**ORIGINAL ARTICLE**

# ANTHROPOMETRIC MEASUREMENT OF PRIMARY SCHOOL GOING CHILDREN IN KARACHI

IJPHY

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## ABSTRACT

*Background:* Children were major part of our society and their health issues were too much, so it's necessary that child should b healthy so their health assessment is important worldwide the acceptable method for assessment of health status is anthropometry (weight & height). This study was done to assess the anthropometric measurement of primary school going children of Karachi, sindh Pakistan, and evaluate how much students were underweight.

*Methods:* The study was done in different primary school of Karachi including private semiprivate and government. The study design was cross sectional study. The sample size of our study was 240, including both genders male& female with range between 7-12 years.

*Result:* The result shows that 34.9% were underweight (below 5th percentile), 63.44% were normal weight (between 5-95th percentile) and only0.8% overweight (above 95th percentile).The result showed male-female ratio was 51.5% boys and 48.5% were underweight. The prevalence of underweight in private sector was only 9.5% but in government it was 45.5%.The height of student also calculated and 26.3% children were below the 5th percentile of height for the age, 62.8% were between 5th to 95th percentile and 10.9% above 95thpercentile.

*Conclusion:* The prevalence of underweight in primary school going children in Karachi shows the dietary requirements of children are not fulfilled properly and this may lead to many sever pathological conditions, so it is necessary to take positive steps regarding awareness of proper diet, hygiene and growth & development of child.

*Keywords:* Underweight, Karachi, Anthropometric, School, Height

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## INTRODUCTION

School going children is important part of our society their weight, growth, development present our society general status and nation as whole too [1]. Measurement of height, weight of children is (anthropometry) [2]. It is one of the most important tools for assessing nutritional status. Height- and weight-based measurements are the most practical tools for assessing nutritional status because of their simplicity and low cost. That is universally applicable it is inexpensive and non-invasive technique for assessing the size, proportions, and composition of the human body and also helpful for the measurement of body fatness and body thinness [1,2,7,8]. According to National center for health statistics (NCHS) and centers for disease control and prevention (CDC) gender specific growth chart 2-20 years, according to it if BMI for age percentile is less than 5th percentile the child is said to be underweight. If BMI for age percentile is between 5th 85 percentiles the child is said to be normal weight and if above 95th percentile then said to be overweight. Underweight is defined as low dietary intake, excessive energy expenditure, and frequent attack of respiratory as well as GIT infections, iron deficiency anemia and low recovery from illness. It effect child progress and becomes cause of low attendance in school along with poor performance in school. While obesity and overweight have adverse effect on child psychological development, low self steam, poor body image, peer interaction of young people with their formatives [1]. Globally prevalence of childhood overweight and obesity among school going children has been extensively explored. Many interventions have been implemented for the prevention of childhood obesity in early school years [6]. In Pakistan however it has been neglected and only two surveys have been conducted including the National Health Survey of Pakistan (NHSP) in 1990-94, and the Karachi survey 2004-2005 that reported [6]. Some work has been done on anthropometric measurements of Pakistani children, however percentile charts have yet to be developed in our country [3,4,5]. The objectives of this study are to find out the anthropometric measurements among the children of Karachi Pakistan and to analyze the causes.

## MATERIAL AND METHODS

The study was done to assess the anthropometric measurements of primary school going children. The study design was cross sectional study in which different school of Karachi were selected to collect data. A team of doctors went to different school (government, semi government and private sector) from October 2014 to December 2014 and measured the weight and height of children. Data of 240 children with age ranges between 7-12 years were taken from primary section of in study. The age of children was taken from school register. Body Weight was measured in school uniform of children with 0.1kgbalance beam scale. Height was measured with shoes, horizontal to nearest 0.1cm using wall mounted stadiometeres. The data was analyzed by statically packets for social sciences (SPSS) version 16.Double data entry method used to avert human errors. These data compared with NCHS reference population.11 NCHS developed from height, weight and age data collected in cross section heal and nutritional survey in united state [4]. A introduction given to principal regarding study and explanation given regarding data collection, after proper consent of school principal data collection started.

## RESULTS

The study included a sample of 240 primary school children aged 5-12 years. The male-female ratio was 58.5% boys and 41.5% girls that were examined. The sample involved regarding different age group out of which 21.5% were 7-8 year old, 44.6%were 9-10 year old, 33.9% were 11-12year old. The analysis shows according to the percentile value 34.9% were underweight (below 5th percentile), 63.44% were normal weight (between 5-95th percentile) and only0.8% overweight (above 95th percentile).The study showed 51.5% boys and 48.5% girls were underweight. Mostly underweight students that we have found studying in a class 3 to 4. Schools were arranged into three groups private, semi private and government equal number of student were from each school were included in our data. There is huge difference in the underweight student of different schools, only 9.5% student of private students had weight below 5th percentile and 45.5% students of government schools are underweight. There were only 1% students were in the list of above 95th percentile of weight, those students were studying in private school no student in government and semi private came in this category. Students height analysis also been done and result shows 26.4% had less than 5 percentile, 62.8% student had normal height between 5 to 95th percentile and only 10.4% were above 95th percentile. 61.7% female had height below the normal range of 5 to 95th percentile and 38.3% male had height below 5th percentile.
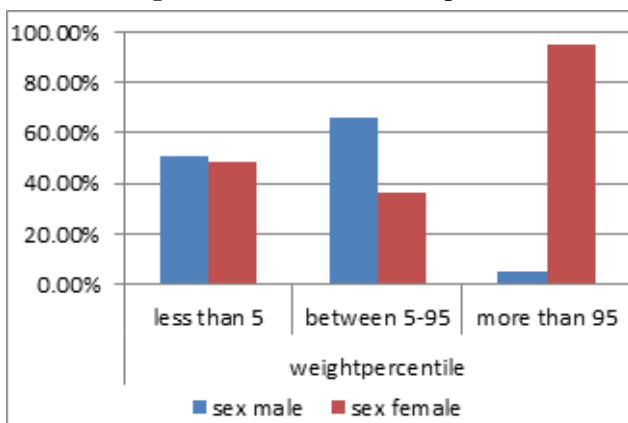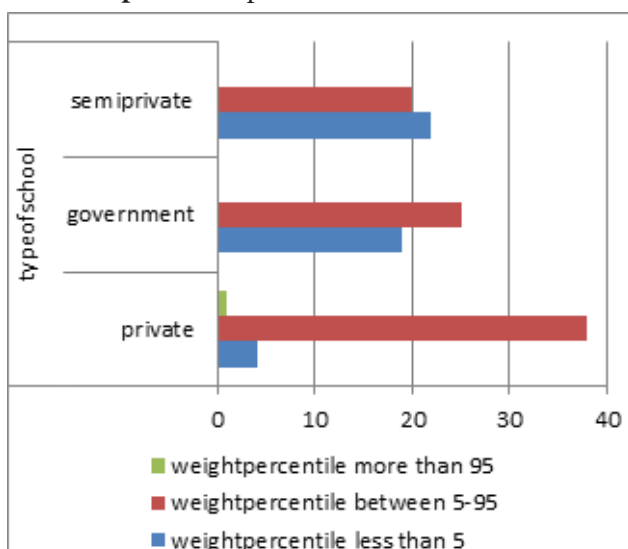
**Graph 1:** Prevalence of Weight
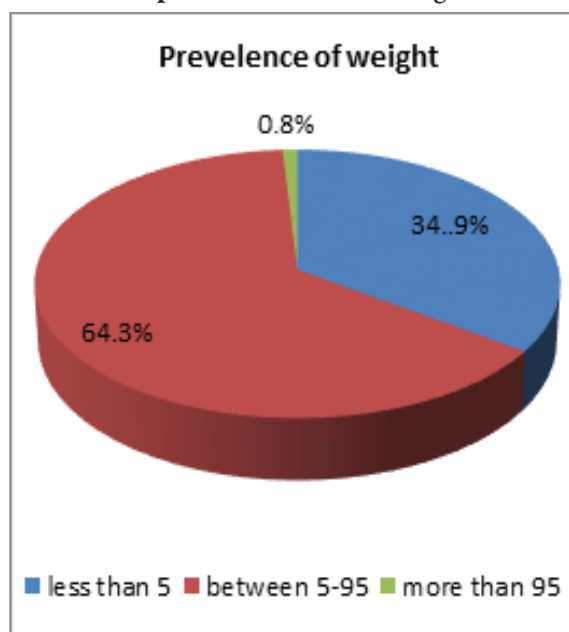
**Graph 2:** Prevalence of Height
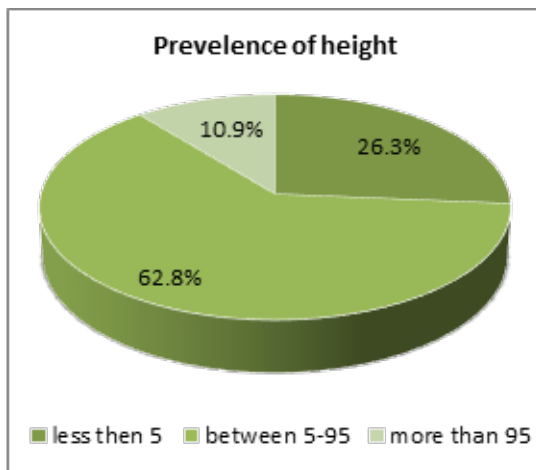


**Graph:1** Male to female comparison



**Graph 2:** Comparison of different schools



## DISCUSSION

School going children are the X% of our population. Their health and growth is very much important in developed countries there is special department for that purpose. The prevalence of underweight in this study was 34.9% out of this51.5% were boys and 49.5% girls. This can be compared with other courtiers of south Asia and worldwide the prevalence of underweight children, according to the who criteria in eThekwini district in KwaZulu-Natal, South Africa, is 66% where is normal weight was 28% [9,10,11] . Although south Africa is developed country but the poor

eating habits, emotional factor or due to poor attention from parents may b cause of it. In our neighbor country India the prevalence of malnutrition in school going children were 58.20% out of which 65.55%boys and 47.25% were girls,[12] as India is facing the nutritional crises and other reason is that they sample size is more in reference study as compared to this study. In other neighboring countries of Asia like Malaysia the prevalence of underweight is less as compare to this study in Malaysia the prevalence were 16.2% boys & 13.3% in girls,[13] this shows that in Malaysia the diet is better than Pakistan and they are aware about balanced diet. In previous study done in Dera Ismail khan Pakistan the prevalence of underweight was 13.9%, [14] this is because in Punjab people are conscious about their diet and health, they perform more physical activities as compare to children of sindh. In this study we compare three different schools i.e. private, semi-private and government, the reason behind this to get idea about socioeconomic status as in private schools we found mostly children belonging to upper class families, in semi private we have mix population of middle class and some upper class but in private mostly lower class families kids are getting education. Results shows that difference in private school the prevalence of underweight was only 9.5% and in government school the prevalence more than four times, 45.5%. This is because low socioeconomic status, unaware about the proper diet, inappropriate diet, poor hygiene. 26.5% children not having appropriate height according to age, this may be due hereditary, improper growth, not taking balance diet.

The results and discussion suggest that proper and balanced diet is needed to all human being specially the growing children. Seminar regarding awareness of underweight and its consequences should be arranged. It's not necessary to give provide luxurious food but should provide good quality food and proper food that fulfill the nourishment of child not the hunger of child.

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