

Nutritional Status of Primary School Children from Low Income Households in Jordan

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Abstract

Background and objectives:

Committee on the Dietary Guidelines for Americans, 2010 recommended for children nutrition had expanded beyond "getting enough" to include healthy eating to reduce the risk of chronic disease at adolescent and adult age. The aims of this study were to examine the nutritional status and reveal any gender differences among school aged children 6-12 years old from low income household in Jordan.

Design and setting, method:

A descriptive exploratory approach used in conducting this research, the present study was carried out between January and June 2011. Two basic variables (height and weight) and a single derived variable (body mass index) have been used in the present study. Researchers used BMI_group_calculator_Metric. This calculator computes BMI and BMI percentiles for individual children in a group using height and weight measurements, sex, date of birth, and date of measurement information.

Results

The age range of the children was 6-12 years old with an average age of 7.1 ± 0.88 years. Children's BMI-for- Age presented that normal BMI for (71%) from total school age children as (66% girls) and (71% boys) while overweight children (24%, 17% boys and 33% girls).

Conclusion

Malnutrition is a major health problem among Palestine refugee's school age children.

Children's BMI-for- Age presented that normal BMI for from total school age children as Underweight, overweight as well as obese children with non-ignorable levels.

Keywords: Nutritional status, school aged children

1. Introduction

Committee on the Dietary Guidelines for Americans, 2010 recommended for children nutrition had expanded beyond "getting enough" to include healthy eating to reduce the risk of chronic disease at adolescent and adult age. 1 It was reported that unhealthy eating among school children resulted in retarded growth, and impaired motor and cognitive development. 2 In Jordan, researchers reported nutritional status disturbances among school children in elementary, 3 and secondary levels. 4 No studies were found that examined the nutritional status among school children who reside permanently in low income household. Thus, the purpose of this study is to examine the nutritional status among school children who reside permanently in low income household in Amman. Screening for nutritional status among low income household in Jordan was not addressed well in the literature. Low income household was defined as an annual income of "In 1999 average annual per capita income was \$1,622, but by 2008 each Palestinian was living on just over \$1,000/year, or \$2.70/day. An unemployment rate of up to 50 per cent among 15- to 24-year-olds is a major challenge to economic growth. Poverty rates are also high among Palestinian refugees. 5 the low income population in Jordan is represented in Palestinian refugee camps where the average annual income is US \$ 1.250-300. One study examined the nutritional status among low income school age children among Iraqi refugee camps in eastern Jordan. 6 the researchers studied 325 children ranged in age from 6 months to 10 years. They found a high prevalence for low hemoglobin levels (75%), iron (64%) and vitamin A deficiency (28%). 3

This population is temporarily resided in camps that are different than Palestinian who permanently reside in camps.

Thus, there is a need to examine the nutritional status among population who permanently reside in camps. On the other hand, obesity was the major nutritional concern for Jordanian and Arab researchers. In the general school age children population in Jordan, researchers found that 19.4% (n= 2131) of children 6-12 years of age to be overweight and 5.6% were obese.⁷ Furthermore, obesity was prevalent among adolescents. The prevalence of obesity among Jordanian adolescents ranged from 6.3% (n=824) .3 to 9.6% (n= 518).⁴ However, obesity among school age children from low income household in Jordan is underestimated. This further supports the purpose of conducting the current study. In the general Middle East population, high prevalence of obesity was reported. Literature review study examined childhood obesity in Middle East in 11 countries reported high prevalence of obesity in Bahrain (38.5%) followed by Kuwait (31.8%), while the lowest was in Iran (3%).⁸ In contrast, in Saudi Arabia, moderate (6.9%, n= 15516) and severe (1.3%) underweight was reported among children younger than 5 years old .⁹ These contradictory results of nutritional status among school aged children warrant further investigation. In countries other than Arabs and Middle East countries, nutritional status among school age children results was inconsistent. One study examined overweight and obesity among 5613 school aged adolescents in low income African countries (Ghana and Uganda). ¹⁰ Results revealed that 10.4% of girls and 3.2% of boys were overweight or obese. In contrast, the prevalence of under nutrition among school aged children 6-17 years of age was 50.6% (n= 600) in Nigeria. ¹¹ These inconsistent results indicate further investigation for nutritional status among school aged children.

Gender differences regarding nutritional status were inconsistent in Jordanian studies. No significant differences were reported between males and females in terms of overweight (p= .63) or obesity (p= .94) among school aged children 6-12 years old in Jordan (Khader et al., 2009). In contrast, overweight and obesity were found to be significantly higher among females adolescents (t= 8.64, p= .003) .¹² Similarly, Al-Kloub et al (2010) reported that 18.8% (n= 49) of females were overweight in comparison to boys (61.2%, n= 42). Additionally, they reported that 6.5% (n= 17) of females were obese in comparison to boys (12.8%, n= 33). In non-Arabic country, Amuta et al (2010) reported no significant differences in the mean body mass index (BMI) of boys and girls ($\chi^2= 38.44$, P >.05), boys have a mean BMI of 16.34+2.40, while girls have a BMI of 16.67+2.68. Further investigation is needed to confirm nutritional status differences in term of gender among low income household school aged children. Therefore, the aims of this study were to examine the nutritional status and reveal any gender differences among school aged children 6-12 years old from low income household in Jordan.

2. Materials and Methods

2-1 Design, A descriptive exploratory approach used in conducting this research, the present study was carried out between January and June 2011.

2-2 Sample, students aged 6-12 years old from 5 primary schools from Palestinian refugees lived in camps participated in the study. All examined children were students in the camp schools with grads age without other chronic disease or medications.

2-3 Measures, Body mass index have been used in the present study. Two basic variables (height and weight) were calculated by researchers according to CDC qualifications. Researchers used BMI_group_calculator_Metric. This calculator computes BMI and BMI percentiles for individual children in a group using height and weight measurements, sex, date of birth, and date of measurement information. It provides a group summary of children's BMI-for-age categories and graphs for prevalence of overweight and obesity, and prevalence of overweight and obesity by Sex.

2-4 Procedures, Researchers established agreements to start data collection which begin with providing skilled senior nursing students team to measure weight and height of school students under supervision of researchers, data collections depended on BMI_group_calculator_Metric sheets which contains several items. The BMI_group_calculator_Metric Excel sheets applied by data measured by researchers.

2-5 Data analysis, collected data analysed utilizing the SPSS version 18 Descriptive statistics such as percentages and frequencies used to describe the sample characteristics. The BMI_group_calculator_Metric Excel program applied to analyse the data.

3. Results

Results, This study presented the results that reflect the nutritional status of school age children in low income

household in Amman Palestinian refugee's camp. Table 1 shows the distribution of Gender, age and standard divisions of all the primary school children in the present study. There were 306 girls (44.60%) and 380 boys (55.39%). The age range of the children was 6-12 years old with an average age of 7.1 ± 0.88 years. Table 2. Children's BMI-for-Age presented that normal BMI for (71%) from total school age children as (66% girls) and (71% boys). Underweight (5% as 8% boys and 1% girls). regarding overweight children (24%, 17% boys and 33% girls) while the obese children were (11%, 6% boys and 11% girls). Figure 1. Prevalence of overweight and obesity of primary school children showed that (24% of children had overweight while the percentage of obesity was 11%. Figure 2 shows the prevalence of overweight and obesity, by sex. Represents that girls were overweight (17%) more than boys (6%) and they were obese (33%) rather than boys (17%).

4. Discussion

School age children cannot meet their needs of the essential nutrients that contributing to building a fully developed body because neglecting of low income household to their needs by unhealthy life style. Many researchers were studied nutritional status of school age children in Jordan by body mass index (BMI) as a tool for measuring a matter of malnutrition in this age group.

Jordanian study conducted in (2009) showed that high prevalence of overweight and obesity in age of 6-12 years age old (19.4% were overweight, 5.6% were obese) it was lowest of this study (24% Overweight, 11% were obese) that associated with income of 300 JDs per month and daily pocket money of 0.20 JD per day, Family size of ≤ 4 was significantly associated⁷

Based on the findings of the Al-Kloub M, Al-Hassan M (2010) study the sociodemographics variables (across a number of relevant social, economic, cultural and environmental contexts) obesity have a greater influence on the frequency of excess weight among adolescents than dietary and physical activity practices. Children in Jordan live in a society that has changed dramatically in the last three decades over which obesity epidemic has developed. Many of these changes, such as both parents working outside the home, revolution of fast food, socioeconomic status and the presence of electronic media, often affect decision about what children eat, where they eat, how much they eat and the amount of energy they expend in school and leisure activities.⁴ Children in low income household in Amman Palestinian refugee's camp had more prevalence of malnutrition as the previous study showed outside the camp.

5. Conclusion

The present study provides evidence that the average school child in Palestinian refugee's camp is undernourished. Children's BMI-for-Age presented that normal BMI for from total school age children as Underweight, overweight children an obese children. Study recommendations:

1. Nutritional Assessment training for teachers who related to the science.
2. Construct data base about nutritional assessment based on school policy in all Palestinian refugee's camp primary schools.
3. Material supplies for height and weight measurements in schools.
4. BMI group calculator Metric use.
5. Food guide pyramid health education program.

References

- 1- Dietary Guidelines Advisory Committee. Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010, to the Secretary of Agriculture and the Secretary of Health and Human Services. Washington, DC: U.S. Department of Agriculture; 2010.
- 2- B Kanjilal, P Guha, M Mukherjee, M Hafizur. Nutritional status of children in India: household socio-economic condition as the contextual determinant. *International Journal for Equity in Health* 2010, 9:19.
- 3- I Khatib, M Samrah, & F Zghol, Nutritional interventions in refugee camps on Jordan's eastern border: assessment of status of vulnerable groups. *Eastern Mediterranean Health Journal*. Vol. 16 No. 2 • 2010
- 4- M Al-Kloub, M Al-Hassan, & E Froelicher. Predictors of obesity in school-aged Jordanian adolescents, *International Journal of Nursing Practice* 2010; 16: 397–405.

- 5- UNICEF. Palestinian children and women in Jordan, Lebanon, the Syrian Arab Republic and the Occupied Palestinian Territory Country programme document 2011-2013.
- 6- Galal O and Hulett J. The relationship between nutrition and children's educational performance: a focus on the United Arab Emirates. British Nutrition Foundation, 2003, 28, 11–20.
- 7- [Khader Y](#), [Irshaidat O](#), [Khasawneh M](#), [Amarin Z](#), [Alomari M](#), [Batieha A](#), Overweight and obesity among school children in Jordan: prevalence and associated factors. [Matern Child Health J](#). 2009 May; 13(3):424-31.
- 8- [Mirmiran P](#), [Sherafat-Kazemzadeh R](#), [Jalali-Farahani S](#), [Azizi F](#). Childhood obesity in the Middle East: a review. [East Mediterr Health J](#). 2010 Sep; 16(9):1009-17
- 9- Mohammad I, El Mouzan and et al. Prevalence of malnutrition in Saudi children: a community-based study. [Ann Saudi med](#) 2010;30(5):381-385
- 10- Karl P. and Supa P. Overweight and obesity and associated factors among school-age adolescents in Ghana and Uganda. [Int. J. Environ.res. Public health](#) 2011.8.3859-3870.
- 11- Amuta, E and Houmsou, R. Assessment of Nutritional Status of School Children in Makurdi, Benue State. [Pakistan Journal of Nutrition](#) 8 (5): 691-694, 2009.
- 12- Shaheer H Hamaideh, Reham Y Al-Khateeb, Ahmad B Al-Rawashdeh. Overweight and obesity and their correlates among Jordanian adolescents .[journal of nursing scholarship](#): 2010;42:387-394.

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Table 1. demographic characteristics of children

Variable	level	n	%	Mean (SD)	median
Gender of children					
	Male	380	55.39		
	Female	306	44.60		
Age of children (years)					
	6.0-6.9	127	18.51		
	7.0-7.9	112	16.32		
	8.0-8.9	114	16.61		
	9.0-9.9	115	16.76		
	10.0-10.9	110	16.03		
	11.0-11.9	108	15.84		
Age of children(years) by year of schooling					
	All	686	100.0	7.12 (088)	8.14
	Class 1	130	18.95	6.54 (0.32)	6.55
	Class 2	108	15.74	7.91 (0.33)	7.22
	Class 3	118	17.20	8.22 (0.41)	8.42
	Class 4	108	15.95	8.54 (0.41)	9.61
	Class 5	110	16.03	9.12 (.052)	9.85
	Class 6	112	16.32	9.88 (.052)	10.54

Table2. Children's BMI –for-Age

Summary of Children's BMI-for-Age			
	<u>Boys</u>	<u>Girls</u>	<u>Total</u>
<u>Number of children assessed:</u>	380	306	686
Underweight (< 5th %ile)	8%	1%	5%
Normal BMI (5th - 85th %ile)	75%	66%	71%
Overweight or obese (\geq 85th %ile)*	17%	33%	24%
Obese (\geq 95th %ile)	6%	17%	11%

Figure1. It shows the Prevalence of overweight and obesity.

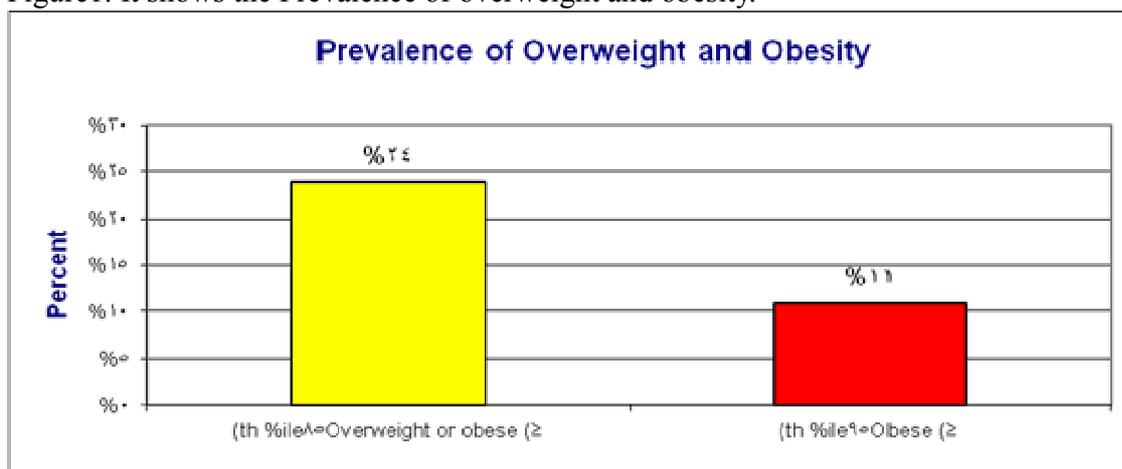
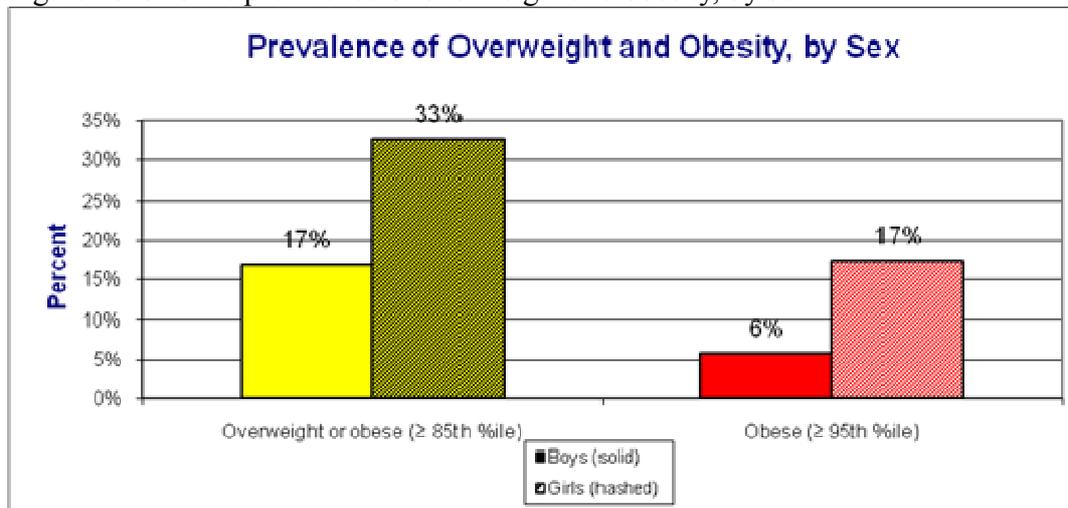


Figure2 shows the prevalence of overweight and obesity, by sex



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