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Nutritional Status of Primary School Children in Babylon Governorate

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Abstract

Objectives: To assess the nutritional status of school children.To identify some associated factors of school children related to nutritional status. And To find out some associated factors of school children and their nutritional status.

Methodology: A cross-sectional descriptive study consisting of (1013)pupil,to assess nutritional status of primary school children in Babylon Governorate.

Result: Analysis of data reveals that there is a 47.4% of children have a normalbody mass index, and 43.0% have underweight, 7.6% overweight, while 2.0% only have obesity. The study showed that 76.4% has normal blood hemoglobin, 21.2% low blood hemoglobin and 2.4% increase blood hemoglobin.

Conclusion:Just under half of children has a normal body mass index and about half of study sample have underweightthis considered as a result of malnutrition of primary school children. And Observed there are high percentage of children have anemia this can be result from many factors contribute in children anemic

Keywords: *Nutritional Status, Primary School, Children.*

Introduction

School-age children constitute a little under one quarter of the world's population, and about three quarters of these children alive in developing countries [1] . School age children spend most of their time away from their parents, therefore, affected by friends as well as media further affect the formation and stabilization of their dietary practices. There is growing evidence indicate that young children from developing countries are increasingly making unhealthy food choices, especially because to lack of knowledge and wrong perception towards healthy foods [2]. School age is the active developing phase of childhood. Primary school age is a dynamic period of physical growth as well as of mental development of the child. Research shows that health problems due to miserable nutritional status in primary school-age children are among the most common causes of low school enrolment, high absenteeism, early dropout and unsatisfactory classroom performance [3]. Growth and development are sometimes used interchangeably. But growth implies increase in size of organs while body development implies differentiation and maturation of function. The former indicates quantitative growth as well the latter indicates qualitative growth. Development is influenced in the physical, emotional and social environment. In early childhood, cognitive growth and development are difficult to differentiate from neurologic and behavioral maturation. Factors affecting child development: genetic factors, physical factors, nutritional factors, emotional factors, sociocultural factors [4]. The processes of growth and maturationarerelated,andboth influencephysical performance. There are three broad phases of development: early childhood, middle childhood, and adolescence. The definitions of these phases are organized around the primary tasks of development in each stage, though the boundaries of these stages are malleable [5]. Point out that two major growth spurs happen in the brain of children in the middle and late childhood; the first happens between the age of 6 and 8 and the second between the ages of 10 and 12. State that the growth of the brain between the ages of 6 to 8 has an influence on sensory and motor areas. There is an improvement in fine- motor skills and eye- hand

coordination [6]. Food is necessary for the proper growth and development of children. It is important for the support of oral and physical health, the enhancement of the powers of resistance and continued renewal of the substances in the cells and tissues in children [7]. Undernutrition among children is a critical problem because its effects are long lasting and go beyond childhood. It has both short and long term consequences. For instance, undernourished as compared to non-undernourished children are physically, emotionally and intellectually less productive and suffer more from chronic illnesses and disabilities [8]. Nutritional assessments among school children is very important as they constitute a potentially susceptible group. Growth assessment is an important tool for monitoring health and nutritional status of children, identifying deviations from normality, and also providing an indirect measurement of well-being for the entire population.

Methodology

Study Design:A cross –sectional descriptive study to assessment nutritional status of primary school children in Babylon Governorate.Randomly sample of (1013) pupil from primary schools were selected. All of these childrenwere measured by their weight,height, body mass index, hemoglobin and blood sugar, a questionnaire was also completed which included demographic information and dietary habits for children.The questionnaire considered a means for data collection.

The content credibility of the instrument was estimated through a panel of (16) experts, the stability of the items was based on the internal consistency of the questionnaire was evaluated by calculating Alpha Cronbach' which as= 0.80.

Data Analysis

Through the used descriptive statistical (SPSS) version 24 analysis approach that includes, frequencies, percentages, mean of scores, standard deviation and graphical presentation of data; and inferential statistical data analysis approach that include correlation.

Correlationis used to identify the relationship between nutrition status of children and their demographic variables.

Result of the Study

Table (1): Socio demographic characteristics of the study sample (N=1013).

Age groups	**Frequency**	**Percent**
6-7	169	16.7
8-9	209	20.6
10-11	328	32.4
12-13	255	25.2
14-15	52	5.1
Total	1013	100.0
Gender	Frequency	Percent
Male	466	46.0
Female	547	54.0
Total	1013	100.0
Residence	Frequency	Percent
Rural	372	36.7
Urban	507	50.0
Peripheral Village	134	13.2
Total	1013	100.0
School Type	Frequency	Percent
Private	79	7.8
Government	934	92.2
Total	1013	100.0

Table (1) shows that (32.4%) of student were between (10-11) years old age, (54%) were females, (50%) were live in urban, (92.2%) were study in government schools and (7.8%) study in private schools. This table shows that (20.2%) of the student in the fourth class, (60.6%) of the student's family income were enough, (95.8%) of the student's fathers were alive and (99.1%) of the student's mothers were alive.

Table (2): Distribution of Study Sample by their Nutrition Status through Anthropometric Measurement and blood tests (Height, Weight, B.M.I. , Blood sugar level, Hemoglobin).

Students Height		Frequency	Percent
	Small	210	20.7
	Medium	**524**	**52.0**
	Large	276	27.3
	Total	1,013	100.0
Students Weight		Frequency	Percent
	Low weight	235	23.2
	Acceptable weight	499	49.5
	more than normal weight	276	27.3
	Total	1,013	100.0
Body Mass Index Level		Frequency	Percent
	Underweight	436	43.0
	Normal	**480**	**47.4**
	Overweight	77	7.6
	Obesity	20	2.0
	Total	1013	100.0
Blood Sugar Level		Frequency	Percent
	Hypoglycemia	18	1.8
	Normal	**985**	**97.2**
	Hyperglycemia	10	1.0
	Total	1013	100.0
Hemoglobin Levels		Frequency	Percent
	Low Blood Hemoglobin	215	21.2
	Normal	**774**	**76.4**
	Hyperhemoglobinemia	24	2.4

Table (2) shows that(52.0%) of study sample were medium height, (49.5%)of sample were acceptable weight, (47.4%) of the study sample were normal B.M.I, (97.2%) of the students have normal blood sugar, (76.4%) of the study sample were normal.

Table (3): The distribution of the study sample by their dietary pattern data.

Dietary pattern score		**Frequency**	**Percent**
	Meat eater	63	6.2
	Vegetarian	558	55.1
	Mediterranean-	392	38.7
	Total	1,013	100.0

The table showed that (55.1%) of the study sample have been vegetarian dietary pattern, (38.7%) was Mediterranean and (6.2%) was meat eater.

Table (4). shows the correlation between Body Mass Index and nutritional status. Body Mass Index Level * Nutritional Status

Crosstab					
Count					
		Nutritional Status			**Total**
		Unbalance Nutritional Status	**Balanced Nutritional Status**	**Well Nutritional Balanced**	
Body Mass Index Level	Underweight	45	227	164	436
	Normal	54	243	183	480
	Overweight	4	41	32	77
	Obesity	2	14	4	20
Total		105	525	383	1,013
Pearson's R		0.001			

This table shows there are weak positive relationship (Pearson's R: 0.001) between body mass index and nutritional status.

Table (5) shows the correlation between blood sugar and nutritional status.

Blood Sugar Level * Nutritional Status

Crosstab						
Count						
Unbalance Nutritional Status		**Nutritional Status**			**Total**	
		Balanced Nutritional Status	**Well Nutritional Balanced**			
Blood Sugar Level	Hypoglycemia	9	1	8	18	
	Normal	95	516	374	985	
	Hyperglycemia	1	8	1	10	
Total		105	525	383	1,013	
Pearson's R		0.030				

This table shows there are weak positive relationship (Pearson's R: 0.030) between blood sugar and nutritional status.

Table (6) shows the correlation between dietary pattern and nutritional status.

Dietary pattern score * Nutritional Status Cross tabulation					
Count					
		Nutritional Status			**Total**
		Unbalance Nutritional Status	**Balanced Nutritional Status**	**Well Nutritional Balanced**	
Dietary pattern score	Meat eater	63	0	0	63
	Vegetarian	33	525	0	558
	Mediterranean-	9	0	383	392
Total		105	525	383	1,013
Pearson's R		0.916			

This table shows there are strong positive relationship (Pearson's R: 0.916) between dietary pattern and nutritional status.

Discussion

Socio-Demographic Data of the Nutritional Status of the Primary School Children.

Finding of the study includes (1013) of pupils participate in this study, the most gender was female (547 at 54% female and 466 at 46% male), the most age group was between (10-11) years, this age group qualifies the student in fourth class of school this percentages consisting with hiyam and zeyneb (2016) who have been studied time of emergence of permanent teeth and impact of nutritional status among 4-15 years old children and teenagers in basrah city /iraq. Thier results depicts that consisted of 1807 children and teenaged between ages (4-15) years, 766 of the sample were boys (42.4%) and 1041 were girls (57 .6%) collected from random areas of basrah city. Moreover, Abdul Razak, and others (2018) have been studied Breakfast consumption among Malaysian primary and secondary school children and relationship with body weight status, their finding indicated that the most of participants are girls (53.8%) and boys (46.2%), and more age group was (6–9)years. In current study, residence of the sample was (50.0%) urban, (36.7%) rural, (13.2%)peripheral village which disagree with Naotunna and others (2017) [14] have been studied the nutritional status among primary school children in rural Sri Lanka; a public health challenge for a country with high child health standards. Their findings reveals that the rural schools most included in this study (701) schools from (802) total schools. Current study find most of the sample was in government schools by percentage (92.2% government schools, 7.8% private schools). This results disagree with study has been studied A comparative study of nutritional status between government and private primary school children of Mysore city(India). Their results show that 695 (44.3%) were from government school and 871 (55.6%) were from private school [15].This study show most of the sample has enough family income (60.6%enough),(32.0% not enough) and (7.4% enough and more). This findings similar Nabeela and others (2010) which studied impact of socioeconomic factors on nutritional status in primary school children. Their results indicate that 83 (51.6%) children from upper and 78 (48.4%) children from lower socio-economic class. The current study find most of mother's and father's children was alive (99.1% mothers alive, 0.9% mothers dead, 95.8% fathers alive, 4.2% fathers dead). This results agree with study conducted by Lilian and other in 2013 that showed (80.0%) of children alive with both parents, (15.0%) alive with mother alone and (5.0%) alive with father alone table (1). The present findings of body mass index locate that (47.4%)of the study sample were normal weight, (43.0%) were underweight,

(7.6%) were overweight and (2.0%) were obese. The results of current study agree with Katarzyna Dereń and others (2018) [17] which studied the prevalence of underweight, overweight and obesity in children and adolescents from Ukraine. Their findings showed that most study sample were (boys: 75.4% normal weight, 11.5% overweight, 10.8% underweight, 2.3% obese) and (girls: 70.4% normal weight, 8.5% overweight, 19.3% underweight, 1.8% obese). Current study showed that most of study sample were (97.2%) normal blood sugar, (1.8%) hypoglycemia and (1.0)hyperglycemia. The results in this work agree with results obtained by other reposts such as Marta Murillo and others (2017) [18] has been studied health-related quality of life (HRQOL) and its associated factors in children with type 1 diabetes mellitus (T1DM). Their findings reveals that (97.8% no have hypoglycemia, 2.2% have hypoglycemia and 92.6% no have hyperglycemia, 7.4% have hyperglycemia). Study results depicted that the (76.4% normal blood hemoglobin), (21.2% low blood hemoglobin (anemia) and (2.4% hyperhemoglobinemia). These results are concurrent with study which has been studied anemia among primary school children in eastern Ethiopia [9]. Their results indicates that the (73.1% normal, 13.8% mild anemia, 10.8% moderate anemia, 2.3% severe anemia) table (2). Regarding dietary pattern of children in the present study were (55.1% vegetarian), (38.7% mediterranean), (6.2% meat eater). These results are disagree with study which has beenclustering of dietary patterns, lifestyles, and overweight among Spanish children and adolescents [19]. Their findings indicate that the most dietary patterns of Spanish children were mediterranean by percentage (41.03%) table (3). In the current study it is found that weak positive relationship between body mass index and nutritional status. similarly, a study done in India which studied nutritional status and morbidity among school going children: a scenario from a rural India. Their findings showed here association of malnutrition with normal children was found statistically non-significant ($p>0.05$) Singh, (2014) table (4). In current study showed there are weak positive relationship between blood sugar and nutritional status.

Conclusion

According to the findings of this research and related to the discussion, the present study concludes that: There is a significant relationship between nutritional status and diary pattern, whereas Pearson's R was (0.916) of primary school children in Babylon governorate. So, theresearcherrejects the null hypothesis and accepts the alternative hypothesis which stated that. there is a significant relationship between nutritional status and dietary pattern of primary school children in Babylon governorate. There is weak a significant relationship between nutritional status and age group whereas Pearson's R was (0.07).

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Conflict of Interest: None to declare.

Ethical Clearance: All experimental protocols were approved under the Faculty of Nursing, University of Babylon, Iraq and all experiments were carried out in accordance with approved guidelines.

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