

Overweight and Obesity among High Level Secondary School Adolescents in Mwanza Tanzania

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Abstract

Background: Overweight and obesity is public health issue which is growing among young generation worldwide. 15-50% of the people living in urban areas in Africa have obesity or overweight, and it is projected that by year 2012, about 75% of people will be in developing countries.

Objective: To determine the prevalence and related factors of overweight and obesity among high level secondary school adolescent in Mwanza Tanzania.

Methodology: A cross-sectional study conducted among 381 high school adolescents in Nyamagana, Mwanza in October 2014. Obesity and overweight were measured using height and weight of each student. The demographic, social and nutritional history; life style information and pattern of dietary intake were interviewed verbally.

Result: The overall prevalence of obesity and overweight were 2.6% and 14.2% respectively. The prevalence of (0.8% overweight, 0% obese) in adolescents those residing out of school campus was lower than overweight (13.4%) and obesity (2.6%) residing in boarding school. The meal frequency, fruits, meat, and vegetables consumption were statistically significant with the p value of $P < 0.05$.

Conclusion: adolescent's obesity and overweight are emerging health problem we need to plan and implement effective preventive strategies to stop this epidemic.

Keywords: Overweight; Obesity secondary schools; Adolescents; Mwanza

Introduction

Obesity and overweight are recognized as risk factor for various non-communicable diseases such as type 2 diabetes mellitus, osteoarthritis, cardiovascular related diseases, and certain types of cancers. These conditions lead to premature death as well as decrease in quality of life [1].

It was known that these conditions are common in developed countries; overweight and obesity are now widely trending in low and middle-income countries [2]. Although an increased prevalence of overweight and obesity was initially detected among adults, tremendously increasing trend in the prevalence of overweight and obesity among adolescents has been documented in recent few decades worldwide, and it is becoming public health issue for adolescents in low and middle income countries [3].

Global epidemiology on overweight and obesity among children and adolescents made in 2004 concluded that 10% of school-age children were overweight, of which about 3% were obese [4,5]. There are little studies on prevalence of obesity in Tanzanian high school adolescents. This study in an urban community will provide baseline

and reference data on the prevalence and the associated factors of overweight and obesity among urban communities of school adolescent in Mwanza city.

Materials and Methods

This study was institution based cross-sectional study among high school adolescents in Mwanza city. This study recruited secondary school students studying advanced schools in Mwanza urban areas. The diet and sedentary history were asked, and body weight together with height was taken.

Measure of overweight and obesity: From each subject a trained examiners took height and weight measurements. The values obtained were used to calculate body mass index (BMI), by dividing weight in kilograms (kg) by height (m²) in meters squared (kg/m²) (WHO, 2000). Diet: The diet history was taken a one-day, 24 hour dietary recall interview, while the sedentary behavior was asked the total daily TV/computer screen time per day and Physical activity was defined by leisure-time physical activity levels per week.

Data analysis and Ethical consideration

Collected data was entered and analyzed by using IBM SPSS version 20. Results were described as means, proportion and measures of

association was calculated. This study sought ethical clearance from the CUHAS/BMC institutional review board and Mwanza city council granted permission to conduct this study.

Results

The mean age was 17.2 years, Male 17.5 year and Female 17 year. The overall prevalence of overweight and obesity was 14.2% and 2.6%

respectively. Overweight and obesity among adolescents in boarding school and day schools were (13.4%) and overweight among boarding school adolescents were higher than (0.8% overweight,) those day school adolescents. There was no student who had obesity in off campus group while the obesity among in campus was 2.6% (Table 1).

Variables	Frequency	Percentage (%)
Age		
16-17	75	19.7
18-19	306	80.3
Sex		
Female	325	86.3
Male	56	16.7
Residence		
Boarding	311	81.6
Day	70	18.4
Parents education at least one (father or mother)		
More than secondary	193	50.7
Secondary	105	27.6
Primary	73	19.2
Informal	10	2.6
Parents occupation at least one (father or mother)		
Government	120	31.5
Non-Government	63	16.5
Self employed	133	34.9
Farmer	62	16.3
Daily laborer	3	0.80
Subject combinations		
Science	303	79.5
Arts	13	3.4
Commercial	65	17.1

Table 1: Socio demographic characteristics of high school students in Nyamagana district-Mwanza City, September 2014.

The fruits consumption, vegetables, meal frequency, meat had association with obesity and overweight and it is statistically significant with the p value of $P < 0.05$, (Table 2).

Variable		Overweight/obesity**		P value*
		Yes n (%)	N (%)	
Age of interviewee	16-17	17 (22.7%)	58 (77.3%)	0.000
	18-19	47 (15.4%)	259 (83.7%)	
Interviewee residence	Boarding	61 (19.6%)	250 (80.4%)	0.000
	Day	3 (4.3%)	67 (95.7%)	

Interviewee sex	Female	63 (19.4%)	262 (80.6%)	0.000
	Male	1 (1.80%)	55 (98.2%)	
Meal frequency per day	Less than two	11 (13.1%)	73 (86.9%)	0.000
	Three	53 (18.6%)	232 (81.4%)	
	More than four	0 (0%)	12 (100%)	
Eating out per week	Never	33 (14.7%)	191 (85.3%)	0.022
	Once	22 (25.9%)	63 (74.1%)	
	Two to four	6 (12.2%)	43 (87.8%)	
	More than five	2 (9.1%)	20 (90.9%)	
Time TV/computer per day	Less than three hours	62 (16.9%)	304 (83.1%)	0.008
	More than three hours	2 (13.3%)	13 (86.7%)	
Vegetable intake	Once per day	32 (23.9%)	102 (76.1%)	0.030
	Once to Twice per week	18 (13.6%)	114 (86.4%)	
	Three to six per week	11 (14.7%)	64 (85.3%)	
	Two times per month	0 (0%)	8 (100%)	
	None	3 (9.4%)	29 (90.6%)	
Fruits intake	Once per day	20 (19.8%)	81 (80.2%)	0.009
	Once to Twice per week	14 (16.7%)	70 (83.3%)	
	Three to six per week	7 (18.4%)	31 (81.6%)	
	Two times per month	2 (9.1%)	20 (90.9%)	
	None	21 (15.4%)	115 (84.6%)	
Meat intake	Once per day	16 (21.1%)	60 (78.9%)	0.000
	Once to Twice per week	33 (14.8%)	190 (85.2%)	
	Three to six per week	4 (10.5%)	34 (89.5%)	
	Two times per month	2 (15.4%)	11 (84.6%)	
	None	9 (29%)	22 (71%)	

Table 2: Factors associated with overweight/obese among high school students, Nyamagana district, Mwanza City, September 2014 (N=381).

Discussion

The overall prevalence of overweight and obese in this study was much higher compared to the study done in Gondar Town, North West Ethiopia (5.4% overweight and 0.5% obese) [4]. The possible reasons could explain this might be difference in cultural practice of dietary intake.

The age related prevalence of Overweight and Obese increase as age increases, this findings correlate with observation done in the United States and internationally from preschool children to adolescents [6-10]. This could be due to increase in hormonal changes as age progress within adolescent period also decrease of daily activities can explain this findings.

Sex specific variable was strongly associated with overweight and obese. The overweight findings was similar from Gondar Town, Ghana and Uganda (10.4% girls, 3.2% boys were overweight while 0.9% females and 0.5% males were obese) [2].

Diet related factors like meal frequency, vegetable intake, fruits intake and meat intake was statistically significantly related to prevalence of overweight and obese is also observed in studies done at Hawassa, Ethiopia [11]. In contrary with studies done in Turkey [12], Saudi Arabia 36 and in Europe [13,14].

Conclusion

Adolescent's obesity and overweight are emerging health problem we need to plan and implement effective preventive strategies to stop this epidemic.

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