Assessment of Nutritional Status among Primary School Children at Al-Leith City

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Abstract
Background: *This study aimed to assess the level of nutritional status among primary school children and to identify the relevant effects of demographic, socioeconomic and environmental factors.*
Methods: *A community based cross-sectional study was conducted during December2016 to April2017. Taking into consideration the time restraints and convenience, four primary schools in Al-leith were selected through multistage random sampling. One hundred primary schoolchildren were selected randomly,interviewed and examined for malnutrition.*
Results: *The mean age recorded for students were 8.0±1 years. The result showed that 9.12% were underweight, 13.17% overweight and 59.47% had normal BMI status.The study findings indicate that the children are being fed the wrong kinds of foods or the wrong proportions. The most favorite snacks brought to school were found to be unhealthy foods, such as junk foods (Chips, salty corn-based snacks and chocolates) and sweets.*
Conclusion: *This study provides that malnutrition among the primary school children is still high.*
Keywords: *nutritional status, underweight, overweigh, junk foods, malnutrition.*

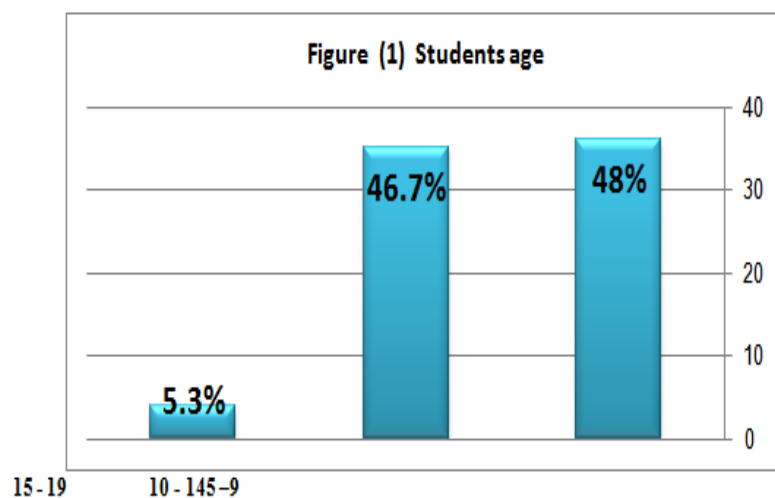
I. Introduction

World Health Organization (WHO) defines nutrition as "the intake of food, considered in relation to the body's dietary needs". It also states that good nutrition is a cornerstone for survival, physical growth, mental development, performance, productivity, health and well-being across the entire life-span (WHO, 2014).As your child reaches school age he or she will be growing quickly and becoming more active. To meet the extra demands of growth children, have higher energy and nutrient requirements for their body size compared to adults (BNF, 2017).Malnutrition influences children's wellbeing and their ability to learn and play normally. Healthy eating habits should thus be established during childhood.Poor eating patterns may thus add a risk for current and future health problems (Contento, 2007). Many school-based nutrition programmes have been implemented globally, focusing mainly on obesity, the importance of activity and of vegetables and fruit in the diet(American Dietetic Association, 2010). Nutritional status of children is considering to be a good indicator to measure the overall wellbeing of a society. It reflects the existing socio-economic and environmental conditions, healthcare system, and food security status (Onis and Habicht,2000).Childhood undernutrition still remains a serious public health problem in many low and middle-income countries and it has been estimated that annual death of children from low and middle-income countries is 1.7 to 3.6 million as a result of severe acute (SAM) and moderate acute malnutrition (MAM) respectively (Ashraf et al., 2012).Particularly during first years of life. In a study WHO (2010) reported that undernutrition was responsible for the 35% child mortality globally (Marotz, 2008).Amalnourished child has poor immune status and more susceptible to frequent illnesses like acute respiratory tract infections, diarrhoea etc. In addition, a child with any of such acute or chronic illness is more likely to be malnourished (Khan and Azid, 2014). Malnutrition, defined as underweight, is a serious public-health problem that has been linked to a substantial increase in the risk of mortality and morbidity (Brammer, 2013).Children who are overweight may face a range of social, emotional, and physical problems. They often have difficulty participating in physical activities and may be subjected to ridicule, emotional stress,

and exclusion by peers. Children's resistance to infection and illness is also directly influenced by their nutritional status(Marotz, 2008).Health consequences among obese adolescents can be reduced if body fat has been decreased effectively and this requires involvement from all health care professionals (Kohn et al., 2006).The association between child health and income can be explained by one major explanation. Families with high socio-economic status may be able to provide better health care services, goods, services, adequate diet and resources to their children that can lead to a positive effect keeping their children away from them experiencing poor health outcomes (ACF- Pakistan, 2012).There are various indicators that are used for the assessment of the nutritional status of under-five children. Clinical signs, biochemical and anthropometric measurements are the usual indicators to assess the nutritional status of under-five children. For practical purposes, anthropometry is the most widely used tool (WHO, 1986). Compared to other indicators as clinical signs and biochemical parameters are only more useful at extreme cases of malnutrition. At the beginning when developing malnutrition, anthropometric indicator is also sensitive. Besides, anthropometry is the most useful method to assess the nutritional status of individuals at the population level. It is a convenient method in terms of being non-invasive, portable, inexpensive and universally applicable and readily available to assess the size, proportion and composition of the human body(Onis and Habicht, 2000; UNICEF, 2013).Body mass index (BMI) or Quetelet index, is obtained from weight and height measurements and is used to assess body size, and to determine whether an individual's weight is appropriate for his or her height. In recent years, BMI has received increased attention for adolescent use, and it was recommended to be used routinely as a screening guideline for overweight adolescents. However, the BMI indicator has the limitation of not making a distinction between lean body mass and fat mass. Moreover, it does not provide information on body composition (WHO, 1995; Barlow, 2007).

II.   Material And Methods

A community based cross-sectional study was conducted from December 2016 to April 2017. Taking into consideration the time restraints and convenience, four primary schools in Al-lith were selected through multistage random sampling. One hundred primary school children were selected randomly, interviewed and examined for malnutrition. Height and Weight were measured using standard techniques. Nutritional assessment was done based on BMI. Pertinent information on socio demographic variables was obtained on a pre-design and pre-tested questionnaire. Following standard techniques were used for measurements: -Height: Height in centimeters was marked on a wall with the help of a measuring tape. All students were measured against the wall without foot wear and with heels together and their heads positioned so that the line of vision was perpendicular to the body. A glass scale was brought down to the topmost point on the head. The height was recorded to the nearest 1 cm. (Maiti Soumyajit et al. 2011)Weight: The weight was measured using a weighing machine (digital balance) with an accuracy of $\pm$ 100gm. The subjects were asked to remove their footwear before measuring their weight. The scales were recalibrated after each measurement. Accuracy of the weighing scale was verified from time to time against known weights. Body mass index (BMI): BMI of the study subject was calculated by using the formula weight (kg)/ height^2 (m^2). For grading proposed criteria of BMI for Asians (Choo V 2002) and CDC (2010) was adopted. Statistical Analysis:Data thus generated were analyzed using SPSS software.
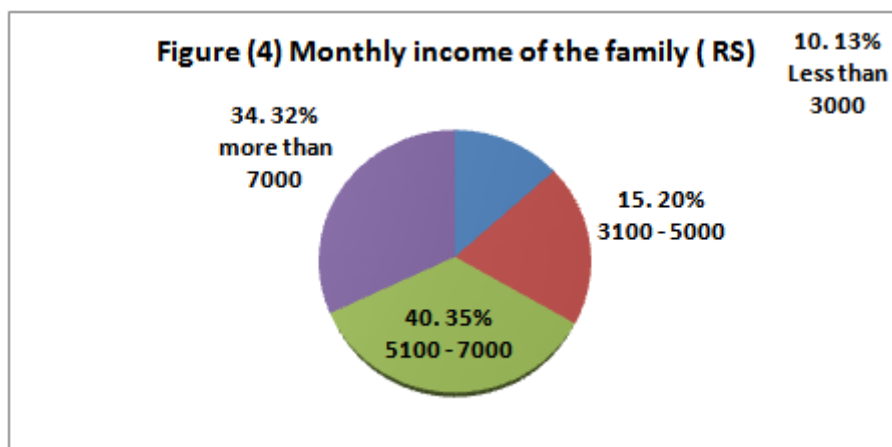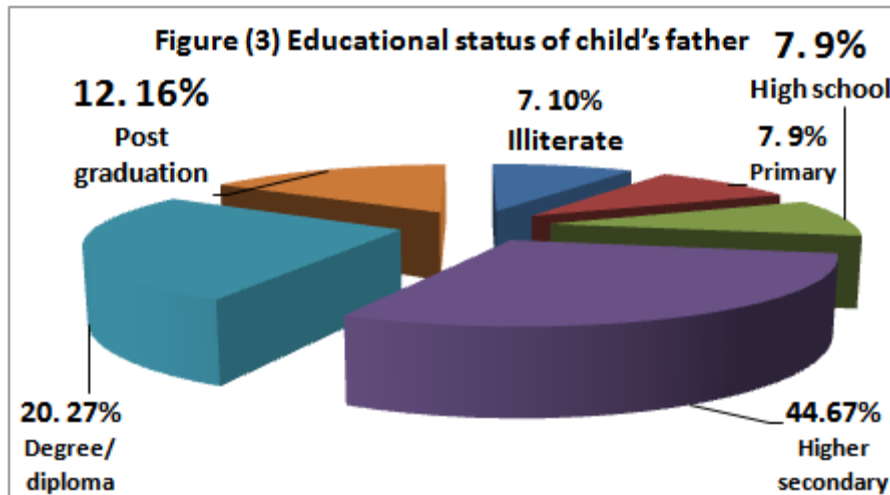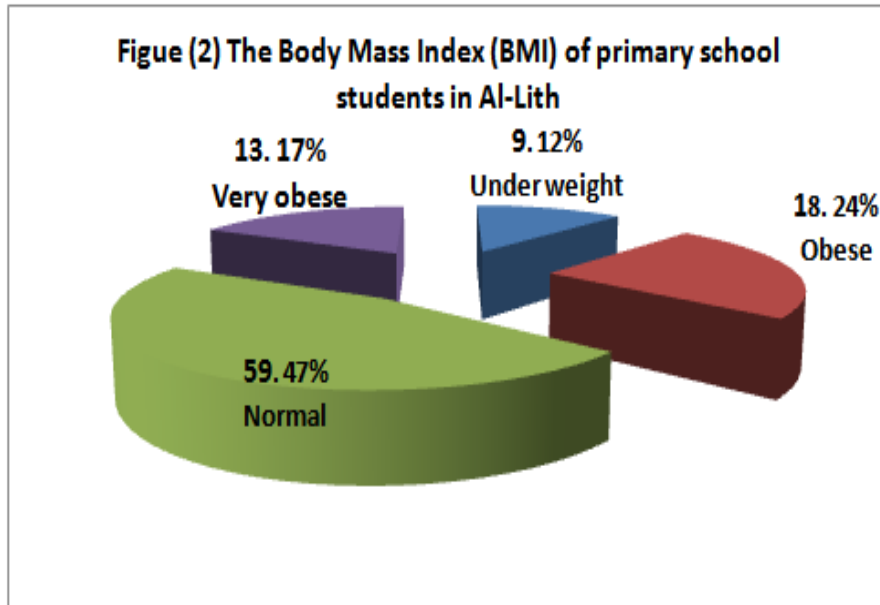
III.   Results

Figure (1) Students age

Figue (2) The Body Mass Index (BMI) of primary school students in Al-Lith

13. 17%
Very obese

9. 12%
Under weight

18. 24%
Obese

59. 47%
Normal

Figure (3) Educational status of child's father

7. 9%
High school

12. 16%
Post graduation

7. 10%
Illiterate

7. 9%
Primary

20. 27%
Degree/ diploma

44.67%
Higher secondary

Figure (4) Monthly income of the family (RS)

10. 13%
Less than 3000

34. 32%
more than 7000

15. 20%
3100 - 5000

40. 35%
5100 - 7000

Table: Showing main items of food taken by studentson monthly bases.

Food group	Daily	Weekly	Twice a month	Monthly	Nothing
Pulses and legumes	64%	22%	12%	2%	
Cereals	100%				
Milk and milk products	44%	39%	10%		7%
Green leafy vegetables and fruits	48%	16%	24%		12%
Fats and oils	56%	12%			
Meat, fish and poultry	19%	27%	5%		
Fast food and snacks (Chips)	56%	36%			8%
Soft drinks	20%		11%	23%	46%

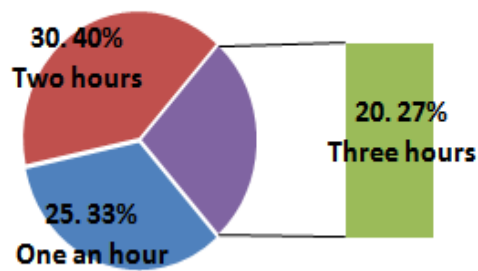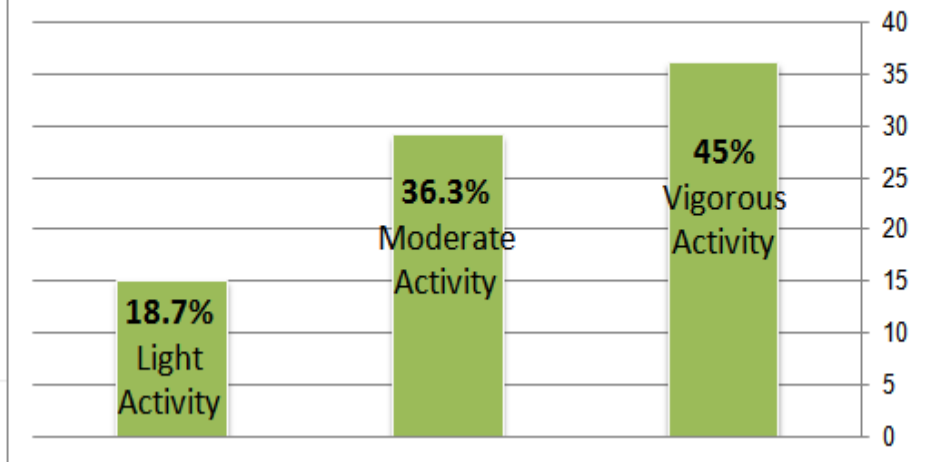Figure (5) Hours per day spent watching TV , plystation or mobile

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Figure (6) Vigorous- or Moderate-Intensity Physical Activity

IV.   Discussion

The result of this study showed that 9.12% were underweight, 13.17% overweight and 59.47% had normal BMI status. The study findings indicate that the children are being fed the wrong kinds of foods or the wrong proportions. The results further revealed that the students were deficient in knowledge and understanding of the facts about energy and nutritive values of foods. These findings support those from the study conducted by (Hairston et al., 2012). Therefore, adequate nutrition education is needed at the school; this will enable the students to make good food choices and positively influence their eating habits thereby ensuring better nutritional status. Although most children reported eating three meals a day and snacks at schools, the nutritional quality of the foods consumed is a cause for concern. The children were either consuming the wrong kinds of foods or were consuming the energy-dense foods in large amounts. Similar findings had found in the study done by (Adhikary, 2013).The most favorite snacks brought to school were found to be unhealthy foods, such as junk foods (Chips, salty corn-based snacks and chocolates) and sweets. In Saudi Arabia Almuhanna et al. (2014) found that obesity among children in Riyadh City was significantly associated with fast food intake (p = 0.0280). It was also observed that 72.5% of the overweight or obese students consumed fast food at least 4 times/week, and the other 15.9% were taking fast food 1- 3 times/week, while only 11.6% of the same overweight or obese group did not consume any fast food/ week. Father's and mother's occupations were not significantly correlated to their children's body weight. A study was conducted in Saudi Arabia to examine the relationship of socioeconomic characteristics and the prevalence of overweight and obesity; multiple logistic regression analysis showed that age, residential area, region, income, gender, and level of education were statistically significant predictors of obesity. Our study showed that, the overweight or being obese is more prevalent in school children whose family had an income of 5,000-9,999 SR/month. Our results are more or less similar to previous study which concludes that the prevalence of overweight and obesity is high in high family income situations However, looking into the prevalence of obesity within each (Almuhanna et al. 2014).Consumption of fruits, vegetables and dairy products was rather low, and the most popular snacks consumed at school were energy-dense. These findings corroborate the findings on the weight status of the children. Malnutrition, in terms of both undernutrition and overnutrition, was prevalent among these children, with the problem of underweight being more significant. The Ministry of Health and education in collaboration with other stakeholders is already involved in nutrition education campaigns using mass media to target the population at large. Nonetheless, there is a need for the health authorities to develop nutrition education programmes that target, specifically, school children and parents.As noted, indirect and inferential evidence from several different types of research suggests that children and adolescents today are less physically active than previous generations. For example, comparisons with traditional cultures indicate a decline in routine physical activity. (Esliger et al., 2010; Hairston et al., 2012).

V.   Conclusion

This study showed that 9.12% were underweight, 13.17% overweight and 59.47% had normal BMI status. This is due to that the children are being fed the wrong kinds of foods or the wrong proportions.

Acknowledgement:

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