Nutritional Assessment Among Primary School Children In Basrah City

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ABSTRACT

Background: Nutritional assessment is the process used to evaluate nutritional status, identify disorders of nutrition, and determine which individuals need nutritional instruction and/or nutritional support.

Objective: The aim of this study was directed to estimate the prevalence of malnutrition in primary school children in Basrah city.

Method: A cross sectional study involving 240 children (107 males and 133 females), drawn from four primary public school in different area of Basrah city. The data were collected from 26th. of March to 16th. of April 2006.
Nutritional status was determined by international cut off points.

Results: Out of the 240 children, 83 (34.6%) were under weight, 13(5.4%) were overweight. Majority of the children were within normal height 205(85.4%), 22(9.2%) were stunted. Ninety three (38.8%) were under weight with a BMI less than 5th percentile and the percentage of underweight was higher among boys than girls (43.0% & 35.3% respectively)**.**
Only 17 (7.1%) of the study children were overweight with a BMI between 85th percentile to less than 95th percentile.

Conclusion: The results of this study showed that the majority of children were within normal weight, height and BMI for age and sex, but malnutrition is fairly common

Key words:Nutritional assessment, school children, Basrah.

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INTRODUCTION

Nutritional assessment is the process used to evaluate nutritional status, identify disorders of nutrition, and determine which individuals need nutritional instruction and/or nutritional support.[1]School age is the active growing phase of childhood. Primary school age is a dynamic period of physical growth as well as of mental development of the child.[2]Large proportion of child mortality in developing countries is associated with infectious diseases and malnutrition.[3]Iraqis have faced difficult living conditions. Series of sanctions and prolong wars, have brought enormous calamites to Iraq, a country where a major bulk of population are children.[4]During and after the war in Iraq massive deterioration in physical, mental, and social health has been witnessed. Water and sanitation were poor status. Similarly preventive health care services suffered painful shortage.[4]Nutritional status of children has affected by these ill-events. There are many methods to assess the nutritional status of children,BMI is a reliable indicator of body fatness for most children and teens, but it does not measure body fat directly, and can be considered as an alternative method for direct measures of body fat. Additionally, BMI is an inexpensive and easy to perform method of screening for weight categories.[1] Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children in the United States. The percentile indicates the relative position of the child's BMI number among children of the same sex and age. For children and teens, BMI is age and sex specific and is often referred to as BMI – for – age.[4] The aim of this study was directed to estimate the prevalence of malnutrition in Basra primary school children.

METHODS

A cross sectional study was carried out to assess the nutritional status of primary school children in Basra city, the research was approved by the Research Ethical Committee at Basrah College of Medicine. The study involved 240 children (107 males and 133 females), who were chosen by using systematic random sample from four primary public schools in different area of Basrah city. The data were collected from 26th. of March to 16th. of April 2006.A special questionnaire form was develop for the purpose of the study filled for each child included in the study through direct interview. The questionnaire includes: name, age, sex, address, school name. The age of the pupils involved in the study ranged between 6 and 12 years. Weight was measured with bath room scale in Kilograms. Height was measured in Centimeters with a tape meter fixed on the wall. All boys and girls were wearing minimal clothing and were barefooted.The weight and the height were plotted onto the 1990 centile growth charts for the appropriate sex.Nutritional status was determined by international cut off points recommended by the WHO2007.[6,7] The Body Mass Index was estimated from the equation {BMI = weight (Kg) /

height^2 (m^2),[8] and plotted on the CDC BMI – for – age weight status categories and the corresponding percentiles are shown in the following table:

Table 1: Weight status category for the calculated BMI for age percentile

Weight status category	Percentile range
Under weight	Less than the 5th percentile
Healthy weight	5th percentile – less than the 85th percentile
Over weight	85th percentile – less than 95th percentile
Obese	Equal to or greater than the 95th percentile

Sources: Centers for Disease Control and Prevention cdcinfo@cdc.gov

The data were analyzed using the Statistical Package for the Social Science(SPSS) version 15. The data were expressed as numbers and percentages, Chi – squared test used as a test of significant, and probability less than 0.05 was considered as significant.

RESULTS

The study involved 240 students (107 were boys and 133 were girls). The mean age, height, weight, and BMI for boys were 7.1±1.4 years,121.0±9.5cm, 21.4±6.8Kg & 14.4±2.9 in that order. For girls, the mean age, height, weight, and BMI were 8.5±2.0years, 127.0±11.9cm, 24.2±7.0Kg & 14.8±2.6in that order. (Table 2)

Table2: Distribution of the study group according to mean age /years, height/cm, weight/Kg, and BMI

		Age/years	Height/Cm	Weight/Kg	BMI*
Boy N=107	Mean ± standard deviation	7.1± 1.4	121.0 ± 9.5	21.4 ± 6.8	14.4 ± 2.9
Girl N=133	Mean ± standard deviation	8.5 ± 2.0	127.0 ±11.9	24.2 ± 7.0	14.8 ± 2.6

*Body Mass Index

Out of the 240 children, 83 (34.6%) were under weight, 13(5.4%)were overweight, and the difference between boys and girls in prevalence of

underweight was statistically significant. (Table 3)

Table3: Distribution of the weight status category of the study group according to sex

Weight status category	Boy		Girl		Total	
	No.	%	No.	%	No.	%
Normal (± 1SD)	53	49.5	91	68.4	144	60.0
Under Weight (< - 1SD)	49	45.8	34	25.6	83	34.6
Over Weight (> +1SD)	5	4.7	8	6.0	13	5.4
Total	107	100.0	133	100.0	240	100.0

Chi –square = 10.740 df = 2 P – value = 0.005

Majority of the children were within normal height 205(85.4%), 22(9.2%) were stunted, and the difference between boys and girls was not significant. (Table 4)

Table 4: Distribution of the height status category of the study group according to sex

Height status category	Boy		Girl		Total	
	No.	%	No.	%	No.	%
Normal	92	86.0	113	85.0	205	85.4
Stunting	10	9.3	12	9.0	22	9.2
Tall	5	4.7	8	6.0	13	5.4
Total	107	100.0	133	100.0	240	100.0

Chi –square = 0.211 df = 2 P – value = 0.90

Using BMI, 93 (38.8%) of all children were under weight with a BMI less than 5th percentile and the percentage of underweight was higher among boys than girls (43.0% & 35.3% respectively).However, this difference were statistically not significant.Only 17 (7.1%) of the study children were overweight with a BMI between 85th percentile to less than 95th percentile. (Table 5).

Table 5:Distribution of weight status category for calculated BMI for age percentile according to sex.

	Boy		Girl		Total	
	No.	%	No.	%	No.	%
Normal	55	51.4	75	56.4	130	54.2
Under Weight	46	43.0	47	35.3	93	38.8
Over Weight	6	5.6	11	8.3	17	7.1

Total	107	100.0	133	100.0	240	100.0

Chi –square = 1.762 **df = 2** **P – value = 0.414**

Discussion

Children nutritional status is an important indicator of health and development in countries.[4]Many studies were carried out in different parts of the world for assessing the nutritional status by using different methods.[9-12] In Iraq, a survey was carried out by the Ministry of Health and UNICEF to understand the consequences,on nutritional status of vulnerable children, the unstable conditions following the outbreak of war on March 2003 and to determine the prevalence of malnutrition of under five children in Baghdad. The indicators used in this survey are weight for height, weight for age, and height for age, the survey showed that malnutrition was a significant public healthproblem in Iraq.[4] In Basrah a previous study suggested that the prevalence of underweight was 37.7%.[9]The above results agree with results of the present study in which we found that the overall prevalence of underweight among primary school children was 34.6% according to international cut off points (2007 WHO references).[6,7]38.8% according to the CDC BMI – for – age weight status categories.[5]A study in USA was done in 2003 to assess the nutritional status of children aged 8-11 years old using BMI percentile for age and sex, the study found that 17.5% of the study children were consider obese, 8.1% were relatively under weight.[10]One study was carried out to assess the health status of school age children in urban slum of India from December 2010 to April 2011 and the study showed that most of slum children had a poor nutritional status,intervention such as education ,and training of health workerswere recommended.[11]In Australia, a study was carried on primary school children to determine the relationship between weight and quality of life.The result of study found that 5.75% of children were with normal weight while 4.3% were obese.[12]In conclusion, the results of this study show that the majority of children were with normal weight, height and BMI for age and sex but malnutrition is substantial and calls for effective intervention to improve the health status of school children.

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(عنوان البحث)

تقييم الحالة التغذوية لتلاميذ المدارس الابتدائية في البصرة

المقدمة:التقييم التغذوي هو العملية المستخدمة لتقييم الحالة التغذوية ، وتحديد اضطرابات التغذية ، و تحديد الأفراد الذين هم بحاجة الى الأخذ بالإرشادات الغذائية / أو الدعم الغذائي .

الهدف : الهدف من هذه الدراسة لمعرفة معدل انتشار سوء التغذية بين الأطفال في المدارس الابتدائية في مدينة البصرة .

طريقة العمل: دراسة مقطعية التي اشتملت على 240 طفلا (107 ذكور و 133 إناث) ، والمستمدة من أربع مدارس حكومية الأولية في منطقة مختلفة من مدينة البصرة . تم جمع البيانات من 26 . من مارس إلى 16 . من أبريل 2006. تم تحديد الحالة التغذوية حسب حدود عتبة عالمية.

النتائج : اجريت الدراسة على 240 طفلا ، وجدت الدراسة إن 83 (34.6 ٪) تحت الوزن الطبيعي، كانت 13 (5.4 ٪) يعانون من زيادة الوزن . وكانت أطوال الغالبية العظمى من الأطفال ضمن المدى الطبيعي 205 (85.4 ٪)

، و 22 (9.2٪) كانوا قصار القامة. وكان ثلاثة وتسعون (38.8 ٪) تحت الوزن مع مؤشر كتلة الجسم أقل من 5^{th}. percentileونسبة الأطفال الذين هم تحت الوزن الطبيعي كانت في الذكور أعلى مما هي عليه في الإناث (43.0 ٪ و 35.3 ٪ على التوالي) .
17 (7.1 ٪) من الأطفال المشمولين بالدراسة كانوا يعانون زيادة الوزن مع مؤشر كتلة الجسم بين 85 percentile – 95 percentile.

الاستنتاج : أظهرت نتائج هذه الدراسة أن الغالبية العظمى من الأطفال كانوا ضمن الوزن الطبيعي والطول و مؤشر كتلة الجسم بالنسبة للعمر والجنس.