THE EPIDEMIOLOGY OF OBESITY IN GHANA

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SUMMARY

Background: Obesity is a very important risk factor to many diseases especially type 2 diabetes. However very little epidemiological information is available in Ghana to support intervention activities.

Methodology: Anthropometric measurements were included in a WHO nationwide survey of health status and health system responsiveness from a random sample of 5000 adults aged 18 years and older.

Results: Prevalence of obesity was found to be 5.5% and higher among females 7.4% compared to males 2.8%. It was more common among the married than unmarried. Obesity was highest among the employed compared to self-employed or the not working for pay. Obesity was highest in Greater Accra 16.1% and virtually not present in Upper East or Upper West regions. By ethnicity, obesity was highest among Ga Adangbe, Ewes and Akans 14.6%, 6.6% and 6.0% respectively. Obesity was found to be less among those smoking daily than those who did not smoke. However, respondents who consumed alcohol had high proportion of overweight or obesity. The obese had less physical activity-days per week than the rest. Respondents with history of angina, or having been diagnosed with diabetes or taking insulin or blood sugar lowering medications were more obese than the others without history of the above conditions.

Conclusion: We urge for increased awareness, and promotion of healthy life style, including exercising and general healthy living.

Keywords: Obesity, risk factor, diet, ethnicity

INTRODUCTION

The prevalence of obesity is increasing at an alarming rate in many parts of the world. In the developed world, the prevalence of obesity is similarly high in men and women[1]. However, in countries with relatively low gross national product, the prevalence is about 1.5 to 2 times higher among women than men[1]. In a study among adolescents, BMI was found to be associated with ethnicity, gender and food habits but no significant relationship was observed with socio-economic factors or physical activity. In other studies, the prevalence of obesity was higher among married women compared to unmarried women[2]. A review of large-scale surveys on diet, activity and obesity showed that the speed of dietary and activity pattern shifts is great resulting in major shifts in obesity on a worldwide basis and that the burden of obesity is shifting towards the poor[3]. Calorie intake, the time spent in a walking activity, and the time spent in traditional sedentary occupation are associated with obesity.

In Ghana, the work by Albert Amoah and his team in urban and rural Accra showed that the overall crude prevalence of overweight and obesity was 23.4 and 14.1% respectively among adults aged 25 years and above[4]. The rates were higher in females than in men. Obesity increased with age up to 64 years. There were more overweight and obese in the urban high-class residents compared with the low class residents and in urban than in rural subjects. It was highest among the Akan and Ga tribes and relatively low among Ewes. Subjects with tertiary education had the highest prevalence of obesity compared with less literate and illiterate subjects. Subjects whose jobs were of a sedentary nature had higher levels of obesity[4].

Body Mass Index (BMI) which is the ratio of the weight (Kg) and the square of height (Metres) is an indicator of the nutritional status of the person and BMI equal to or greater than $30 Kg/m^2$ defines an obese individual[5]. Waist, hip circumference

ratio is also used to describe obesity. A ratio greater than 1.0 in men and greater than 0.85 in females defines the obese individual. Obesity like underweight is a form of malnutrition and constitutes a risk factor of many diseases like diabetes, hypertension and other heart diseases. Obesity is by far the most important risk factor for type 2 diabetes[5].

METHOD

In 2003, Ghana was among 77 countries that participated in the World Health Survey on health status and health system responsiveness. Data were collected on many aspects of health including weight and height measurements from a nationwide random sample of 4231 respondents aged 18 years and older. Body Mass Index (BMI) was calculated as the ratio of the weight (Kg) and the square of height (Metres). BMI is divided into four categories, underweight ($<18.0 kg/m^2$), normal (18 to 24kg/m^2), overweight (25 to 30kg/m^2) and obese ($=>30 kg/m^2$). Other variables collected from the survey enabled linkage of obesity to obesity-predisposing factors and to some of the diseases that have obesity as a risk factor (diabetes and cardiovascular diseases).

RESULTS

From Table 1, the prevalence of obesity in Ghana for the population 18 years and above was 5.5% and varied across the Regions and other socio demographic characteristics. The analysis showed that obesity was more common in females than in males 7.9% and 2.8% respectively. It was more common among the married than unmarried. Obesity was highest among the employed compared to self-employed or the not working for pay. Prevalence of obesity-by-age increased by age up to 60 years and respondents with higher educational status had more obese individuals.

Obesity was more common in the population in the southern part of the country compared to the northern part. It was highest in Greater Accra (16.1%) and virtually not present in Upper East or Upper West. By ethnicity, obesity was highest among Ga Adangbe, Ewes and Akans 14.6%, 6.6% and 6.0% respectively.

Obesity and other risk factors relationships

Smoking was not linked to obesity or overweight. Obesity was found to be less in those smoking daily than those who do not smoke. However, in the case of alcohol consumption, those drinking

had high proportion of overweight or obesity (Table 2).

Table 1 Prevalence of obesity in Ghana

		Under-weight %	Nor-mal %	Over-weight %	Obese %
Sex	Female	13.9	60.9	17.3	**7.9**
	Male	14.6	69.0	13.7	**2.8**
Marital status	Never married	12.9	74.5	11.1	**1.6**
	Currently married	13.7	63.8	16.6	**5.9**
	Divorced/Widowed	17.1	59.9	15.4	**7.6**
	All sample	**14.2**	**64.6**	**15.6**	**5.5**
Occupa-tion	Employee	6.5	57.6	26.8	**9.0**
	Self employer	13.5	66.6	14.9	**5.0**
	Not working for pay	20.2	60.3	13.6	**5.9**
Age Groups	18 yrs	22.1	66.3	10.5	**1.2**
	19 yrs	15.1	69.8	15.1	
	20 yrs	14.7	78.4	6.9	
	21 - 30 yrs	11.0	72.9	13.4	**2.7**
	31 - 40 yrs	10.3	63.8	17.9	**8.0**
	41 - 50 yrs	11.3	62.5	18.4	**7.8**
	51 - 60 yrs	13.6	62.1	17.3	**7.0**
	61 - 70 yrs	19.8	57.6	18.0	**4.6**
	71 - 80 yrs	27.3	59.2	10.1	**3.4**
	80 + yrs	26.3	58.8	9.6	**5.3**
Region	Western	11.2	67.4	16.3	**5.1**
	Central	14.5	66.8	13.7	**5.0**
	Gt. Accra	3.7	53.6	26.6	**16.1**
	Volta	12.9	66.2	17.5	**3.4**
	Eastern	16.5	59.1	17.4	**7.0**
	Ashanti	8.7	63.9	22.0	**5.4**
	B Ahafo	15.0	66.8	14.8	**3.4**
	Northern	14.9	73.0	10.7	**1.5**
	Upper east	21.6	72.7	5.8	
	Upper west	21.0	71.0	5.8	**2.2**
Ethnicity	Akan	13.1	62.9	18.0	**6.0**
	Ga- Adangbe	7.5	59.7	18.3	**14.6**
	Ewe	8.8	62.6	22.0	**6.6**
	Guan	13.7	75.5	7.8	**2.9**
	Gurma	13.3	77.9	8.0	**.9**
	Mole-Dagbon	21.0	69.6	8.0	**1.4**
	Grusi	15.2	72.8	9.8	**2.2**
	Mande-Busanga	29.9	60.9	8.0	**1.1**
	Others	18.5	62.7	13.6	**5.2**
Educa-tion	Nil	20.1	65.6	11.2	**3.1**
	Less than primary	10.7	64.6	17.0	**7.6**
	Primary completed	12.1	65.1	17.4	**5.5**
	Second. completed	7.6	60.1	19.7	**12.6**
	High sch completed	9.1	54.5	21.8	**14.5**
	College completed	1.3	58.4	28.6	**11.7**
	Post graduate deg	8.8	55.9	26.5	**8.8**

Table 2 Relationship between life style and obesity

		Prevalence of obesity within the group No. (%)
Smoking	Smoke daily	248 (0.8)
	Smoke but not daily	100 (6.0)
	No, not at all	4046 (6.8)
Drinking	Yes	2030 (8.2)
	No	2363 (4.9)

Regarding diet, the obese took in fewer servings of fruits compared to the amount eaten by the other groups. However, the number of servings of vegetables eaten on a typical day did not differ among the groups (Table 3). With respect to physical activities, the average number of days in a week when vigorous activity was performed was 1.1 days compared to 2.5 days for the respondent classified as normal. In the case of moderate activity, it was also less than the rest 2.4 days in a week as against almost 4 days for the normal individual. Average number of days in which walking was done for at least 10 minutes was also low for the obese respondent. Thus the obese had less physical activity-days in a week than the other groups of individuals.

Table 3 Relationship between obesity and risk factors

	Under-weight	Normal	Over-weight	Obese
Nutrition				
How many servings of fruit do you eat on a typical day?	4.0	4.0	3.89	3.53
How many servings of vegetables do you eat on a typical day?	2.54	2.60	2.47	2.59
Physical Activity/Week				
How many days did you do vigorous activity?	2.03	2.45	1.85	1.10
Hours per day	3.67	3.91	3.37	2.59
How many days did you do moderate activity	3.52	3.89	3.30	2.40
Hours per day	3.20	3.44	3.16	2.69
Days walking for at least 10 mins	5.32	5.57	5.54	5.24

Obesity and obesity-associated diseases
The effect of obesity was investigated by using the self-assessment data obtained from the interviews. Respondents were asked to report whether they had been diagnosed, or were taking drugs, or being treated for certain disease conditions. It was assumed they understood the diseases or had knowledge about the diseases for which they were being treated. In the case of arthritis, the prevalence of obese individuals in those who responded positive to ever been diagnosed for the condition did not show a significant difference 7.7% and 6.3% respectively. However, for history of angina, almost 12.9% of those who said yes to the question were obese compared to only 6.0% in those who said no. With respect to the question on diabetes, there were a lot of obese individuals among those who answered yes to whether they had been diagnosed with diabetes. Those who were taking insulin or blood sugar lowering medications had more of obese and overweight respondents compared to those who were not taking insulin or blood sugar lowering medications, 16.0% and 5.5% respectively.

DISCUSSION
Access to epidemiological information on any disease or condition is very important in directing and informing intervention programmes. Epidemiology allows us to know more about a disease especially on who is likely to have the disease or how the disease comes about as well as the size of the problem. Very few community studies have been carried out in Ghana on the assessment of nutritional status of adults. The prevalence of obesity in this study for Greater Accra compares well with the level found by Amoah and colleagues[6]. The likely explanation of high obesity rates in Greater Accra could be the diet (kenkey) and sedentary life style of the predominantly Ga people. Pobee in 1973 (unpublished), in a study among civil servants obtained a prevalence rate of 5.1 for obesity and in another study among residents of Mamprobi in Accra in 1975, Pobee (unpublished) found a prevalence rate of obesity to be 7.4% and higher in females than males, 9.8% and 1.6% respectively. The estimate for the whole country may appear low, however, when compared to other important conditions such as tuberculosis and HIV/AIDS with prevalence around 3%, then 5.5 prevalence rate of obesity is high and alarming. The study has confirmed the high prevalence in females and in married individuals as have been reported by many studies[1,2,5].

In conclusion, though the overall prevalence of obesity in the country is not that high, the rate for Greater Accra is high and alarming. The results from this study have demonstrated the link between lack of physical activity, drinking and the consumption of unbalanced diet to obesity and have also shown the classical link between obesity and history of angina and diabetes. This should direct us to concentrate on measures to control the condition in order to reduce the burden of chronic diseases that consume a lot of our health resources and leads to premature deaths. We urge for increased awareness, and drastic steps such as the introduction of health walks and healthy life style, promoting more exercising and general healthy living.

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REFERENCES

1. Scidell JC. Epidemiology of obesity. *Semin Vasc mmmed* 2005Feb; 5(1): 3-14.

2. Rguibi M, Belahsen R. Overweight and obesity among urban Sahraoui women of South Morocco. *Ethn Dis* 2004 Autumn; 14(4): 542-547.

3. Popkin BM. The nutrition transition: an overview of world patterns of change. *Nutr* Rev Jul 2004; 62(7Pt2): S140-143.

4. Amoah AG. Obesity in adult residents of Accra, Ghana. *Ethn Dis* Summer 2003; 13(2 Suppl 2): S29-101.

5. Popkin BM, Gordon-Larsen P. The nutrition transition: worldwide obesity dynamics and their determinants. *Int J Obes Relat Metab Disord* Nov 2004; 28 (suppl 3): S2-9 Review

6. Amoah A.G.B. Sociodemographic variations in obesity among Ghanaian adults Public Health Nutrition, 6(8): 751-775