

DIETARY INTAKE, PERCEPTIONS REGARDING BODY WEIGHT, AND ATTITUDES TOWARD WEIGHT CONTROL OF NORMAL WEIGHT, OVERWEIGHT, AND OBESE BLACK FEMALES IN A RURAL VILLAGE IN SOUTH AFRICA

Objectives: To determine dietary intake and attitude toward weight control of normal weight, overweight, and obese Black women.

Design: Cross-sectional survey.

Setting: Rural village in KwaZulu province, South Africa.

Participants: A convenience sample ($N=187$) of 25- to 55-year-old women, of whom 28.9% ($N=54$) were of normal weight, 41.2% ($N=77$) were overweight, and 29.9% ($N=56$) were obese.

Main Outcome Measures: Dietary intake, attitude toward weight control, perceived causes of overweight, perceived health risks, and self-reported health status.

Results: Dietary intake did not differ among the three groups. Overweight and obese women did not view weight control differently than women of normal weight. Most women were unconcerned about their weight. Only 2% of overweight and 30% of obese women thought they were too fat. Most women (96%) agreed that obesity was caused by biological disorders, while 39% and 9% agreed that it was caused by poor eating habits and eating too much food, respectively. Most women did not recognize the relationship between food consumed and degenerative diseases. Compared to normal-weight and overweight women, obese women had a significantly higher prevalence of self-reported high blood pressure and suffered more from back pain.

Conclusions: Most of these rural women were unconcerned about their weight and most overweight and obese women did not want to lose weight. The acceptance of overweight and obesity can hinder the effectiveness of weight control programs. A special attempt should be made to target such programs to rural women. (*Ethn Dis.* 2005;15:238–245)

Key Words: Attitude Toward Weight Control, Dietary Intake, Females, Obesity, Overweight, Rural, Self-reported Health Status, South Africa

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INTRODUCTION

South Africa has a population of approximately 40.6 million people, of whom 77% are Black, 11% are White, 9% are of mixed ancestry, and 3% are Indian.¹ The country suffers from a quadruple burden of disease: a combination of poverty-related infectious diseases, lifestyle-related noncommunicable diseases, trauma, and the rapidly increasing HIV/AIDS epidemic. In the adult female population, the pattern of malnutrition is predominantly overnutrition rather than undernutrition.²

Obesity is common among South African women, and as compared to mixed-race, Indian, and White women, the highest prevalence occurs among Black women.^{2,3} The South African Demographic and Health Survey (SADHS) of 1998 included a nationally representative sample of 6,143 Black women of whom 25.9% were classified as overweight and 31.2% as obese.² Although female obesity has been reported for rural areas,^{4–6} the highest prevalence is in urban areas.² With the rapid urbanization that is taking place in the country, the prevalence of obesity in adults is expected to increase further.^{4,6}

The dietary transition of the Black population within the country is of concern, especially in the light of the high prevalence of female obesity. Bourne et al⁷ summarized dietary data available from urban and rural studies from 1940 to 1992 and concluded that the diets of the Black South African population

shifted toward an atherogenic Western diet.

From a public health perspective, obesity is of concern as it is a risk factor for several chronic and life-threatening health conditions.⁸ The Behavioral Risk Factor Surveillance System in the United States showed that overweight and obesity are significantly associated with diabetes, high blood pressure, high cholesterol, asthma, arthritis, and poor health.⁹ Obesity is a risk factor for hypertension¹⁰; individuals with hypertension have two to three times the risk of coronary heart disease and seven times the risk of stroke.¹¹ Within the Black South African population, measures of obesity are associated with the risk of noncommunicable diseases,¹² and a positive correlation between body mass index (BMI) and blood pressure was observed in students.¹³ Weight control is therefore of critical importance.

In the Black South African population, obesity has no negative social connotations¹⁴; few women perceive themselves as being obese,² and they do not want to lose weight.¹⁵ Fatness was associated with wealth and prosperity in an earlier study¹⁶ and more recently with affluence and happiness.¹⁴ The fact that Black women are more accepting of being overweight could make preventing or treating obesity difficult. As stated by Senekal et al,¹⁷ specific ethnic characteristics, such as obesity-tolerant attitudes, should be taken into consideration when developing weight-control programs.

A person's attitude influences his or her behavior and is a link between knowledge and practice.¹⁸ Information on people's knowledge and attitude can help health professionals to formulate effective objectives and develop relevant

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In the adult female population [of South Africa], the pattern of malnutrition is predominantly overnutrition rather than undernutrition.²

techniques for health education programs.¹⁹ In order to get an insight into weight control behaviors of Black women in a rural setting with a high prevalence of female obesity, the aim of this survey was to determine dietary intake and attitude toward body weight of normal-weight, overweight and obese women.

METHODS

Population

The survey was carried out in a mountainous rural village (Ndunakazi) in the KwaZulu-Natal province of South Africa. The village is estimated to be 11 km long and 1 km wide, with an estimated population of 1,500 people (200 households) and population density of 141 people per km². Most of the population are of low socioeconomic status. Approximately 75% of the women are either overweight or obese.⁵

Data were collected through a cross-sectional survey. A convenience sample of 25- to 55-year-old females, one per household, was recruited through community-based growth monitoring points.²⁰ The BMIs of the women were not known beforehand. After the interview was completed and anthropometric measurements were taken, BMI was calculated, and the individual was categorized into one of the three groups (see Anthropometry). Recruiting and interviewing continued regardless of nutritional status until at least 50 participants were included in each group. To use a single 24-hour dietary recall, a mini-

Table 1. Allocation of scores

	Agree	Uncertain	Disagree
Positive statement toward weight control	5	3	1
Negative statement toward weight control	1	3	5

mum of 50 participants per group is required.²¹ To exclude inter-observer variation, one Zulu-speaking fieldworker interviewed all the participants.

Data Collection

Anthropometry

Weight was measured with the participants in light clothing to the nearest 0.05 kg on a load cell operated digital scale (UC-300 Precision Health Scale). Height was measured without shoes to the nearest 0.1 cm with a wooden board fitted with a measuring tape and a movable headpiece. Body mass index (BMI) was calculated as weight in kilograms divided by the square of the height in meters and categorized as normal weight ($19 \leq \text{BMI} < 25$), overweight ($25 \leq \text{BMI} < 30$), and obese ($\text{BMI} \geq 30$).²²

Dietary Intake

An unquantified food frequency questionnaire that was previously tested and used in the same area was used for qualitative assessment of dietary intake. The frequency of consumption of specified food items was recorded by using the past month as guideline. Participants had a choice of five options: 1) every day; 2) most days (not every day, but at least four days per week); 3) approximately once a week (less than four days per week, but at least once per week); 4) seldom; and 5) never.

Dietary intakes were quantified by using the 24-hour dietary recall method. Fresh food, plastic food models, household utensils, and three-dimensional sponge models were used to quantify and record food consumption for the previous day. In addition, dry oats were used to quantify portion sizes of certain food items, especially cooked food. The

participant used the dry oats to indicate the quantity resembling the amount of food consumed, which the fieldworker then quantified with a measuring cup. Food intake reported in household measures was converted into weight by using the MRC Food Quantities Manual.²³ The SAS software package (SAS, Inc., Cary, NC) was used to convert food intake to macro- and micronutrients, using the MRC Food Composition Tables²⁴ as food database. Data collected with the 24-hour dietary recall was used to yield information on portion sizes.

Questionnaire

A questionnaire was developed to collect information on food preferences, self-reported health status, and perceived health risks and causes of obesity. The questionnaire included an attitude scale that was developed and validated by Kruger et al²⁵ specifically to measure attitude of Black women toward weight control. The questionnaire underwent pilot testing for clarity and comprehensibility with a group of eight Zulu-speaking adults. A few minor amendments were made as a result of the testing. The final questionnaire was translated into the local language (Zulu), and the translation was verified.

The attitude scale, which was adapted slightly, had three subsections, obesity, thinness, and methods of weight control. Twenty-two statements were listed, and participants had a choice of three options, agree, uncertain, and disagree. Scores were allocated in order to reflect a high-positive or low-negative attitude to weight control, as indicated in Table 1. Total scores were calculated for each participant in the three subsections and for the total test.

The maximum total score was 110. The total score was categorized into tertiles, with the lowest tertile (0–36.66) representing a negative attitude toward weight control, the middle tertile (36.67–73.33) representing an unsure attitude, and the upper tertile (73.34–110) representing a positive attitude toward weight control.

STATISTICAL ANALYSIS

For categorical data, differences among the three groups were determined by using the χ^2 test. For continuous data, differences among the three groups were determined by using analysis of variance. If statistically significant, a Tukey post hoc analysis was done. Spearman correlation coefficients were calculated for age vs BMI and BMI vs attitude score. A P value $< .05$ was considered statistically significant.

RESULTS

Participants

A total of 187 participants were included in the survey; 54 (28.9%) were of normal body weight, 77 (41.2%) were overweight, and 56 (29.9%) were obese. The mean age for the overall group was 33.5 ± 8.9 years. The mean ages for the normal-weight, overweight and obese participants were 29.8 ± 8.0 , 34.2 ± 7.9 , and 36.2 ± 9.9 years, respectively. The normal-weight group was significantly younger than both the overweight and obese groups ($P < .05$). A positive correlation was seen between age and BMI ($r = 0.317$; $P = .01$).

Dietary Intake

The energy intake and the energy distribution of the macro-nutrients are shown in Table 2. Although no statistically significant differences were observed among the three groups, energy and fat intake increased slightly with overweight and obesity.

The type of foods and the portion

Table 2. Energy intake and energy distribution of macro-nutrients of normal-weight, overweight, and obese females aged 25–55 years as determined by a 24-hour dietary recall

	Total Group (N=187)	Normal Weight (N=54)	Overweight (N=77)	Obese (N=56)
Energy (kJ)				
Mean (SD)	9801 (1839)	9463 (2194)	9888 (1543)	10006 (1828)
Median	9808	9540	9864	9992
(Q1–Q3)	(8620; 10821)	(8259; 10434)	(9049; 10617)	(8566; 11169)
Energy distribution of the macro-nutrients*				
%E-CHO	72.0 (6.8)	72.2 (8.3)	72.1 (6.5)	71.6 (5.8)
%E-Protein	10.9 (2.1)	10.7 (2.4)	11.0 (2.1)	10.9 (1.8)
%E-Fat	23.0 (6.5)	22.4 (7.5)	22.9 (6.4)	23.5 (5.7)

* Mean; standard deviation given in parenthesis.

CHO = carbohydrates.

sizes did not differ significantly among the three groups (with the exception that more obese participants reported either a stiff porridge made with maize-meal, namely *phutu*, or eggs during the 24-hour recall period), and the data are therefore presented for the three groups combined. Foods reported during the 24-hour recall period for the total group of 187 participants are listed in Table 3. The food items are sorted in descending order according to the percentage of participants who reported the specific food item. The average portion size for each food item is also given. Foods reported by $>50\%$ of the participants were *phutu*, bread, and rice. The importance of these three staple foods in the diet was reinforced by data collected through the unquantified food frequency questionnaire, which showed that *phutu*, bread, and rice were usually consumed most days by 87%, 94%, and 86% of the participants, respectively. Vegetables consumed were mostly cabbage and *imifino* (a collection of various dark-green leaves that is eaten as a vegetable; the leaves either grow wild or come from vegetables such as pumpkin and beetroot). Fruits consumed were mostly bananas, apples, and oranges.

No difference was seen among the three groups regarding food preferences as determined by questionnaire. *Phutu* with *imifino* and samp with beans were the favorite foods, named by approxi-

mately one third of the participants, respectively. *Isijingi*, which is a dish made with maize-meal and pumpkin, was the least liked food (50% of all participants), followed by fish, which was disliked by 20% of all participants. Both the most liked (*phutu* with *imifino* and samp with beans) and disliked foods (*isijingi*) are traditional dishes.

All the participants reportedly ate three main meals, breakfast, lunch, and supper. Approximately 10% of participants in all three groups ate something during the mid-morning and mid-afternoon, respectively. Only 5% of the participants ate after supper.

Perceptions and Attitudes Toward Body Weight

The participants' attitudes toward thinness, overweight, and methods of weight control are summarized in Table 4. No significant differences were observed for any of the three subclasses among the three groups. None of the participants was negative toward weight control, almost two thirds were unsure, and one third was positive toward weight control. No correlation was seen between BMI and the attitude score, which indicates that overweight women did not view weight control differently than did women of normal weight.

Perceived Causes of Overweight

The participants were asked whether they agreed that overweight was caused

Table 3. Food items reported by more than 5% of participants during the 24-hour recall period, for the total group of 187 women

Food Item	Total Group (N=187)					
	Participants		Frequency Reported	Portion Size (g)		
	N	%		Average	Min	Max
Sugar*	183	98	244	20	2	60
Water	173	92	240	420	200	720
Tea	150	80	171	350	180	360
Phutu	130	69	142	510	265	610
Bread-brown	114	61	119	155	30	240
Rice	114	61	116	275	115	320
Non-dairy creamer	81	43	85	6	1	12
Bread-white	74	40	93	165	60	250
Beans	74	40	79	200	145	255
Egg (fried or boiled)	68	36	68	70	45	150
Soft porridge	59	31	60	480	380	600
Cabbage	56	30	58	160	70	315
Tomato and onion stew	56	30	58	250	100	335
Banana	56	30	56	125	50	200
Samp-and-beans	50	27	51	540	175	600
Imifino	50	27	52	180	100	215
Curry sauce	46	24	49	205	100	300
Carbonated drinks	46	24	47	360	200	600
Mahewu	42	22	42	530	40	1000
Orange	34	18	34	155	65	300
Apple	29	15	29	157	125	250
Potato	23	12	23	235	110	300
Chicken	22	12	24	55	30	130
Peanut butter	21	11	21	20	5	40
Beef	18	10	20	125	60	225
Milk	17	9	17	110	30	400
Spinach	17	9	17	170	150	200
Jam	17	9	17	45	5	70
Corn-on-the-cob	13	7	13	275	135	405
Pumpkin	13	7	13	110	45	180
Niknaks	11	6	11	30	25	60
Amasi	10	5	10	175	50	500
Orange juice	9	5	9	365	200	500
Biscuits	7	4	7	75	30	150
Sausage	6	3	6	90	30	135
Grapes	6	3	6	120	90	150
Peach	6	3	6	100	50	160
Pear	6	3	6	170	125	300
Fruit juice	5	3	5	420	400	500
Sweets, toffees	5	3	5	10	5	15
Yogurt	5	3	5	140	100	200

Foods consumed by less than 5% of the total group of participants:

Beer; Cheese Spread; Chocolate; Chips; Chutney; Coffee; Cordials; Corned beef; Fish; Fish caserole; Mango; Milo; Mixed vegetables; Pawpaw; Pineapple; Polony; Stew; Vetkoek

Other food items:

Oil, margarine and hydrogenated plant fat are not listed as these food items often form part of recipes (eg, cabbage with oil), and were not always coded separately

* Excluding sugar used in recipes.

by: 1) biological disorders; 2) too much food; and 3) poor eating habits. No significant differences were observed among the three groups. Nearly all the participants (96%) agreed that over-

weight was caused by a biological disorder, 39% agreed that overweight was caused by poor eating habits, and only 9% agreed that eating too much food caused it. More than 80% of the partic-

ipants disagreed with the statement that fat people eat more than thin people.

The participants were asked to name reasons why some people are overweight. More than one reason could be given. No significant differences were observed among the three groups. Approximately 50% of participants named biological factors, and 25% associated overweight with a lack of financial problems. Only 26% associated overweight with dietary factors.

Feelings Toward Own Body Weight

The participants' perception of their own body weight is given in Table 5. For overweight and obese participants, 4% and 25%, respectively, were not satisfied with their weight, and 2% and 30%, respectively, perceived themselves as being too fat. Twenty-four percent of the obese participants indicated that they would like to lose weight. When asked what a person has to do to lose weight, 49% of all the participants said one should reduce the amount of food eaten, 21% said one should do more exercise, 23% said skip meals, and 7% did not know; no significant difference was seen among the three groups. Four participants previously tried to lose weight; two ate less food, one drank hot water at night, and one took slimming tablets.

Perceived Health Risks

Participants were asked whether they thought a relationship existed between people's health and the food they eat. Most of the participants did not recognize the association between food consumed and degenerative diseases. Significantly more participants of normal weight associated overweight/obesity with food intake, as compared to overweight and obese participants (Table 6).

Self-reported Health Status

The self-reported health status of the participants is given in Table 7. Obese participants reported a significantly

Table 4. Attitudes towards weight control

	% of Participants											
	Total Group (N=187)			Normal Weight (N=54)			Overweight (N=77)			Obese (N=56)		
	Agree	Not Sure	Dis-agree	Agree	Not Sure	Dis-agree	Agree	Not Sure	Dis-agree	Agree	Not Sure	Dis-agree
Overweight												
Fat people have more friends	5	31	63	4	35	61	9	41	50	2	14	84
Children don't like their mothers to be fat	15	9	76	26	4	70	10	12	78	11	11	78
Clothes of fat people do not fit well	89	0	10	94	0	6	92	0	8	82	0	18
Fat people cannot work hard	70	3	27	78	4	18	64	3	33	71	2	27
Fat people are people who eat too much	6	9	85	11	15	74	4	9	87	4	2	94
Men prefer fat women	5	33	62	1	35	64	1	35	64	5	25	70
Fat people feel more unhappy	37	12	50	43	11	46	37	16	47	32	9	39
Fat women are well cared-for by the husband	45	37	17	41	46	13	47	37	16	48	29	23
Thinness												
Thin people are sick people	7	7	86	13	11	76	3	4	93	7	5	88
Thin women get jobs easier	88	5	7	91	2	7	88	8	4	85	4	11
Thin people can wear more fashionable clothes	97	1	2	93	2	5	99	1	0	100	0	0
Thin people are beautiful	24	11	65	35	9	56	18	8	74	22	16	62
People who eat healthy foods, are thin	9	12	79	13	17	70	7	7	86	9	14	77
Methods of weight control												
To lose weight, you have to eat expensive food	3	18	79	4	22	74	1	20	79	4	12	84
When you eat less to lose weight, you feel hungry	8	73	19	11	76	13	4	85	11	11	54	35
If you want to lose weight, you can eat tasty foods	3	29	68	11	38	51	3	26	71	5	18	77
If one exercises daily, one feels healthy	85	11	4	92	7	1	85	12	3	79	14	7
When you eat less to lose weight, you always want to eat something tasty	5	37	58	4	54	42	4	34	62	7	25	68
It is difficult to lose weight	19	63	18	8	72	20	16	69	4	34	46	20
If one loses weight, one feels proud	78	22	0	78	22	0	79	21	0	77	23	0
I enjoy to walk fast a lot	88	7	5	92	4	4	91	8	1	80	9	11
If one loses weight, one looks unattractive with loose skin	81	9	10	82	11	7	87	8	5	73	9	18
Total attitude score												
0-36.66 (negative attitude toward weight control)		0			0			0			0	
36.67-73.33 (unsure)		64.3			58.8			67.7			65.4	
73.34-110 (positive attitude toward weight control)		35.7			41.2			32.3			34.6	

higher prevalence of high blood pressure and suffered more from back pain; they also tended to suffer more from sore bones and sore knees.

DISCUSSION

Black ethnicity is a risk factor for obesity in South Africa.¹⁷ Efforts to reduce overweight disparities between ethnic groups within a country should focus on environmental, contextual, bio-

logical, and sociocultural factors, among others.²⁶ Since weight-control initiatives should attempt to influence weight-related beliefs and behaviors, knowledge on a population's concern and attitude toward weight control is important to plan and implement effective initiatives. This study gives valuable insight into perceptions regarding body weight and attitudes toward weight control among Black South African women in a rural population with a high prevalence of female obesity. The results have practical

implications for future weight-control programs.

Most overweight/obese participants did not perceive themselves as being too fat. Similar findings were reported in the SADHS of 1998, which showed that 15% of Black women perceived themselves to be overweight, while in fact 57% were either overweight or obese.² Most overweight and obese participants were not concerned about their weight, and only 1% of overweight and 24% of obese participants said that they wanted

Table 5. Feeling towards and perception regarding their own body weight

	% of Participants			
	All N=187	Normal Weight N=54	Overweight N=77	Obese N=56
Feeling toward body weight*				
Satisfied	37	43	42	27
Indifferent	51	52	54	48
Not satisfied	11	5	4	25
Perceived body weight*				
Too thin	4	7	3	4
About right	86	93	95	66
Too fat	10	0	2	30
Would like to lose weight	8	0	1	24
Husband's feeling should she lose weight				
Would not like it	47	56	49	36
Happy	10	2	3	29
Nothing	10	9	19	2
Worried/think she is sick	10	11	6	15
Don't know	10	15	7	0
He has no say	6	2	10	4
Not applicable (not married)	6	7	5	7

* Difference among the three groups: $P < .05$.

to lose weight. In an earlier study on urban Black women, few obese respondents wanted to lose weight.¹⁵ The fact that Black women are more accepting of being overweight could make treating or preventing obesity difficult. Being unconcerned about their weight possibly puts them at risk for further weight gain and associated health consequences. Obesity is associated with hypertension^{27,28} in the Black South African population. Preventing hypertension is of prime importance for all South African ethnic groups; this step requires addressing the high prevalence of obesity, among other factors.

Obese participants reported a higher

prevalence of high blood pressure and back pain, and they tended to suffer more from sore bones and sore knees. Women can relate to these obesity-associated health issues. Although health status was self-reported, it showed that participants were aware of their health problems. The emphasis of weight control programs should be on the health benefits achieved through moderate weight loss. For example, discomfort caused by back pain could be a strong motivator for weight loss.

In view of the current HIV/AIDS epidemic in South Africa, thinness may be seen as a sign of being HIV positive. That most participants in this study did

not view thin people as sick is therefore encouraging. According to participants, men do not prefer fat wives, but their husbands would be unhappy should they lose weight. Weight loss, and not thinness, is probably associated with HIV/AIDS.

Weight loss was associated with financial problems. Over the years the Black South African population has associated obesity with wealth, prosperity, affluence, and happiness.^{14,16} In a recent paper, Puoane et al²⁹ mentioned that overweight and obesity in women in the Black population is thought to reflect on a husband's ability to care for his wife and family. The finding that 45% of the participants in our study agreed with the statement that fat women are well cared-for by their husbands (37% were unsure) is similar to that of an earlier study by Kruger and Van Aardt, which showed that 40% of obese women stated that fat women are well cared-for by their husbands (35% were unsure).³⁰

Few participants recognized the association between food consumed and degenerative diseases. Furthermore, only a few participants believed that obesity is caused by behavioral factors such as eating too much food or a lack of exercise. Factors that they had no control over were seen as the biggest cause of obesity. Therefore, Black rural women need to have a better understanding of the etiology of obesity, especially with regard to the effect of behavioral factors, since these can be changed.

The absolute value for energy intake was relatively low, probably because of under-reporting. Although under-reporting is prevalent over the entire spectrum of BMI,³¹ it seems to be higher in obese people^{32,33} and can therefore affect the relation between energy intake and obesity. Some studies suggest that a high energy intake is associated with indices of overweight and obesity,^{34,35} while other studies showed either a weak³⁶ or no^{37,38} correlation. In the present study, energy intake increased slightly with obe-

Table 6. Perceived relationship between disease and food that people eat

	% of Participants			
	All N=187	Normal Weight N=54	Overweight N=77	Obese N=56
Cancer	1	2	0	0
Diabetes	9	24	6	9
Heart disease	21	13	8	16
Overweight/obesity*	14	27 ^{a b}	9 ^a	9 ^b
High blood pressure	23	30	16	25

* Difference among the three groups: $P < .05$; row values with the same superscript differ significantly.

Table 7. Self-reported health status of normal-weight, overweight, and obese women in a rural village in South Africa

	% of Participants			
	All N=187	Normal Weight N=54	Overweight N=77	Obese N=56
High blood pressure*	18	7 ^a	16 ^b	30 ^{a b}
Diabetes	1	2	1	0
Sore bones	12	11	6	20
Sore back*	22	18 ^a	10 ^b	41 ^{a b}
Sore knees	15	13	14	20
Heart disease	2	2	1	2
Headache	52	52	51	54

* Difference among the three groups: $P < .05$; row values with the same superscript differ significantly.

sity, and total fat intake was relatively low. Although White South Africans tend to have less healthy dietary habits compared to Black South Africans, the prevalence of overweight and obesity is highest in the Black population.³⁹ The presence of fat in the diet is lowest among rural Blacks.⁴⁰ The intake of high fat foods in South African populations has been reported to be unrelated to overweight and obesity.¹⁷ However, increased availability of energy-dense foods was one of the factors of rural-urban transition given as an explanation for the increase in BMI in a disadvantaged South African community.⁴¹ In the present study, the type of foods consumed did not differ among the three groups. Fast foods, fried foods, and baked products were seldom or never consumed, and the promotion of such food items must be prevented.

We did not measure physical activity. An earlier study of South African women showed that physical inactivity was a stronger determinant of obesity than energy or fat intakes.³³ Information about the physical activity level of South African women is lacking, but available studies indicate that, except in women living and working on farms, the level of physical activity is generally low.^{12,42} As was reported for Black obese females attending an outpatient clinic,³⁰ most participants believed that daily exercise makes one feel healthy, which indicates a need for sport and exercise facilities in

Black communities in both urban and rural areas. Although not statistically significant, more participants of normal weight realized the health benefits of daily exercise, such as walking at a fast pace. The lack of recreational facilities or activities in rural areas (such as this village) limits the effect of the recommendation for increased physical activity for weight control.

The participants of normal weight were younger than both the overweight and obese participants. A similar trend was observed in a study on urban Black women, which showed that 12.9% of 15- to 24-year-olds and 30.6% of 25- to 34-year-olds had a BMI ≥ 30 .⁴³ Weight control must therefore be promoted at a young age, before children become overweight. Weight control should be promoted through educational programs in schools^{17,44} and at primary healthcare level¹⁵, according to recommendations. Rural women, however, do not have regular access to primary healthcare facilities.

Nutrition policies and programs should include strategies to prevent overnutrition and promote healthy lifestyles.⁴⁵ In this rural area though, most of the women appeared to be unconcerned about their weight, and most overweight and obese women did not want to lose weight. The acceptance of overweight and obesity in this rural community can hinder the effectiveness of weight-control programs because

Furthermore, only a few participants believed that obesity is caused by behavioral factors such as eating too much food or a lack of exercise.

obese women will have less incentives to control their weight. A special attempt should be made to target such programs to rural women who usually do not have access to primary healthcare and recreational facilities.

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