

# Body Size Perceptions and Weight Status of Adults in a Nigerian Rural Community

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## Abstract

**Background:** Overweight and obesity are now recognized worldwide as increasing public health problems throughout the life course and wrong perception of one's body size may reduce the motivation for an overweight person to lose weight. **Aim:** This study was conducted to investigate how Nigerian rural dwellers perceive their body size and how their perception agrees with their body mass index (BMI). **Subjects and Methods:** A cross-sectional sample of 183 adults living in a rural community, South-West Nigeria was randomly recruited into the study. Their verbal and visual body size perceptions were assessed through structured questions and body images. Descriptive and inferential statistics were used to analyze the data. **Results:** Thirty-five percent (64/183) of participants were classified as either overweight or obese by BMI. More than half of the participants perceived themselves as normal weight. More women perceived themselves to be obese than men in both verbal and visual perceptions. Based on BMI classification, 43% (79/183) and 54% (98/183) of participants misperceived themselves in verbal and visual perception, respectively. Underestimation of body size was higher in men (38.3%, 36/94) while overestimation was higher in women (9.0%, 8/89). Men had consistently higher values of kappa coefficient which indicate greater agreement than women in both types of perception. **Conclusion:** We found considerable gender differences in body weight perception of adults in the Nigerian rural community. A large proportion of these rural dwellers could not appropriately classify their weight status; and over 30% (64/183) and nearly 50% (92/183) of them underestimated their own body weight in verbal and visual perceptions respectively.

**Keywords:** Body perception, Overweight, Rural community, Weight status

## Introduction

Overweight and obesity are now recognized worldwide as increasing public health problems throughout the course of life. Obese children are more likely to become obese adolescents, and obese adolescents are more likely to become obese adults.<sup>[1]</sup> Prevalence of overweight or obesity of 0–8.1% has been reported among Nigerian adolescents.<sup>[2]</sup> Obesity has numerous health-related adverse effect such as type 2 diabetes, heart disease, stroke, high blood pressure, high cholesterol, sleep disorders and certain types of cancer,<sup>[3,4]</sup> and reduced

quality of life.<sup>[5,6]</sup> Social consequences of obesity have also been reported. These include lower wages, less likelihood of marriage, less education, and stigma.<sup>[1]</sup>

Perception of body size has been defined as the picture of our own body formed in our own mind.<sup>[5]</sup> Previous studies have reported misperception in adolescents and adults. For example, a study<sup>[7]</sup> examined data from three surveys of Spanish adult population and reported 26.9–28.4% misperception of overweight or obesity with largest percentages of misperceived overweight in the moderate levels of body mass index (BMI) (25–26.9 kg/m<sup>2</sup>): About 50% of men and 30% of women. Misperception of weight status was more prevalent among men (59%) than women (28%) among rural Australian adults.<sup>[8]</sup> Despite media and health campaigns aimed at raising awareness of healthy weight, increasing number of overweight people fail to recognize their weight. In Great Britain, misperception of body weight rose from 19% in 1999 to 25% in 2007.<sup>[9]</sup> Edwards *et al.*<sup>[10]</sup> also reported

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that nearly three out of every ten overweight adolescents do not consider themselves overweight. The way women perceive their body weight might be an important predictor and/or indicator of unhealthy weight control behaviors and depressed mood.<sup>[11]</sup> Wrong perception of one's actual body size and having a personal preference for an ideal body size that is larger than that recommended by the World Health Organization<sup>[12]</sup> might reduce a person's motivation to lose weight and maintain a healthy weight. Therefore, gaining an understanding of the body size perceptions held by people has important health implications<sup>[13]</sup> and encouraging people to perceive accurately their weight may be an effective method for managing body weight.

Many factors such as age, gender, culture, educational attainment, socio-economic status, and BMI have been reported to influence the way people perceive their body weight in the literature. Lemon *et al.*<sup>[14]</sup> reported that gender differences in self-perception of weight and dieting occurred in adulthood, and this was consistent across BMI categories. It has been reported that overweight male adolescents are more likely to misperceive their weight when compared with overweight female adolescents.<sup>[10,15]</sup> In addition, male adolescents were more tolerant of excess weight than female counterparts.<sup>[13]</sup> In a study by Tovee *et al.*,<sup>[16]</sup> it was reported that as participants' BMI declined, overestimation of body size increased. Some social and cultural factors have been shown to explain the higher frequency of misperceived overweight and obesity in Spanish men, older individuals and those with an elementary level of education.<sup>[7]</sup> Blacks were more satisfied with their body size than whites, and individuals in the lower socio-economic class were more satisfied with their body size than higher socio-economic status individuals.<sup>[17]</sup>

In Nigeria, few studies have reported the perception of weight status among urban dwellers.<sup>[18-22]</sup> However, published studies on weight status perception of Nigerians in rural areas are rare. Such studies are needed to address the BMI related issues especially among the rural adult population since there is little data in rural population worldwide. This study was undertaken to investigate how some Nigerian rural dwellers perceive their weight status and to determine the agreement of their perception to the measured BMI.

## Subjects and Methods

This cross-sectional survey included 183 adults aged 18–71 years living in Igbo-Ora, a rural community in Oyo State, South-western Nigeria. Prior to the study, a standard equation was used to calculate the sample size with the assumption that 50% of the participants will misperceive their weight at 95% confidence interval of  $\pm 10\%$ .<sup>[23]</sup> The calculated minimum sample size was determined to be 96 to power the study effectively.

A multi-stage cluster sampling technique was used to recruit participants into the study. The six Nigerian Population

Commission's enumeration blocks in Igbo-Ora formed the six clusters. Three of the blocks were selected using a simple random sampling technique (toss of a die). The number of people to be included in each block was determined by a probability proportional to size method. A starting point, a prominent landmark such as marketplace, church, mosque or bus station was selected in each block. The direction to take from the starting point was determined using simple random technique. Each consecutive house was visited till the sample size for that block was attained. Research assistants (indigenes of Igbo-Ora) helped in the identification of landmarks demarcating the six blocks. They were also helpful in the initial social interaction with the indigenes.

The protocol of the study was explained to each participant and his/her informed consent was obtained. Each participant signed/thumb printed an informed consent form on which ethical issues were addressed, including guaranteed confidentiality and freedom to withdraw from the study at any time. Statements on confidentiality were included on the informed consent form. Participants' names were not included in the recordings. Participants were interviewed to obtain their socio-demographic information which includes: Age, gender, occupation, and highest level of education. The protocol was approved by Research and Ethics Committee of University of Ibadan/University College Hospital. The study was conducted in 2006.

## Measurements

Participants' height were measured to the nearest 0.01 m and weight was assessed to the nearest 1.0 kg in light clothing without shoes, scarf or cap using portable weighing scale (SECA 762, Vogel and Halke, Germany). BMI (BMI = weight [kg]/height [m<sup>2</sup>]) was calculated based on measured weight and height. We used WHO classification to categorize the participants (underweight = BMI <18.5, normal weight = 18.5  $\leq$  BMI <25, overweight = 25  $\leq$  BMI <30, obese = 30  $\geq$  BMI <40, and morbidly obese = BMI  $\geq$ 40).

Verbal and visual body size perception was assessed through four questions: (1) "Which of the following terms/words best describe the way you perceive your body size?" (Response choices: Underweight, normal weight, overweight, obese, morbidly obese); (2) "which of the following terms/words best describe the way people perceive your body size?" (Response choices: Underweight, desirable weight, overweight, obese, morbidly obese); (3) you will be shown diagrams of seven body sizes, look at them very well. Choose the one that you perceive as best describing your body size, and (4) you will be shown diagrams of seven body sizes, look at them very well. Choose the one that you think best describe the way people perceive your body size. The questions were translated into local language for those who were not literate in English or have no formal education. Each participant was asked the questions directly by the researchers. The pictures were

categorized into five groups: Underweight = Picture 6 and 7; normal weight = Picture 4 and 5; overweight = Picture 3; obese = Picture 2; and morbidly obese = Picture 1 [Figure 1].

### Data analysis

SPSS version 15.0 statistical software package (SPSS Inc., Chicago, USA) was used to carry out statistical analysis. Descriptive statistics of mean, standard deviation, and percentage were used to present the data. Gender differences in verbal and visual perceptions were examined using Chi-square test. Differences between self and people perceptions were examined using McNemar test. Spearman correlation was used to find correlation between body size perception and measured BMI while kappa coefficient (K) was used to calculate degree of agreement. The kappa coefficient is a measure of agreement:  $K = 1$  is a perfect agreement while  $K = 0$  is the weakest agreement. For the kappa coefficient and Chi-square analysis we re-grouped BMI categories into four from five groups used in the questionnaire (we combined obese and morbidly obese group). For McNemar analysis we re-grouped BMI categories into  $2 \times 2$  tables.  $P < 0.05$  was considered to be statistically significant.

## Results

Of the 183 participants, 51.4% (94/183) were males. The mean (SD) age was 40.2 (13.0) years. Males and females were about the same age ( $t = 0.1$ ;  $P = 0.94$ ) [Table 1]. About 43% (78/183) of the participants were illiterate. The illiterates were older than the literate participants ( $t = 7.3$ ;  $P < 0.001$ ). Seventy one percent (130/183) were blue-collar workers. The

unemployed were younger in age than blue- or white-collar workers ( $F = 13.1$ ;  $P < 0.001$ ).

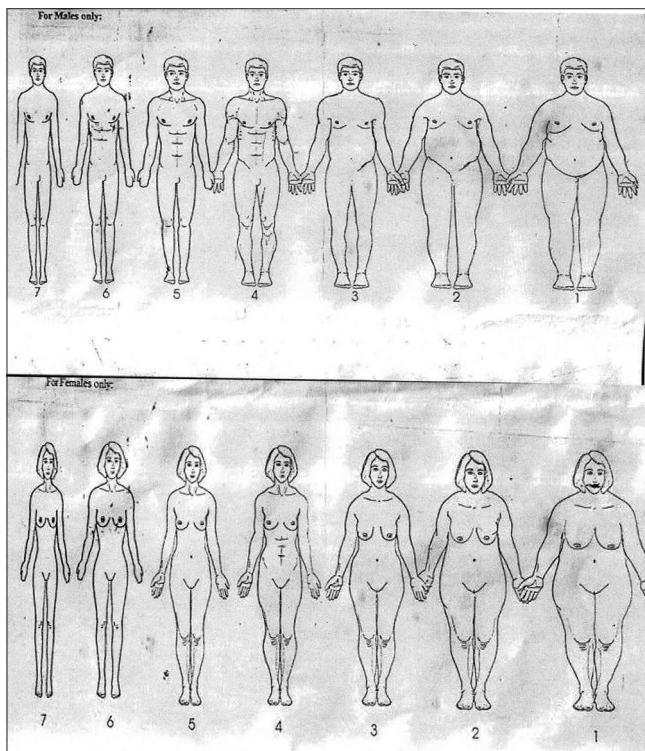
### Weight status of the participants

Men were heavier ( $t = 1.2$ ;  $P = 0.21$ ) and taller ( $t = 4.4$ ;  $P < 0.001$ ) than women [Table 1]. Thirty-five percent (64/183) of the participants (31.9% [30/94] of men and 38.2% [34/89] of women) were either overweight or obese. None were morbidly obese. More women were classified as overweight than men ( $\chi^2 = 1.1$ ;  $P = 0.77$ ). The number of overweight or obese people decreased along the level of education, that is, the illiterate were more overweight or obese (30 people out of 64 overweight/obese population) than other groups ( $\chi^2 = 0.8$ ;  $P = 0.86$ ). More blue-collar workers (46 people out of 64 overweight/obese populations) were classified as overweight or obese than either white-collar or unemployed ( $\chi^2 = 3.7$ ;  $P = 0.71$ ).

### Participants' perception of their body size

More than half of the participants perceived themselves as having normal weight [Table 2] on both verbal and visual perception scale. More women perceived themselves as having normal weight than men on both scales (though, only significant for self-verbal perception,  $\chi^2 = 8.9$ ;  $P = 0.03$ ). In addition, fewer women perceived themselves as underweight and overweight than men on both scales. Only 6.5% (12/183) and 4.4% (8/183) of participants perceived themselves as obese/morbidly obese in verbal and visual perception scales respectively. More than half of the participants felt that people perceived them to have normal weight. More women than men felt that people perceived them normal weight, overweight or obese in their verbal perception ( $\chi^2 = 4.0$ ;  $P = 0.26$ ) while more men feel that people perceived them underweight or overweight in their visual perception ( $\chi^2 = 0.2$ ;  $P = 0.98$ ). Nine percent (16/183) and 4.4% (8/183) of the participants feel that people perceived them to be obese/morbidly obese in their verbal and visual perceptions respectively. There were no significant differences between self and peoples' perceptions of both verbal and visual perception.

About 43% (79/183) and 54% (98/183) of all participants misperceived themselves in verbal and visual perceptions respectively [Table 3]. In their feeling about people perception of their body size, 42% (76/183) and 52% (95/183) of the participants misperceived themselves in verbal and visual perceptions respectively. Of the 64 people who underestimated themselves in their verbal perception, 35 perceived themselves to be underweight, 27 as normal while two perceived themselves as overweight. Of 35 people who misclassified themselves as underweight, 31 was normal weight while two each were overweight or obese by measured BMI. Furthermore, out of 15 people who overestimated themselves in their verbal perception, two, six, four, and three perceived themselves as normal, overweight, obese, and morbidly obese respectively while two, six, five, and two were actually underweight, normal, overweight, and obese, respectively according to measured BMI.



**Figure 1:** Pictures for visual perception of participants



**Table 1: Weight status of the participants by gender, education, and occupation**

Variable	n	X (SD)				% (n)			
		Age (years)	Weight (kg)	Height (m)	BMI (kg/m <sup>2</sup> )	Underweight	Normal weight	Overweight	Obese
Sex									
Male	94	40.16 (12.78)	64.10 (11.2)	1.66 (0.08)	23.46 (3.57)	4.3 (4)	63.8 (60)	25.5 (24)	6.4 (6)
Female	89	40.30 (13.29)	62.2 (9.17)	1.61 (0.07)	24.15 (3.36)	3.4 (3)	58.4 (52)	32.6 (29)	5.6 (5)
All	183	40.23 (13.00)	63.17 (10.28)	1.63 (0.08)	23.80 (3.48)	3.8 (7)	61.2 (112)	29.0 (53)	6.0 (11)
Level of education									
Illiterate	78	47.44 (11.73)	62.04 (10.85)	1.61 (0.07)	24.03 (3.70)	3.8 (3)	57.7 (45)	32.1 (25)	6.4 (5)
Primary	38	37.87 (11.11)	64.18 (8.36)	1.66 (0.08)	23.53 (3.04)	0 (0)	65.8 (25)	31.6 (12)	2.6 (1)
Secondary	46	30.85 (10.49)	63.83 (11.61)	1.66 (0.08)	23.20 (3.71)	8.7 (4)	65.2 (30)	19.6 (9)	6.5 (3)
Tertiary	21	38.29 (10.55)	64.14 (8.14)	1.62 (0.07)	24.70 (2.75)	0 (0)	57.1 (12)	33.3 (7)	9.5 (2)
Occupation									
Blue-collar	130	42.71 (12.27)	63.02 (10.55)	1.63 (0.08)	23.77 (3.55)	3.8 (5)	60.8 (79)	30.8 (40)	4.6 (6)
White-collar	19	40.37 (6.81)	62.84 (8.27)	1.61 (0.06)	24.33 (3.11)	0 (0)	57.9 (11)	31.6 (6)	10.5 (2)
Unemployed	34	30.68 (14.11)	63.97 (10.45)	1.65 (0.08)	23.59 (3.47)	5.9 (2)	64.7 (22)	20.6 (7)	8.8 (3)

BMI: Body mass index, SD: Standard deviation

**Table 2: Verbal and visual perception of the participants (n=183)**

Variable	% (n)					$\chi^2$	P
	Underweight	Normal weight	Overweight	Obese	Morbidly obese		
Verbal perception							
Self							
Male	29.8 (28)	50.0 (47)	16.0 (15)	2.1 (2)	2.1 (2)	8.90	0.03
Female	13.5 (12)	64.0 (57)	13.5 (12)	7.9 (7)	1.1 (1)		
All	21.9 (40)	56.8 (104)	14.8 (27)	4.9 (9)	1.6 (3)		
People							
Male	28.7 (27)	53.2 (50)	10.6 (10)	5.3 (5)	2.1 (2)	3.98	0.26
Female	16.9 (15)	58.4 (52)	14.6 (13)	9.0 (8)	1.1 (1)		
All	23.0 (42)	55.7 (102)	12.6 (23)	7.1 (13)	1.6 (3)		
Visual perception							
Self							
Male	38.3 (36)	43.6 (41)	14.9 (14)	2.1 (2)	1.1 (1)	6.48	0.09
Female	29.2 (26)	58.4 (52)	6.7 (6)	4.5 (4)	1.1 (1)		
All	33.9 (62)	50.8 (93)	10.9 (20)	3.3 (6)	1.1 (2)		
People							
Male	34.0 (32)	48.9 (46)	12.8 (12)	2.1 (2)	2.1 (2)	0.19	0.98
Female	32.6 (29)	51.7 (46)	11.2 (10)	2.2 (2)	2.2 (2)		
All	33.3 (61)	50.3 (92)	12.0 (22)	2.2 (4)	2.2 (4)		

**Table 3: Percentage of verbal and visual misperception by measured BMI**

Variable	Verbal misperception						Visual misperception					
	Self			People			Self			People		
	Under % (n)	No % (n)	Over % (n)	Under % (n)	No % (n)	Over % (n)	Under % (n)	No % (n)	Over % (n)	Under % (n)	No % (n)	Over % (n)
Underweight	0 (0)	71.4 (5)	28.6 (2)	0 (0)	71.4 (5)	28.6 (2)	0 (0)	100.0 (7)	0 (0)	0 (0)	100.0 (7)	0 (0)
Normal weight	27.7 (31)	67.0 (75)	5.4 (6)	29.5 (33)	67.9 (76)	2.7 (3)	44.6 (50)	53.6 (60)	1.8 (2)	43.8 (49)	55.4 (62)	9 (1)
Overweight	54.7 (29)	35.8 (19)	9.4 (5)	49.1 (26)	37.7 (20)	13.2 (7)	67.9 (36)	26.4 (14)	5.7 (3)	64.2 (34)	32.1 (17)	3.8 (2)
Obese	36.4 (4)	45.5 (5)	18.2 (2)	18.2 (2)	54.5 (6)	27.3 (3)	54.5 (6)	36.4 (4)	9.1 (1)	45.5 (5)	18.2 (2)	36.4 (4)
	$\chi^2=15.39; P=0.01$			$\chi^2=14.00; P=0.01$			$\chi^2=19.36; P=0.001$			$\chi^2=19.31; P=0.001$		
All	35.0 (64)	56.8 (104)	8.2 (15)	33.3 (61)	58.5 (107)	8.2 (15)	50.3 (92)	46.4 (85)	3.3 (6)	48.1 (88)	48.1 (88)	3.8 (7)

Under: Underestimate, No: No difference, Over: Overestimate, BMI: Body mass index

In the section on peoples' verbal perception, 37 and 24 people underestimated themselves as underweight and normal respectively while actually 33, 26, and two were normal,

overweight and obese, respectively by measured BMI. Furthermore, two, three, seven, and three people overestimated themselves in their feeling of people verbal perception as

normal, overweight, obese, and morbidly obese respectively while they were underweight, normal, overweight, and obese respectively by measured BMI.

Visual misperception also varied in the level of under- and over-estimation. Fifty-five, 33, and four people underestimated themselves as underweight, normal, and overweight respectively in their visual perception while 50, 36, and 6 were normal, overweight and obese respectively by measured BMI. Furthermore, 54, 30, and 4 people underestimated themselves in their people perception as underweight, normal, and overweight respectively while 49, 34, and 5 were normal, overweight, and obese respectively by measured BMI. Two each overestimated themselves as overweight, obese, and morbidly obese in their visual perception while two, three, and one were normal, overweight and obese respectively by measured BMI. Furthermore, one, two, and four overestimated peoples' visual perception of themselves as overweight, obese, and morbidly obese respectively while they were normal, overweight, and obese respectively.

Although, significant gender association was not found in the pattern of misperception, men seemed to have a higher percentage of underestimation while women had higher percentage of overestimation in both types of verbal perceptions [Table 4]. The reverse appears to be the case

in both types of visual underestimation. The participants who had secondary education had the lowest percentage of underestimation while those who had primary education had the highest percent of overestimation in all types of perception with exception of people verbal perception ( $\chi^2 = 5.7, P = 0.13$ ). The unemployed had the lowest percentage of underestimation in all types of perception while the blue-collar workers have the lowest overestimation with exception of self-verbal perception ( $\chi^2 = 5.7, P = 0.06$ ).

**Degree of agreement between weight perception and measured body mass index**

There was significant agreement between body size perception and measured BMI ( $K = 0.2-0.3; P = 0.01$ ) of the participants [Table 5]. Men had consistent higher values of kappa coefficient than women in both verbal and visual perceptions which indicate higher agreement. There were higher agreements in peoples' verbal and visual perceptions for women and men, respectively. The correlation coefficients ( $r$ ) were also higher and significant in all types of perceptions ( $r = 0.6-0.7; P = 0.01$ ).

**Discussion**

This study investigated the weight perception of Nigerian adults from a rural community. The results revealed that about

**Table 4: Pattern of verbal and visual misperception**

Variable	Verbal misperception						Visual misperception					
	Self			People			Self			People		
	Under % (n)	No % (n)	Over % (n)	Under % (n)	No % (n)	Over % (n)	Under % (n)	No % (n)	Over % (n)	Under % (n)	No % (n)	Over % (n)
Sex												
Male	38.3 (36)	54.3 (51)	7.4 (7)	36.2 (34)	56.4 (53)	7.4 (7)	48.9 (46)	47.9 (45)	3.2 (3)	44.7 (42)	52.1 (49)	3.2 (3)
Female	31.5 (28)	59.6 (53)	9.0 (8)	30.3 (27)	60.7 (54)	9 (8)	51.7 (46)	44.9 (40)	3.4 (3)	51.7 (46)	43.8 (39)	4.5 (4)
	$\chi^2=0.52, P=0.47$			$\chi^2=0.35, P=0.56$			$\chi^2=0.16, P=0.69$			$\chi^2=1.06, P=0.26$		
Education												
Illiterate	35.9 (28)	56.4 (44)	7.7 (6)	34.6 (27)	60.3 (47)	5.1 (4)	53.8 (42)	43.6 (34)	2.6 (2)	50.0 (39)	46.2 (36)	3.8 (3)
Primary	47.4 (18)	47.4 (18)	5.3 (2)	47.4 (18)	44.7 (17)	7.9 (3)	52.6 (20)	47.4 (18)	0 (0)	57.9 (22)	42.1 (16)	0 (0)
Secondary	21.7 (10)	69.6 (32)	8.7 (4)	19.6 (9)	69.6 (32)	10.9 (5)	39.1 (18)	56.5 (26)	4.3 (2)	34.8 (16)	60.9 (28)	4.3 (2)
Tertiary	38.1 (8)	47.6 (10)	14.3 (3)	33.3 (7)	52.4 (11)	14.3 (3)	57.1 (12)	33.3 (7)	9.5 (2)	52.4 (11)	38.1 (8)	9.5 (2)
	$\chi^2=5.16, P=0.16$			$\chi^2=5.71, P=0.13$			$\chi^2=3.60, P=0.31$			$\chi^2=4.51, P=0.21$		
Occupation												
Blue-collar	36.2 (47)	56.2 (73)	7.7 (10)	34.6 (45)	60.0 (78)	5.4 (7)	49.2 (64)	48.5 (63)	2.3 (3)	47.7 (62)	50.8 (66)	1.5 (2)
White-collar	57.9 (11)	36.8 (7)	5.3 (1)	57.9 (11)	31.6 (6)	10.5 (2)	68.4 (13)	26.3 (5)	5.3 (1)	68.4 (13)	26.3 (5)	5.3 (1)
Unemployed	17.6 (6)	70.6 (24)	11.8 (4)	14.7 (5)	67.6 (23)	17.6 (6)	44.1 (15)	50.0 (17)	5.9 (2)	38.2 (13)	50.0 (17)	11.8 (4)
	$\chi^2=5.74, P=0.06$			$\chi^2=6.96, P=0.03$			$\chi^2=3.48, P=0.18$			$\chi^2=4.03, P=0.13$		

**Table 5: Degree of agreement and correlation matrix between weight status perception and measured BMI**

Variable	Verbal perception $r(\kappa)$		Visual perception $r(\kappa)$	
	Self	People	Self	People
BMI				
Male	0.577** (0.302)	0.605** (0.327)	0.660** (0.232)	0.672** (0.283)
Female	0.659** (0.293)	0.745** (0.363)	0.616** (0.117)	0.663** (0.168)
All	0.622** (0.295)	0.674** (0.344)	0.642** (0.174)	0.661** (0.226)

\*\*Correlation is significant at the 0.01 level (two-tail).  $r$ : Correlation coefficient,  $\kappa$ : Kappa coefficient, BMI: Body mass index

35% were overweight or obese with a decrease of this variable along the level of education and occupation. More than half of the participants perceived themselves as normal weight. Women perceived themselves more obese than men in both verbal and visual perception. About 43% and 54% misperceived themselves in verbal and visual perception respectively. Men have a higher percentage of underestimation while women have a higher percentage of overestimation in both types of verbal perception. Men have consistent higher values of kappa coefficient than women in both types of perception.

The prevalence of overweight and obesity seem high in the present study, which suggests that overweight has reached epidemic proportion in the rural community. This has been attributed to changing lifestyles, that is, the rural dwellers have become urbanized and westernized in their lifestyles.<sup>[24]</sup> Something urgent should be done about this increased prevalence of overweight in this population because of numerous health-related adverse effects.<sup>[3-6]</sup>

About 54% and 45% of men and women accurately perceived themselves in self-verbal and visual perception respectively in the present study. This was similar to the findings of previous studies,<sup>[13,25]</sup> who reported that 49.6% and 60% of men and women accurately perceived their weight respectively. More than 1/3<sup>rd</sup> and about half underestimated themselves in verbal and visual perception respectively in the present study; this may reduce the motivation for an overweight person to lose weight. It has been suggested that before a cognitive evaluation of the health advantages of weight loss can be made, the overweight individual has to be able to recognize their current body size.<sup>[13]</sup> It can be suggested from the result of the current study that the motivation to lose weight is likely to be impeded by rural dweller's inability to recognize their actual body size. This is more so in this environment due to the belief that overweight is a sign of affluence by a lot of individuals. A phenomenon of possible importance from the perspective of health is the prevalence of misperceived overweight by BMI. As indicated in our results, the prevalence of misperceived overweight decreases with increasing BMI which was in agreement with the report of previous study.<sup>[7]</sup> This study also provides the prevalence of misperception of weight status in the rural community population. As this study was a cross-sectional and no previous misperception prevalence studies have been carried out in this rural community, changes in the prevalence of misperception in adult overtime cannot be ascertained. It was noted in Great Britain that despite media and health campaigns aiming to raise awareness of healthy weight, increasing numbers of overweight people fail to recognize that their weight is a cause for concern.<sup>[9]</sup>

Gender differences were observed in the pattern of misperception in the current study. Women were more likely to overestimate while men underestimated their weight in both visual and verbal perception. The observed differences were

similar to that reported for Spanish, Polish, and American adults.<sup>[7,14]</sup> This different perception between the two sexes could be related to certain social and cultural factors. It is documented that social and family pressures to maintain a body image in accordance with reigning values, which equate beauty with a slender figure, affect women more strongly than men.<sup>[7]</sup> It could also be related to an important epidemiological phenomenon, which indicates that women are more overweight than men, which was also evident in the present study. These place women at an advantage over men in their desire to lose weight. This shows the importance of considering the adult male population as a high-risk group for developing overweight associated with misperceived weight status.

The pattern of misperception in the present study varied with previous findings. In Black men and women both education and income were highly positively related to the body size discrepancy.<sup>[17]</sup> The observed difference in the current study might be due to the way we classified our subjects along socio-economic status, the unemployed group comprises of more students and retiree. The current study found that degree of agreement between measured BMI and weight perception varied with sex. Women had a lower degree of agreement than men since men's kappa coefficients were higher than women's in all types of verbal and visual perception.

Although the present study was based on the old data set, there is no published study on weight misperception of Nigerian adults living in the rural community available for referencing till date. More so, it is likely that knowledge about healthy body weight of this rural population has not changed much. Hence, this study will be of much help for public health education and reference for future studies to determine changes over time in the pattern of misperception of weight status amongst rural dwellers.

## Conclusion

We found considerable gender differences in the body weight perception of Nigerian adults in the rural community. A large proportion of these rural dwellers could not appropriately classify their weight status, and over 30% and nearly 50% of them underestimated their own body weight in verbal and visual perception, respectively.

Our findings have important implication for future primary and secondary prevention efforts. The rural dwellers need to be better informed regarding the definition of healthy body weight, and frequent assessments and professional evaluation of their growth, and weight status are needed. The gender differences suggest the need for gender-tailored intervention programs.

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