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Community Leaders' Knowledge and Perceptions About Obesity: Implications for Outreach Educators in Designing Interventions

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Abstract: The study reported here examined the knowledge and perceptions of community leaders on overweight and obesity in two racially different counties. Data were collected from 126 individuals, including clergy, physicians, grocery store managers, school administrators, nurses, nutritionists, and university faculty and staff. Statistically significant differences were observed when community leaders were grouped according to race. Additionally, over 90% of community leaders were knowledgeable about obesity. Leaders associated obesity with high blood pressure, diabetes, and heart disease. This article provides insights that can be useful for planning and implementing programs on obesity prevention and reduction.

Introduction

In 2008, obesity in Alabama, Mississippi, and Tennessee was 30% compared to the national average of 25.7% (CDC, 2008). The prevalence of overweight and obesity has increased for both genders and has crossed all ethnic and age groups. Studies have reported that overweight and obese adults are at an increasing risk for high blood pressure, high blood cholesterol, cardiovascular disease, diabetes, breast cancer, gall

bladder disease, depression, joint disease, and other related problems (Niswender, Clegg, Morrison, Morton & Benoit, 2004; Satcher, 2002). Weight reduction helps to reduce the risk and severity of most of the conditions that are associated with obesity, requiring as little as 5% to 10% weight loss (CDC, 2003).

Obesity has captured headlines among the various media and stimulated research as its prevalence and incidence have reached epidemic proportions. In 2007, obesity prevalence for adults in 30 states was 25%; three states had 30.0%, with only one state having a prevalence rate of less than 20 (CDC, 2007). The prevalence of overweight and obesity among adolescents has increased from 5% in 1996 to 17% in 2004 (Sheehy & Dharod, 2008). Lanigan and Power (2008) noted a high prevalence of overweight among 6-11 years old and reported that 75% of respondents view childhood obesity prevention as a high priority. The authors also reported that only 8% of parents take time to address the problem.

The combined health-related costs of obesity in the United States are estimated to exceed two hundred billion dollars per year, an indication of a significant medical and financial burden (Niswender, Clegg, Morrison, Morton & Benoit, 2004). The rate of obesity is higher in rural areas, due in part to poor nutrition, physical inactivity, and low educational level (Jackson, Doescher, Jerant, & Hart, 2005).

Efforts in the past in creating awareness of the problem of obesity involved the Surgeon General's call to individuals, families, communities, schools, worksites, healthcare agencies, media, industry, organizations, and government to determine their roles and actions to prevent and decrease overweight and obesity (Carmona, 2004). Several obesity reduction interventions have seen variable results (Wadden, Butryn, & Wilson, 2007; Hardeman, Griffin, Johnston, Kinmonth, & Wareham 2004; Jeffery & French, 1999; Forster, Jeffery, Schmidt & Kramer, 1999; Sherwood, Jeffery, French, Hannan, & Murray, 2000; Slentz, Duscha, Johnson, Ketchum, Aiken, et al., 2004).

Alabama has 17 Black Belt Counties, a contiguous set of counties that stretches from the Georgia state line in the East to the Mississippi state line in the West, with a population of approximately 600,000, or 13% of the 4.5 million in the state. These counties are characterized by socioeconomic decline, inadequate education, and high level of poverty, poor health, and underemployment (Wimberley & Morris, 1997). There are several factors that contribute to these statistics. Among them are poverty and the generally impoverished conditions in rural communities of Alabama. These and other factors demonstrate a compelling need for the reported here study to ascertain information on obesity as viewed by community leaders.

Community leaders play pivotal roles with their abilities to describe what the community people know and think about a subject (Allen, Kennedy, Glover, & Gilligan 2007). Yadrick and colleagues (2001) noted that an assessment using the key informants (community leaders) approach could build support for later interventions, indicate communities' readiness to change, and identify aids and barriers to change.

Therefore, the purpose of the study was to examine the knowledge and perceptions of community leaders/stakeholders on overweight and obesity in two racially different counties in order to acquire information that may be used in planning interventions. More specifically, the objective was to determine if differences exist in the perceptions of community leaders when grouped according to race and income levels.

Methods

Community leaders

Community leaders were identified using the "snowball technique"; initially identified individuals provided information for additional community leaders (Allen, Glover, & Gilligan, 2007). Surveys were mailed and in some cases hand delivered (hand delivery restricted to those on campus only in on-campus mail boxes) to

170 community leaders in two racially different contiguous counties. (Lee County, predominantly white (73.2%), has a median household income of \$41,770 (state \$42,586), with 15.5% of individuals living below the poverty level; 27.9% earned a bachelor's degree or higher and 81.4% high school graduates. Macon County is majority African American (81.8%), with a median income of \$27,314; 30.5% of individuals are living below the poverty level. Only 18% of individuals earned a bachelor's degree or higher, while 70% earned a high school diploma. The community leaders were physicians, grass root community leaders, grocery store managers, school administrators, nurses, dietician, the faculty and staff from the university, and members of the clergy.

Survey Instrument

A 32-question survey instrument was designed to elicit from community leaders their knowledge and perceptions regarding the prevalence of obesity and related issues. The instrument was reviewed by a panel of experts in nutrition and health at the university and community-based organization. It was pilot-tested and modified using a population of similar demographical characteristics, subsequent reliability analysis of the instrument yielded a Cronbach's coefficient alpha of 0.85.

The instrument consisted of three major sections: demographic information, knowledge, and perceptions. "Knowledge" was measured by using true and false (1=True, 2=False) statements about obesity. Likert-type four-point scales (1=strongly disagree; 2=disagree, 3=Agree, 4=Strongly) agree were used to quantify responses based on current knowledge, desire for more knowledge, and assessing community leaders' understanding of the relationship between obesity and disease. Perceptions highlighted questions that addressed the relationship of chronic diseases and other health problems with obesity. That section also examined the role government, schools, employers, and healthcare providers play in the prevention of obesity, if any. The data were collected in the summer of 2008. The completed questionnaires were coded and entered into SPSS 13.0 Windows Version. Frequencies and t- test were used to analyze the data.

Results

Demographics and General Knowledge

The study's objective was to examine the knowledge and perceptions of community leaders on overweight and obesity in two racially different communities in order to acquire information that may be used in planning interventions. Of those surveyed, 126 (74%) community leaders completed the survey (Table 1). The majority of respondents (71%) were females, with 27% males; 55% were white, and 41% were African Americans. Community leaders between 36-50 years of age represented the largest (50%) group of respondents. Also, 35% of community leaders had obtained a college/professional degree, the largest group represented, and 3% held only a high school diploma. Community leaders (54%) earned an annual income within the \$20-\$40,000, while 17% earned greater than \$71,000 annually. The majority of community leaders were faculty and staff (23%), followed by clergy (17%), nurses (14%), and school administrators (11%). Community grass root leaders (8%) and doctors (4%) were the smallest representative groups.

Table 1.
Demographic Characteristics of Community Leaders

| Variables | Number of Respondents |
|-----------|-----------------------|
| | |

| | |
|---|----------|
| Gender | |
| Male | 34 (27)* |
| Female | 90 (71) |
| Non-response | 2 (2) |
| Race | |
| White | 69 (55) |
| Black | 52 (41) |
| Non-Response | 4 (4) |
| Age Range | |
| 21-35 | 6 (5) |
| 36-50 | 63 (50) |
| 51-65 | 47 (37) |
| 65+ | 10 (8) |
| Education | |
| High School | 4 (3) |
| Some College/Vocational | 37 (29) |
| College/Professional | 44 (35) |
| Graduate degree | 41 (33) |
| Income | |
| \$20,000-\$40,000 | 68 (54) |
| \$41,000-\$70,000 | 37 (29) |
| \$70,000+ | 21 (17) |
| Note: n=126 | |
| *Numbers in parenthesis indicate percent (%). | |

Correct response to the general knowledge questions are displayed in Table 2. A correct response would indicate that community leaders responded that the statement was true, signifying 1 (all the selective statements were true). Community leaders exhibited very good knowledge on the general questions relating to obesity. The lowest correct responses to knowledge questions were those addressing exercise and body mass index (BMI), 89.7% and 82.5 %, respectively.

Table 2.
Percent Correct Responses to Selective General Knowledge Questions by Community Leaders

| Statements | Number of Respondents |
|---|------------------------------|
| Overweight and obesity are reaching epidemic proportions. | 123 (97.6)* |
| Overweight and obesity affect approximately 64% of adults in the United States. | 115 (91.3) |
| Overweight and obesity result from an imbalance of excessive calorie consumption. | 119 (94.4) |
| | 115 (93.3) |

| | |
|---|------------|
| The problem of obesity is a combination of genetic, metabolic, behavioral, environmental and socioeconomic factors. | |
| Adding moderate amount of exercise five or more times per week can lead to substantial weight loss. | 120 (95.2) |
| Understanding what we eat and why we eat is a major factor for implementing weight loss. | 118 (93.7) |
| Overeating and inadequate physical activity are the main causes of obesity. | 113 (89.7) |
| Knowing your body mass index (BMI) is important in predicting whether you are overweight or obese. | 104 (82.5) |
| Note: n=126 * Numbers in parenthesis indicate percent (%) | |

Almost 100% (Table 3) of community leaders reported that high blood pressure, diabetes, and heart disease are all associated with overweight and obesity. Approximately 21% saw no association between obesity and cancer, while 79.4% were equally divided on the level of risk associated with obesity and developing the disease.

Table 3.
 Knowledge on the Risk of Chronic Diseases Associated with Obesity

| Chronic Diseases | Number of Respondents |
|---|-----------------------|
| High Blood Pressure | 123 (97.6) |
| Diabetes | 121 (96.0) |
| Heart Disease | 123 (97.6) |
| Cancer | 50 (20.7) |
| Note = 126 Numbers in parenthesis indicate percent (%) | |

Perception

In response to the question, "In your, opinion, how much of a role has the following played in fighting the problem of obesity in the United States?," community leaders identified healthcare providers as those making the greatest impact on obesity reduction, when compared with government, employers, and schools (Table 4).

Table 4.
 Community Leaders' Perceived Roles of Selected Institutions in Fighting Obesity

| Institutions | Roles (%) | | |
|----------------------|-----------|-------|---------|
| | Major | Minor | No Role |
| Government | 23.8 | 66.7 | 9.5 |
| Employers | 38.9 | 44.4 | 16.7 |
| Schools | 42.9 | 51.6 | 5.6 |
| Healthcare providers | 54.0 | 40.5 | 5.6 |
| Note: n=126 | | | |

Independent t- test results on community leaders' self-evaluation on obesity knowledge are shown in Table 5. White community leaders "somewhat agree" that they would like to learn more about obesity ($M = 2.26$, $SD=.63$) and differed significantly ($p = 0.000$) from African Americans ($M = 1.81$, $SD = .52$). African-American leaders "somewhat agree" that they had an excellent knowledge ($M = 2.17$, $SD=0.61$) of obesity and overweight and differed ($p=0.03$) significantly from white ($M =1.91$, $SD = .68$). Community leaders (white) "strongly disagree" to "somewhat agree" to the statement "I know a lot about overweight and obesity but it's not a concern to me" and differed significantly from African-American leaders (Table 5). There was no difference ($p > 0.05$) in their agreement that they knew more than the average person about overweight and obesity.

Table 5.
Effect of Race on Self-Evaluation of Obesity Knowledge by Community Leaders¹

| Statements | African Americans | SD | White | SD | t | P* |
|---|-------------------|------|-------|------|-------|-------|
| I would like to learn more about obesity. | 1.81 | 0.52 | 2.26 | 0.63 | 4.18 | 0.00* |
| I know more than the average person about overweight and obesity. | 2.44 | 0.50 | 2.42 | 0.65 | -0.23 | 0.84 |
| I have an excellent knowledge of overweight and obesity. | 2.17 | 0.61 | 1.91 | 0.68 | -2.16 | 0.03* |
| I know a lot about obesity but it's not a concern to me. | 1.96 | 0.68 | 1.62 | 0.78 | -2.47 | 0.01* |
| Note: n=126 ¹ Responses were based on: 3- Strongly agree; 2= somewhat agree; 1= strongly disagree * $p < 0.05$ | | | | | | |

Race did not ($p > 0.05$) influence community leaders' perceptions of the need to support or oppose selective changes associated with obesity reduction (Table 6). However, they significantly differed ($p = 0.000$) in their perceptions on educating parents about childhood obesity. White leaders strongly support educating parents

in the reduction of obesity among children (M=3.97, SD=.16), compared to African Americans (M = 3.75, SD =.43).

Table 6.

The Effect of Race on Community Leaders' Perceptions of Supporting or Opposing Changes Associated with Obesity Reduction ¹

| Statements | African Americans | SD | White | SD | t | P* |
|--|-------------------|------|-------|------|-------|-------|
| Prohibit the sale of soda, chips, candy in school vending machines. | 3.05 | 0.66 | 3.14 | 0.77 | 0.65 | 0.51 |
| Limit television ads for unhealthy foods and drinks that are targeted at children. | 3.37 | 0.48 | 3.56 | 0.65 | -1.53 | 0.12 |
| Educate parent about childhood obesity and healthier eating habits for children. | 3.75 | 0.43 | 3.97 | 0.16 | 3.84 | 0.00* |
| More physical activity in schools | 3.80 | 0.39 | 3.91 | 0.28 | 1.70 | 0.09 |
| Provide healthier school lunches. | 3.77 | 0.42 | 3.88 | 0.32 | 1.69 | 0.09 |
| Note: n=126 ¹ Responses were based on 4= strongly support; 3=somewhat support; 2= somewhat oppose; 1= strongly oppose; *p < 0.05 | | | | | | |

Respondents in the lower income levels (Table 7) "strongly disagree" to "somewhat agree" with the statement "I would like to learn more about obesity," compared to those in the higher income levels (p = 0.00). Income did not have an effect on their self-evaluation of the statements "knowing more than the average person" or "having an excellent knowledge on obesity" (p > .05). However, those in the lower income levels were more likely to express that they knew "a lot about obesity but it's not a concern" (p < 0.003).

Table 7.

Effect of Income on Self-Evaluation of Obesity Knowledge by Community Leaders¹

| Statements | Income I \$20,000 -\$40,000 | SD | Income II \$41,000 - > \$70,000 | SD | t | P* |
|---|-----------------------------------|------|---------------------------------------|------|-------|-------|
| I would like to learn more about obesity. | 1.94 | 0.59 | 2.43 | 0.60 | -4.02 | 0.00* |

| | | | | | | |
|---|------|------|------|------|-------|--------|
| I know more than the average person about overweight and obesity. | 2.42 | 0.55 | 2.40 | 0.68 | 0.17 | 0.87 |
| I have an excellent knowledge of overweight and obesity. | 2.00 | 0.64 | 2.05 | 0.66 | -0.40 | 0.68 |
| I know a lot about overweight and obesity but it's not a concern to me. | 1.92 | 0.75 | 1.45 | 0.73 | 3.05 | 0.003* |
| ¹ Responses were based on: 3- Strongly agree; 2= somewhat agree; 1= strongly disagree *p≤ 0.05 | | | | | | |

When the effect of income (Table 8) to support changes associated with fighting obesity was evaluated, those in the higher income (\$41,000->70,000) levels were more likely to support (M = 3.40, SD = .68) "prohibiting sale of snack foods in school vending machine" than those in the lower income range (M=2.97, SD = .66). A similar trend (p = 0.01) was observed in support of educating parents about childhood obesity (M =4.00, SD .00), compared to the lower income group (M = 3.85, SD = .38).

Table 8.

The Effect of Income on Community Leaders' Perceptions of Supporting or Opposing Changes Associated with Obesity Reduction ¹

| Statements | Income I \$20,000 -\$40,000 | SD | Income II \$41,000 -- > \$70,000 | SD | t | P* |
|--|-----------------------------------|------|--|------|-------|--------|
| Prohibit the sale of soda, chips, candy in school vending machines. | 2.97 | 0.66 | 3.40 | 0.68 | -3.15 | 0.002* |
| Limit television ads for unhealthy foods and drinks that are targeted at children. | 3.74 | 0.54 | 3.54 | 0.69 | 1.47 | 0.14 |
| Educate parent about childhood obesity and healthier eating habits for children. | 3.85 | 0.35 | 4.00 | 0.00 | 2.50 | 0.01* |
| More physical activity in schools | 3.82 | 0.38 | 3.91 | 0.27 | 1.33 | 0.18 |
| Provide healthier school lunches. | 3.82 | 0.38 | 3.89 | 0.31 | -0.98 | 0.35 |

Note: n=126

¹Responses were based on 4= strongly support; 3=somewhat support; 2= somewhat oppose; 1= strongly oppose; *p < 0.05

African Americans saw employers as possibly major players (M=2.44, SD = .63) in the fight against obesity (p < 0.004) compared to white community leaders, who saw employers playing a minor role (M = 2.07, SD = .73). Differences (p < 0.01) were also observed along racial lines for the role of schools in the reduction of obesity (Table 9).

Table 9.

The Effect of Race on Community Leaders' Perceptions on the Role of Selected Institutions in Fighting Obesity¹ (n=126)

| Institutions | African Americans | SD | White | SD | t | P* |
|--------------|-------------------|------|-------|------|-------|--------|
| Government | 2.21 | 0.42 | 2.13 | 0.63 | -0.79 | 0.43 |
| Employers | 2.44 | 0.63 | 2.07 | 0.73 | -2.89 | 0.004* |
| Schools | 2.53 | 0.54 | 2.26 | 0.61 | -2.60 | 0.01* |
| Healthcare | 2.50 | 0.58 | 2.53 | 0.63 | 0.32 | 0.74 |

¹ Perceptions were based on 3=Major role; 2= Minor role. 1=no role at all
* p < 0.05

Evaluation of community leaders' perceptions of the relative significance of selective diseases (Table 10) revealed that there were no differences between African Americans and white leaders in their perceptions of the significance of diabetes, childhood obesity, adult obesity, cancer, and allergies (p > 0.05). However, they had different perception on the relative significance of heart disease, high blood pressure, iron deficiency anemia, and common cold (p < 0.05).

Table 10.

The Perceptions of Community Leaders on the Relative Significance of Selected Diseases by Race¹

| Diseases/Health Problems | African Americans | SD | White | SD | t | P* |
|--------------------------|-------------------|------|-------|------|-------|-------|
| Diabetes | 3.85 | 0.36 | 3.91 | 0.28 | 1.13 | 0.26 |
| Childhood obesity | 3.86 | 0.34 | 3.76 | 0.26 | -1.17 | 0.24 |
| Adult obesity | 3.92 | 0.27 | 3.78 | 0.51 | -1.80 | 0.07 |
| Heart disease | 3.80 | 0.39 | 3.94 | 0.23 | 2.31 | 0.02* |
| Cancer | 3.73 | 0.52 | 3.88 | 0.47 | 1.68 | 0.09 |
| High blood pressure | 3.90 | 0.29 | 3.85 | 0.39 | -0.75 | 0.04* |

| | | | | | | |
|--|------|------|------|------|-------|--------|
| HIV/AIDS | 3.01 | 0.57 | 3.52 | 0.72 | 4.13 | 0.00* |
| Common cold | 3.13 | 0.44 | 2.73 | 0.87 | -2.99 | 0.003* |
| Allergies | 2.80 | 0.52 | 2.86 | 0.74 | 0.51 | 0.61 |
| Tuberculosis | 2.32 | 0.55 | 2.89 | 0.84 | 4.25 | 0.00* |
| Iron deficiency anemia | 3.69 | 0.67 | 3.34 | 0.74 | -2.62 | 0.01* |
| Note: n=126 ¹ Perception levels were based on 4= One of the most significant; 3=Major but not significant; 2=Minor problem; 1=Not a significant problem; *p < 0.05 | | | | | | |

Discussion

Many of the community leaders perceived obesity as a major health problem that is associated with heart disease, high blood pressure, and diabetes. The correct responses to the majority of general knowledge questions indicated that leaders from the various sectors and across races are knowledgeable about overweight and obesity. High blood pressure, diabetes, heart disease, and certain types of cancer are directly linked to obesity (Stevens & Truesdale 2003; Garrison, 1998; Stern M, 1995). Noting this agreement among community leaders and the evidence that heart disease is the number one killer of Americans, the data strongly suggest the need for greater collaborative efforts among community leaders and health professionals to bring about changes that will lead to decreasing the rates of overweight and obesity, thus reducing chronic diseases.

Overweight and obesity occur at higher rates among African Americans (CDC, 2003; Polley, Spicer, Knight, & Hartley, 2005). It is of interest to note the difference between African-American and white leaders in their response to questions addressing knowledge of obesity. African-American leaders perceived that they "knew a lot about obesity" but that it was not of concern. As leaders in the community, African Americans were not concerned about obesity; however, when compared to whites, African Americans were more likely to have high blood pressure and diabetes, and be overweight or obese, and were less likely to engage in physical activity (Harrell & Gore, 1998).

Also of significance, African American leaders were less supportive of educating parents about childhood obesity compared to white leaders. This is of concern given that obesity has become a public health crisis in the United States, not only among adults, but also among children and adolescents (Department of Health and Human Services, Centers for Disease Prevention National Center for Health Statistics, National Health and Nutrition Exam Survey, 2003; Youfa & Tussing, 2004; Ogden, Carroll, Curtin, McDowell, Tabak, & Flegal, 2006). These differences among community leaders provide the basis to develop culturally sensitive strategies that are effective in disease prevention in the promotion of health and wellbeing.

Implication and Conclusion

The study reported here reveals the degree of knowledge and the range of perceptions regarding obesity and other health problems from community leaders. It also sets the stage for future collaboration and partnerships with community leaders and with professionals in healthcare and related fields. Yadrick (2001) noted that assessment using the key informants (community leaders) approach could build support for later interventions, ascertain communities' readiness for change, and identify aids and barriers to change. These results provided information that can be used to influence the planning, development, and implementation of

programs for obesity prevention and reduction.

Therefore, in attempting to reduce obesity prevalence, issues specific to rural populations and African Americans residing in the Black Belt counties are crucial. Efforts at all levels (industry, government, community, institutions, and organizations) are needed to provide individuals with holistic approaches to reduce and prevent obesity.

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