Overnutrition and associated factors among adults aged 20 years and above in fishing communities in the urban Cape Coast Metropolis, Ghana

Article *in* Public Health Nutrition · May 2012

DOI: 10.1017/S1368980012002698 · Source: PubMed

CITATIONS
16

READS
901

5 authors, including:

Kingsley Pereko
University of Cape Coast
18 PUBLICATIONS **32** CITATIONS

SEE PROFILE

Jacob Setorglo
University of Cape Coast
4 PUBLICATIONS **21** CITATIONS

SEE PROFILE

Emmanuel Achampong
University of Cape Coast
25 PUBLICATIONS **69** CITATIONS

SEE PROFILE

Public Health Nutrition: 16(4), 591–595 doi:10.1017/S1368980012002698

Overnutrition and associated factors among adults aged 20 years and above in fishing communities in the urban Cape Coast Metropolis, Ghana

Kingsley KA Pereko[1,*], Jacob Setorglo[2], William B Owusu[3], Joyce M Tiweh[4] and Emmanuel K Achampong[5]

[1]Department of Community Medicine, School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana: [2]Department of Biochemistry, School of Medical Sciences, University of Cape Coast, Cape Coast, Ghana: [3]Department of Nutrition and Food Science, University of Ghana, Accra, Ghana: [4]Department of Ophthalmology Komfo Anokye Teaching Hospital, Kumasi, Ghana: [5]Department of Medical Education, University of Cape Coast, Cape Coast, Ghana

Submitted 16 December 2010: Final revision received 16 February 2012: Accepted 17 April 2012: First published online 29 May 2012

Abstract

Objective: The study aimed to highlight the determinants of overnutrition (overweight plus obesity) in fishing communities and establish if these were the same as reported elsewhere in Ghana.
Design: Cross-sectional study.
Setting: The study was conducted in Idun, Ola and Duakor fishing communities in Cape Coast, Ghana.
Subjects: Adults (*n* 252) aged 20 to 50 years.
Results: Results showed that 32 % of participants were overweight/obese (BMI ≥ 25·0 kg/m^2). Participants' mean age was 31·7 (SD 1·0) years, they had 13·7 (SD 8·1) mean years of formal education, their median monthly income was $US 7·4 (interquartile range $US 3·3, 20·0) and their median daily energy intake was 7·3 (interquartile range 5·3, 9·8) MJ. Significant associations ($P < 0·05$) were found between BMI and gender, age, years of education, fat intake and marital status. Females were almost eight times more likely to be overweight/obese

be one of the most neglected public health problems according to WHO. Hajian-Tilaki and Heidari [2] indicate obesity to state thatobesity in the developed world; however, the opposite is the case in the developing world

[7]

Table 1 Descriptive statistics (demographic characteristics, anthropometric measures) of the study population: adults aged 20 to 50 years from three fishing communities in the urban Cape Coast metropolis, Ghana

	Males (*n* 101)			Females (*n* 151)			Both sexes (*n* 252)		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
Age (years)	31·6	8·1	20·0–51·0	31·7	8·9	20–50	31·7	1·0	20–51
Years of education	8·4	4·4	0·0–22·0	7·8	4·4	0·0–19·0	13·7	8·1	0·0–22·0
Weight (kg)	65·9	8·2	48·2–89·0	65·4	14·8	39·0–111·8	65·6	12·6	39·0–111·8
Height (m)	1·7	0·1	1·0–2·0	1·6*	0·1	1·2–1·8	1·6	0·1	1·0–2·0
BMI (kg/m^2)	23·3	6·6	17·8–29·9	25·8*	6·1	18·7–27·1	24·8	6·4	17·8–29·9

*Mean values were significantly different from those of males (independent-samples *t* test): $P < 0·05$.

Table 2 Descriptive statistics (income, dietary intake) of the study population: adults aged 20 to 50 years from three fishing communities in the urban Cape Coast metropolis, Ghana

	Males (*n* 101)		Females (*n* 151)		Both sexes (*n* 252)	
	Median	IQR	Median	IQR	Median	IQR
Monthly income ($US)	10·0	6·7, 22·2	6·7	3·3, 20·0	7·4	3·3, 20·0
Energy (kJ)	9·0	6·8, 11·2	6·5	4·7, 8·7	7·3	5·3, 9·8
% of energy from fat	22·0	14·0, 34·5	24·0	15·0, 36·6	23·0	14·3, 36·0
% of energy from protein	11·0	10·0, 14·0	12·0	10·0, 14·6	12·0	10·0, 14·0
% of energy from carbohydrate	67·0	53·5, 74·0	61·0	51·0, 71·0	62·0	52·0, 72·0

IQR, interquartile range.

13·7 (SD 8·1) mean years of formal education. Mean BMI of 24·8 (SD 6·4) kg/m^2 was recorded for both sexes. Females had a significantly higher mean BMI (25·8 kg/m^2) than males (23·3 kg/m^2).

The median monthly income of the participants was $US 7·4 (interquartile range (IQR) $US 3·3, 20·0; Table 2). The participants' median energy intake was 7·3 (IQR 5·3, 9·8) MJ and the median percentage contributions of macronutrients to daily energy intake were 23·0 (IQR 14·3, 36·0) % for fat, 12·0 (IQR 10·0, 14·0) % for protein and 62·0 (IQR 52·0, 72·0) % for carbohydrate (Table 2).

The results indicated an overweight/obesity prevalence of 32 % (Table 3). More females (45·7 %) than males (13·9 %, $P < 0·05$) were found to be in the overweight/obese category. A significant difference in the proportion of overweight/obesity was found between married persons (20·3 %) and singles (45·0 %, $P < 0·05$; Table 3).

Females were almost eight times more likely to be overweight/obese than males (adjusted OR = 7·7; 95 % CI 3·6, 16·4; Table 4). People aged ≥40 years were about six times more likely to be overweight/obese than those aged 20–29 years (adjusted OR = 6·1; 95 % CI 2·6, 14·1; Table 4). Married people were almost three times more likely to be overweight/obese than singles (adjusted OR = 2·8; 95 % Cl 1·4, 5·7; Table 4). Compared with 13 years of education or less, participants with more than 13 years of education were 70·0 % less likely to be overweight/obese (adjusted OR = 0·3; 95 % CI 0·1, 0·9; Table 4). Participants with >30 % contribution to daily energy intake from fat were 70·0 % less likely to be overweight/obese (adjusted OR = 0·3; 95 % CI 0·1, 0·6; Table 4) than those with ≤30 % of daily energy intake from fat.

Discussion

In Ghana, studies show that overnutrition is gradually becoming an important issue following the increasing prevalence of overweight and obesity in most parts of the country. Information on the situation will be an important element for early management and prevention of overweight and obesity to avert its health-debilitating effects. Work by Amoah[8] found an overweight prevalence of slightly over 23 % in the urban population. The present study, however, found about 32 % overnutrition prevalence among the study population in the urban fishing community. Factors that were found to be associated with this phenomenon were age, marital status, gender, years of formal education and dietary fat intake.

Age was found to be associated with overnutrition; the present study indicated 2·3 times increased odds of overweight/obesity among people aged 30–39 years compared with those aged 20–29 years and a 6·1 times increased likelihood for persons aged ≥40 years. This confirms van der Sande *et al.*'s[4] study that recorded higher obesity prevalence among women aged >35 years. Biritwum *et al.*[10] and Beltaifa *et al.*[16] also found increasing obesity prevalence with increasing age. The present study found an association between marital status and overweight, with married persons being 2·8 times more likely to be overweight/obese compared with unmarried persons. This result affirms studies by Biritwum *et al.*[10] and Rguibi and Belahsen[6]. Females were 7·7 times more likely to be overweight/obese than males in the present study and this confirms findings by van der Sande *et al.*[4] and Biritwum *et al.*[10] who reported similar

Table 3 Demographic characteristics and dietary intake according to overweight/obesity status: adults aged 20 to 50 years from three fishing communities in the urban Cape Coast metropolis, Ghana

	Not overweight/obese (BMI $< 25{\cdot}0\,kg/m^2$)		Overweight/obese (BMI $\geq 25{\cdot}0\,kg/m^2$)	
	n	%	*n*	%
Total sample	169	67·1	83	32·9
Gender				
Male	87	86·1	14	13·9*
Female	82	54·3	69	45·7*
Monthly income ($US)				
≤10	62	59·6	42	40·4
>10	60	65·2	32	34·2
Occupation				
Sedentary	79	63·2	46	36·8
Manual	90	70·9	37	29·1
Marital status				
Single	98	79·7	25	20·3*
Married	71	55·0	58	45·0*
Years of education				
≤13	139	64·1	78	35·9*
>13	29	85·3	5	14·7*
% contribution of fat to daily energy intake				
≤30	95	60·5	62	39·5*
>30	74	77·9	21	22·1*
% contribution of carbohydrate to daily energy intake				
≤60	38	67·9	18	32·1
>60	131	66·8	65	33·2
% contribution of protein to daily energy intake				
≤20	164	68·0	77	32·0
>20	5	45·5	6	54·5

*Proportions were significantly different from those in the not overweight/obese group (χ^2 test): $P < 0{\cdot}05$.

Table 4 Logistic regression coefficients and 95% confidence intervals for predictor variables of overnutrition (BMI $\geq 25{\cdot}0\,kg/m^2$): adults aged 20 to 50 years from three fishing communities in the urban Cape Coast metropolis, Ghana

	R^2 (0·29)	
Variable	OR	95% CI
Age (years)		
20–29	1·0 (ref.)	
30–39	2·3	1·1, 5·1
≥40	6·1	2·6, 14·1
Sex		
Male	1·0 (ref.)	
Female	7·7	3·6, 16·4
Years of formal education		
≤13	1·0 (ref.)	
>13	0·3	0·1, 0·9
Marital status		
Single	1·0 (ref.)	
Married	2·8	1·4, 5·7
% contribution of fat to daily energy intake		
≤30	1·0 (ref.)	
>30	0·3	0·1, 0·6

ref., reference category.
The regression coefficient for the entire model; $R^2 = 0{\cdot}21$.

results. Females have a greater physiological propensity to become obese than males. Coupled with the sedentary occupations of women in the area, they have a greater chance to become overweight/obese than males who engage in energy-demanding activities such as fishing. According to van der Sande *et al.*[4], nothing can be done about the age and sex susceptibility but lifestyle modifications are possible. Contrary to Amoah's[8] and Biritwum *et al.*'s[10] finding of increasing obesity prevalence among persons with higher education, the present study found reduced odds of overweight/obesity among persons with higher education compared with those having basic or no formal education. This could be attributed to the fact that more highly educated persons are aware of the negative consequences of being overweight such as the development of chronic diseases, and hence take measures to prevent it. In their study of obesity among adults aged 20 to 70 years, Hajian-Tilaki and Heidari[3] also found an inverse relationship between the risk of obesity and high level of education. Beltaifa *et al.*[16] indicated a higher prevalence among women with intermediary educational status. Persons whose fat intake contributed >30% of daily energy intake were found less likely to be overweight/obese in the present study. This could possibly be attributed to the occupation they undertake. Males found to consume more fat probably undertake energy-demanding activities, hence accounting for the observation.

Conclusions

Overweight and obesity was prevalent in fishing communities in the Cape Coast urban metropolis, Ghana. Factors

such as age, gender, marital status, education and fat intake were associated with overnutrition in this community. Further prospective research is recommended for assessing the factors accounting for overweight and obesity. Health education on healthy lifestyles is recommended.

Acknowledgements

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors. There are no conflicts of interest. The authors' contributions are as follows: K.K.A.P., Principal Investigator; J.M.T., Co-Principal Investigator; J.S., project staff training, manuscript writing and review; W.B.O., supervisor, statistician; E.K.A., data entry, manuscript writing and review. The authors acknowledge the kind assistance and permission of the Cape Coast Metropolitan Health Directorate and Assembly Members of the three project communities. They also appreciate the participation of the Duakor, Idun and Ola fishing communities.

References

1. Martorell R, Khan LK, Hughes ML *et al.* (2000) Obesity in women from developing countries. *Eur J Clin Nutr* **54**, 247–252.
2. Gupta N & Kockar GK (2009) Dietary and socio-economic factors associated with obesity in Northern India population. *Internet J Health* **9**, 1.
3. Hajian-Tilaki KO & Heidari B (2007) Prevalence of obesity, central obesity and the associated factors in Urban population aged 20–70 years, in the North of Iran. A population-based study and regression approach. *Obes Rev* **8**, 3–10.
4. van der Sande MAB, Caesay SM, Milligan PJM *et al.* (2001) Obesity and undernutrition and cardiovascular risk factors in rural and urban Gambian communities. *Am J Public Health* **91**, 1641–1644.
5. Seidell JC (2005) Epidemiology of obesity. *Semin Vasc Med* **5**, 3–14.
6. Rguibi M & Belahsen R (2004) Obesity among urban Sahraoui women of South Morocco. *Ethin Dis* **14**, 542–547.
7. McLaren L (2007) Socioeconomic status and obesity. *Epidemiol Rev* **29**, 29–48.
8. Amoah AG (2003) Obesity in adult residents of Accra, Ghana. *Ethin Dis* **13**, 2 Suppl. 2, 29–101.
9. Addo J, Smeeth L & Leon DA (2009) Obesity in urban civil servants in Ghana. Association with pre-adult wealth and adult socio-economic status. *J Pubic Health* **123**, 365–370.
10. Biritwum RB, Gyapong J & Mensah G (2005) The epidemiology of obesity in Ghana. *Ghana Med J* **39**, 82–85.
11. Ghana Statistical Service (2002) *2000 Population and Housing Census. Special Report on 20 Largest Localities.* Accra: GSS.
12. Ismail M & Manandhar M (1999) *Better Nutrition for Elderly People. Assessment and Action*, p. 71. London: HelpAge International and London School of Hygiene and Tropical Medicine.
13. World Health Organization (2000) *Obesity Prevention and Managing Global Epidemic: Report of a WHO Consultation. WHO Technical Report Series* no. 894. Geneva: WHO.
14. Davison S & Mandible D (1994) *The Food Processor Plus 6.02.* Salem, OR: K.G. Dewey Lab, ESHA.
15. Tayie FAK & Lartey A (1999) *Nutrient Contents of Some Ghanaian Foods.* Accra: Nutrition and Food Science Department, University of Ghana.
16. Beltaifa L, Traissac P, El Ati J *et al.* (2009) Prevalence of obesity and associated socioeconomic factors among Tunisian women from different living environments. *Obes Rev* **10**, 145–153.