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Research

Preferred body size in urban Ghanaian women: implication on the overweight/obesity problem

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Abstract

Introduction: In a society where 'plumpness' is traditionally favoured, it is imperative to examine the impact of sociocultural factors on the rising overweight/obesity problem. The study was designed to assess the preferred body size among women in Kumasi metropolis, Ghana. **Methods:** A cross-sectional survey was conducted among 394 women, aged 20 years and above, in 6 randomly selected churches in the Kumasi metropolis. Subjects were asked to select their preferred body size from photographic silhouettes consisting of six images of women of known BMI (20, 24, 28, 30, 33 and 38kg/m^2) arranged in random order. Participants were asked to associate items concerning body size preference, health, social and individual attributes to one of the six silhouettes. Participants' BMI were assessed. Independent samples t-test and analysis of variance were used to assess differences in preferred body size across categories of BMI and socio-demographic characteristics. **Results:** The prevalence of overweight/obesity among the women was 68.4%. The respondents preferred a large (overweight) body size. They associated silhouette of large (overweight) body size with eating well, affluence and high social value. Though the overweight/obese respondents associated normal body size with health they preferred a large (overweight) body size. **Conclusion:** Sociocultural ideals for body size override health reasons for the women's preferred body size. This study shows that tackling the overweight/obesity problem solely from nutrition and health perspective may not be adequate. A holistic interdisciplinary strategy involving nutrition, health, social and behavioural science is needed to develop culturally-sensitive interventions against the emerging obesity problem.

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Introduction

The WHO projects that by 2025 about three-quarters of the obese population worldwide will be in non-industrialised countries [1]. In sub-Saharan Africa, the prevalence of overweight and obesity has been on the increase, especially among urban women [2-6]. The rates of overweight and obesity are particularly higher in urban residents as well as in the sub-population with high education and socioeconomic status [2-6]. In Ghana, overweight/obesity rates have increased from 18% in 1987-89 [7], 35.1% in 2003 [8] to 40% in 2008 [9]. In the Ashanti region, the most populous region in Ghana [10], the 2008 Ghana Demographic and Health Survey (GDHS) data show a high prevalence of overweight/obesity (30.7%) among women [9]. In Kumasi, the regional capital, overweight/obesity rate was reported to be 26% [11]. Data from the 2008 GDHS also show that overweight/obesity among Ghanaian women increased with increasing education and wealth status. These data are suggestive of the impact of the nutrition transition in Ghana as observed in the developing world [12-16]. Studies in African populations have documented positive association of a large body size with good nutrition, healthy life, affluence, beauty, fertility, and absence of HIV/AIDS [17-19]. In Ghanaian women, 'plumpness' tends to be the traditionally favoured body size seen as a symbol of wellbeing. Women who become overweight/obese would unlikely be dissatisfied with their weight status in a cultural environment that values large body size [19]. This could limit attempts to seek/follow through interventions against excessive weight gain. Thus, sociocultural preference for large body size could provide conducive atmosphere for obesity to thrive, particularly, in context of the on-going nutrition transition. Increasing access to energy dense foods and sedentary behaviour, particularly in urban residents, are well documented as the drivers of the overweight/obesity problem [12-16]. Consequently, clinical and public health efforts against overweight/obesity have largely targeted dietary and physical activity behaviour change. However, in a society where 'plumpness' is traditionally valued, understanding the sociocultural dimension of body size/weight would enhance interventions against the obesity problem. Hence, this study was designed to determine the preferred body size in women in Kumasi metropolis, Ghana. This is a sub-study of a research by the authors to assess the determinants of overweight/obesity in urban Ghanaian women [20].

Methods

Subjects: In this cross-sectional survey, a total of 394 women aged 20 years and above were recruited from 6 randomly selected churches in the Kumasi metropolis. This study employed the same sampling technique described in previous publication by the authors [20].

Data collection: Socio-demographic and anthropometry data were collected from the participants. Respondents were asked to select their preferred body size from photographic silhouettes (female only) consisting of six images of women of known BMI (20, 24, 28, 30, 33 and 38kg/m^2) arranged in random order on three different A3 cards Figure 1. The silhouettes were developed elsewhere [21] and have been used in a study in Senegal [17]. Participants were asked to associate items concerning body size preference, health, social and individual attributes to one of the six silhouettes. The procedure has been described in detail in the previously published study by the authors [20].

Ethical approval: Written informed consent was obtained from the participants. Ethical approval was granted by the Research and Ethical Review Committee of the School of Allied Health Sciences, University of Ghana (Ethical identification number: SAHS-Et/10289558/AA/26A/2010-2011).

Statistical analysis: To evaluate attitudes to body size, the silhouettes were transformed on a scale of 1 to 6, in ascending BMI, as continuous variables for analysis. Independent samples t-test was used to test differences between two means. Analysis of variance (ANOVA) was used to test differences where mean values were more than two. Statistical significance was set at $p < 0.05$.

Results

The socio-demographic and anthropometric distributions of the participants are shown in a previous publication by the authors [20]. Based on BMI, 68.4% of the women were either overweight or obese with 31.3% being overweight and 37.1% being obese [20].Table 1 shows attributes associated with body size (silhouettes) among the women. The silhouettes (body images) developed [21] from photographic images of women with a range of body sizes and BMI between 20kg/m^2 to 38 kg/m^2 are shown in Figure 1. On

average, respondents associated a large (overweight) body size with eating well (3.8± 1.9). A body size (4.7±1.7) in between large and very large (obese) size was perceived as depicting an affluent individual. A large body size (3.3±1.7) was perceived as socially valued. A body size in between normal and large body size was perceived as physically attractive (2.6±1.4) and healthy (2.2±1.4). The respondents selected the normal size silhouette (2.3±1.3) to represent a normal weight individual. They understood obesity as they correctly selected, on average, an 'obese' silhouette (5.9±0.5) to depict obesity. However, they equated 'overweight' with obesity as they chose an 'obese' silhouette (5.2±1.2) to depict an overweight individual. An 'overweight' silhouette (3.2±1.6) was selected as depicting their current body size. This corresponded with their actual body weight (28.3±5.6kg/m2 i.e. 3.3±5.6) as measured in the survey. The respondents chose, on average, about a large (overweight) body size (2.9 ±1.3) as their preferred body size [20]. Shown in Table 2 are the mean body sizes and the associated attributes by age. Respondents who were less than 40 years and those who were 40 years and above associated silhouettes of about a large body size with eating well, affluence and high social value. Those who were 40 years and above preferred a significantly (p=0.001) larger body size (3.3±1.4) than those who were less than 40 years (2.2±1.0). The mean body sizes and the associated attributes by level of education are shown in Table 3. Respondents with high educational level associated a significantly (p=0.001) smaller body size with eating well than those with low educational level (2.7±1.5 vs. 4.1±1.9 respectively). Respondents with high educational level preferred a significantly smaller (p=0.001) body size (2.4±1.3) than those with low educational level (3.1±1.4). Both married and single respondents associated silhouette of about a large size with eating well (p=0.051), affluence (p=0.810) and high social value (p=0.432). However, the married respondents preferred a significantly larger (p=0.002) body size (3.1±1.3) than single respondents (2.7±1.3) (Table 4). The data (Table 5) showed that there were no significant differences in the silhouette (large body size) associated with eating well (p=0.825), affluence (p=0.348) and high social value (p=0.922) across the two BMI categories. Even though overweight/obese respondents associated a normal body size with health (2.0±1.3) they preferred a large (overweight) body size.

Discussion

The rate of overweight/obesity (68.4%) found among the women in this study is alarming. As documented elsewhere [12,17-19,22,23], cultural attitude to body size/weight could be an important factor in the rising overweight/obesity problem in societies where large body size is favoured. The respondents in this study perceived a large (overweight) body size as depicting an individual who eats well, affluent and of high social value. This is consistent with previous studies among African populations which showed that a large body size is perceived as a sign of good nutrition, affluence, beauty, and fertility [17-19, 24]. Large body size could be favoured among the women because thinness is usually seen as something to be feared and avoided. Thinness is also perceived as a sign of poor nutrition, disease, poverty and presence of HIV/AIDS [25]. Perception of large body size in a positive light could pose a psychological barrier to overweight/obesity management and intervention programmes [19]. Among Pacific Islanders, where large body size was reported to be of high aesthetic value [26], the rate of adult obesity (79%) was alarming [12]. Thus, preference for large body size could be a significant factor in the alarming overweight/obesity rate among respondents in this study and those of African descent [27, 28]. These observations have important implications for clinical and public health intervention efforts against the emerging overweight/obesity problem among Ghanaian women and many developing countries. In this study, the women selected the normal size silhouette as depicting a normal weight individual. However, they chose a silhouette of overweight size as their preferred body size. Their choice of preferred body size could be influenced by the positive attributes associated with a large (overweight) body size as found in this study. The preferred body size among the women was not substantially different from their measured weight (overweight). What this means for normal weight women is that they may not see excessive weight gain as a problem. Overweight women may also be satisfied with their weight status. The women's perception of body size/weight could contribute to the high overweight/obesity statistics among them. Similar studies have also found that African American [27] and native South African women [28] reported a higher overall satisfaction with larger body sizes than their white counterparts. In view of the emerging problem of childhood obesity in urban Ghana [9], mothers with overweight/obese children may not be prompted to seek intervention due to their perceptions. Also, children raised in sociocultural environment that values large body size would, in adulthood, likely not identify obesity as a problem.

This would result in a vicious cycle of obesity from mother to children and vice versa. Hence, the need to intensify health education among all segments of the population cannot be overemphasised.

It was found in this study that the women less than 40 years preferred significantly smaller body size than those who were 40 years or more. Preference for body size among the older women might be influenced by the cultural ideals of body size while the younger women's preference might result from the influence of the western-type thin body size promoted in the media. Though the respondents with low educational status identified a smaller body size as healthy, they preferred a significantly larger size. Cultural ideals concerning body size might have also had a stronger influence on their preference. On the contrary, the women of high educational status selected a smaller body size as healthy body size as well as their preferred body size. They could be more aware of the link between body weight and health than their less educated counterparts, which might inform their choice of preferred body size. The slimmer western body size ideals promoted in the media might have also influenced their preference. The married women's choice of preferred body size might also be influenced by cultural ideals. Culturally, in Ghanaian societies, increasing body size/weight status after marriage is seen as sign of good living and happiness as well as the husband's ability to take good care of the wife. The findings from this study also show that overweight/obese respondents associated large body size with good nutrition, affluence and high social value. They identified a normal body size as healthy. However, they preferred a large (overweight) body size. This shows that cultural values tend to override health reasons on their choice of body size/weight. This finding is of particular significance in light of the on-going nutrition transition and the associated upward trend in the overweight/obesity statistics [12-16]. The occurrence of nutrition transition in an obesogenic cultural environment presents a new dimension to tackling the emerging obesity problem. The findings from this research provide evidence to support the need to address sociocultural influences in designing and implementing intervention strategies against the overweight/obesity problem among Ghanaian women. A shift in focus of intervention strategies from solely nutrition and health perspective to an interdisciplinary approach encompassing nutrition, health, social and behavioural sciences is needed. Future research should be designed to shed more light on the sociocultural underpinnings of the rising overweight/obesity problem among Ghanaian women, and other African populations, in context of the on-going nutrition transition.

Conclusion

The women preferred a large (overweight) body size. Sociocultural ideals for body size seem to override health reasons for the women's preferred body size. The findings suggest the emerging overweight/obesity problem among Ghanaian women, has significant sociocultural underpinnings. Hence, a holistic interdisciplinary strategy involving nutrition, health, social and behavioural sciences are needed to develop culturally-sensitive intervention programmes to curb the rising obesity problem.

What is known about this topic

- Overweight/obesity is increasingly posing public health threat in urban residents in Ghana and other sub-Saharan African countries, particularly among women.
- In context of the nutrition transition, changes in traditional diets and physical activity patterns have been linked to the rising overweight/obesity problem in sub-Saharan Africa.
- Preference for large body size/'plumpness' among some African women has been documented.

What this study adds

- This study suggests that preference for a large body size could have significant influence on the rising overweight/obesity problem among Ghanaians.
- Despite the awareness of the health consequences of increasing body weight/size, sociocultural factors seems to override health reasons in the choice of preferred body size/weight in Ghanaian women.
- This study proposes that strategies against the overweight/obesity problem in Ghana should address the sociocultural dimension of the problem.

Competing interests

The authors declare no competing interest.

Authors' contributions

All authors worked closely together to plan and execute the study. Collins Afriyie Appiah: supervised data collection, data analysis, literature search and write-up. Gloria Ethel Otoo: data analysis and write-up. Matilda Steiner-Asiedu: design of study, literature search and write-up.

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Table 1: Body size and associated attributes among the women

	BMI(kg/m^2)	**20**	**24**	**28**	**30**	**33**	**38**	
	***Silhouette**	**1**	**2**	**3**	**4**	**5**	**6**	
Perceived attributes	**Mean±SD**							**n**
Eats Well	3.8± 1.9							331
Affluent	4.7±1.7							256
Socially Valued	3.3±1.7							317
Physically Attractive	2.6±1.4							280
Healthy Individual	2.2±1.4							331
Normal Weight	2.3±1.3							384
Overweight	5.2±1.2							389
Obese	5.9±0.5							389
Body Size Preference								
**Actual Body Weight	3.2(28.3) ±5.6							394
†Perceived Current Body Size	3.2±1.6							391
Preferred Body Size	2.9±1.3							378

*Silhouettes 1 and 2 were defined as normal body size/weight. Silhouettes 3 and 4 were defined as large/overweight body size. Silhouettes 5 and 6 were defined as very large/obese body size. Conversion to the 1-6 scale was based on proportion.

Actual body weight **- measured body mass index of women in the survey.

†Perceived current body size**-** silhouette which women associate with their current body size.

Table 2: Perceived body size attributes by age

Perceived attributes	**Age Category (years)**		**P-value**
	< 40	**40+**	
	(Mean±SD)	**(Mean±SD)**	
Eats Well	3.4±1.8	4.0±1.9	0.004*
Affluent	4.2±1.8	4.9±1.6	0.002*
Socially valued	3.1±1.7	3.5±1.8	0.075
Healthy	2.1±1.3	2.3±1.4	0.288
Obese	5.9±0.2	5.9±0.6	0.203
Actual Body Weight	25.9±4.6	29.7±5.7	0.001*
Preferred Body Size	2.2±1.0	3.3±1.4	0.001*

* P-values are significant at $p < 0.05$ level.

Table 3: Perceived body size attributes by level of education

Perceived attributes	Level of Education			P-value
	Low (Mean±SD)	Middle (Mean±SD)	High (Mean±SD)	
Eats Well	4.1±1.9[a]	3.5±1.8[ab]	2.7±1.5 [b]	0.001*
Affluent	4.7±1.6	4.4±1.9	4.6±1.7	0.522
Socially valued	3.5±1.8[a]	2.9±1.6[b]	3.0±1.8[ab]	0.034*
Healthy	2.2±1.4	2.2±1.3	2.0±1.3	0.506
Obese	5.9±0.5	5.9±0.4	6.0±0.0	0.394
Actual Body Weight	28.8±5.4	27.4±5.6	27.2±6.2	0.054
Preferred Body Size	3.1±1.4[a]	2.6±1.2[bc]	2.4±1.3[cb]	0.001*

* P values are significant at $p < 0.05$ level.

[†]P-values are based on the Bonferroni multiple comparison test.

Mean values with different superscripts are significantly different at $p < 0.05$ level.

Table 4: perceived body size attributes by marital status

Perceived attributes	Marital Status		P-value
	Married (Mean±SD)	Single (Mean±SD)	
Eats Well	4.0±1.8	3.6±1.9	0.051
Affluent	4.7±1.7	4.6±1.7	0.810
Socially valued	3.3±1.8	3.4±1.7	0.432
Healthy	2.3±1.4	2.1±1.4	0.268
Obese	5.9±0.2	5.±0.6	0.080
Actual Body Weight	30.2±5.2	26.6±5.4	0.001*
Preferred Body Size	3.1±1.3	2.7±1.3	0.002*

* P values are significant at $p < 0.05$ level.

Table 5: Perceived body size attributes by BMI

Perceived attributes	BMI Category(kg/m^2)		P-value
	Low/Normal (Mean±SD)	Overweight/Obese (Mean±SD)	
Eats Well	3.7±1.9	3.8±1.9	0.825
Affluent	4.8±1.6	4.6±1.7	0.348
Socially valued	3.3±1.8	3.3±1.8	0.922
Healthy	2.5±1.6	2.0±1.3	0.006*
Obese	5.9±0.3	5.9±0.5	0.560
Actual Body Weight	25.9±4.6	29.7±5.7	0.001*
Preferred Body Size	2.5±1.3	3.1±1.3	0.001*

* P-values are significant at $p < 0.05$ level.

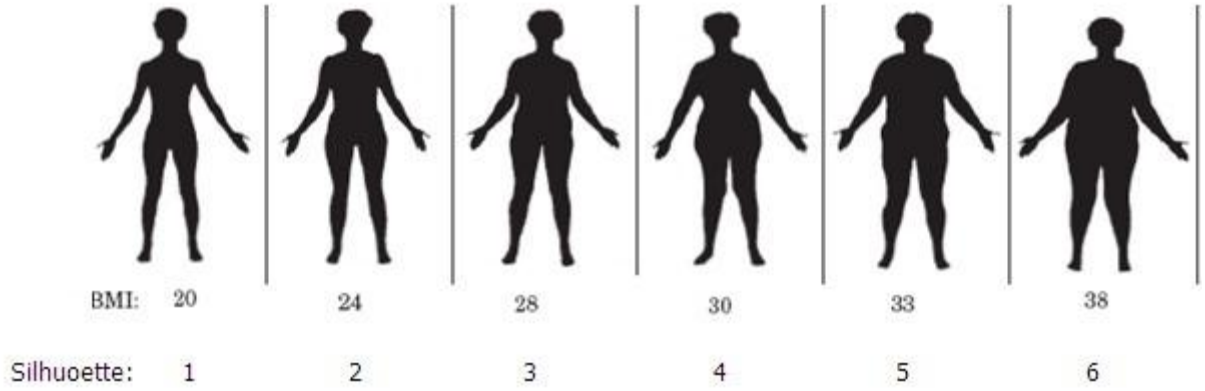

Figure 1: Photographic slihouettes of women of known BMI