%	64.08%	3.15% - 5.51%
OVERWEIGHT	142	11.86%	75.94%	10.11% - 13.86%
SEVERELY WASTED	69	5.76%	81.70%	4.54% - 7.28%
WASTED	219	18.30%	100.00%	16.17% - 20.63%
Total	1197	100.00%	100.00%	

Figure 1

Problems with weight gain were found more in urban area, and in rural area, wasting was more frequent. This might be related with living conditions. But severely wasted children were found equally in both areas. This observation leads to the need for further investigation about reasons, among which health disorders could be an important issue.

Table 8. Influence of parent employ on BMI

AREA	CLINICALLY OBESE	Missing	NORMAL	OBESITY	OVER WEIGHT	SEVERELY WASTED	WASTED	Total
RURAL	0	15	110	4	24	13	58	224
	0.00%	6.70%	49.11%	1.79%	10.71%	5.80%	25.89%	
URBAN	8	62	522	46	118	56	161	973
	0.82%	6.37%	53.65%	4.73%	12.13%	5.76%	16.55%	
TOTAL	8	77	632	50	142	69	219	1197
	0.67%	6.43%	52.80%	4.18%	11.86%	5.76%	18.30%	

Single Table Analysis : Chi-squared=15.36; df=6; P=0.018

Figure 2

Conclusion

1. Nutritional status is a main concern in children of Gramsh area. Obesity, even still not in high rates, represent a concern since its consequences like diabetes, cardiovascular disease or hormonal disorder are un-recoverable. Wasting is more emphasized than Obesity in this area. Rural areas are more affected by this, meantime that obesity is more a health concern in urban areas. Obesity and Wasting is influenced also by level of education and financial conditions of families. Financial conditions do not lead only in Wasting but also in Obesity.
2. Obesity and Overweight has given effects on children health status, and one of the complication is the Blood Pressure. Children with Obesity are at risk for this complication, and it has already happened in this children group.
3. Gramsh area is suspected to be an area where people can have Minor Thalassemia. This disease can be suspected only by a simple CBC and confirmed by the Electrophoresis of HgB. In children visited, around 4% of them were suggested to do this blood exam. Knowing this health condition can prevent the major thalassemia (Cooley Anemia).
4. Urinary tract infection are common in children in Gramsh area. Complications of this condition has been from mild to severe like glomerulonephritis. Those are more frequent in females. Half of children with this disorder, took at least once treatment, but it reveals that treatment has been ineffective.
5. Even parasitosis are a common undetected health concern. Impacting directly to nutritional status, late diagnosis lead to weight loss, but may be even to decrease immunity. Its high contagiousity was proved by frequent rate in town where living conditions are better (no special influence by living area), by isolated clusters where it was noticed, by non-influence of parent education. Females are more risked to be infected by such infection, especially by *Giardia lamblia*.
6. Several uncommon and not frequent conditions have been detected. These conditions have not been noticed and their progress is not prevented by family health care workers, leading to a more difficult treatment.
7. Miss-treatment of diseases, especially when using antibiotics, has lead into possible bacterial resistance. Antibiotic usage when viruses, or chronic otitis, tonsillar hypertrophy, vegetation adenoid, are some indicators of this. Children with chronic tonsillitis and moderate to severe tonsillar hypertrophy were suggested to have ASLO, to detect circulating *Streptococcus*.
8. Children presented a "mosaic" of diagnoses during the visit. Obesity, tonsillar hypertrophy, heart diseases, asthma bronchialis, dental caries, enuresis nocturna, scabies, anemia, bronchopneumonia, urinary infection, parasitic infections,

endocrinologic disorders, were the most frequent. But a great concern is the delayed psychomotor development and autism. There were diagnosed mental disorders, but also undiagnosed ones.

Recommendations

1. Immediate intervention is required in regards to Obesity and Wasting. Obese and clinically obese children needs further evaluation like lipids and endocrine profile. Nutritional assistance would be the easiest and most effective intervention. Groups of children which are obese needs to be taught about diet, physical activity. The same thing has to be also for wasted children, instructing them about prevention of infectious diseases (since they are more susceptible). Family health workers have to be awarded about these two conditions and to be trained to permanently and periodically use growth charts, as a good indication for these condition.
2. Performed of HgB Electrophoresis for children which may be suspected by CBC.
3. Treatment of Urinary infections and advice for liquid use, to prevent complications like pyelonephritis or glomerulonephritis.
4. Data share with directory of public health in Gramsh and cooperation with it to follow up treatment. Increase of awareness for hygiene, toilet use, hand washing, etc.
5. Periodic activities conducted school by health workers discussing health topics with children.
6. Health workers to pay more attention on oral health. Periodic screening for oral diseases to be conducted in schools; discussion with children about oral health care and prevention of oral diseases.
7. Screening of area children for thyroid grand disorders.

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