



Knowledge and Behaviors Related To Colorectal Cancer Prevention Among Non-Hispanic Black Women in Rhode Island

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Colorectal cancer (CRC) is the fourth most commonly diagnosed cancer and the second leading cause of cancer death in both the US and Rhode Island (RI). Despite higher than national CRC screening rates, RI's age-adjusted CRC incidence and mortality rates remain significantly higher than the national average.¹ The reason for this discrepancy is not known.

Overweight and obesity are established risk factors for CRC.² An energy-dense, high fat diet and physical inactivity are independent risk factors of weight gain and obesity,³ as is lower **socioeconomic status (SES)**.⁴ Low SES populations have worse survival from CRC than those of higher SES.⁵

African American or **non-Hispanic Black (NHB)** adults are disproportionately affected by both obesity and CRC, and body weight is negatively associated with CRC screening among NHB women but not NHB men.⁶ In addition, obesity in adulthood may increase the risk of colorectal adenomas, precursor lesions to CRC, and is a leading cause of CRC incidence and mortality in NHB women.⁷

The purpose of this study is to evaluate the knowledge and behaviors of NHB women in RI, a population at high risk for both obesity and CRC.

METHODS

This study evaluated knowledge and behaviors related to obesity and CRC among NHB women, 40 years of age and older, as this population has the greatest prevalence of obesity in the US,⁸ and a greater CRC mortality rate than both Black males and White females in RI.¹ An anonymous, self-administered survey based on questions from the BRFSS and the National Institutes of Health-funded *Sisters Together* Program was presented to State and community cancer control partners, staff from the Minority Health Promotion Centers funded by the RI Department of Health's Office of Minority Health, and a focus group of six women in the target population for feedback. The revised survey was distributed to subjects through four Minority Health Promotion Centers, the American Cancer Society, and the RI Cancer Council, Inc. The survey includes 20 questions on demographics, access to health care; knowledge of risk factors for obesity; knowledge of CRC; health practices related to CRC screening, exercise and diet; and perception of **Body Mass Index (BMI)** and body weight. Survey data were analyzed using a Scanatron database created in Microsoft Access 2003 by Pfizer, Inc.

The Institutional Review Boards at the University of RI and the RI Department of Health approved the study. Informed consent was obtained prior to participation. Upon completion of the survey, subjects received educational materials on nutrition, physical activity and CRC prevention provided by the Centers for Disease Control and Prevention (CDC).

RESULTS

A total of 167 participants completed the survey; 160 were usable. (Tables 1 and 2)

Seventy seven percent of the participants were 50 years of age and older. Sixty one percent reported having less than or equal to a high school diploma or GED; 75% reported an annual household income of less than \$35,000.

More than half of the participants had health care coverage including *private* plans, Medicare, Medicaid, or *Rite Care*, RI's Medical Assistance managed care program. While 63% of the participants obtained health care information from their doctor, 76% also obtained information from other health care providers, family and friends, and community-based organizations.

Table 1. Knowledge of risk factors: results of a 2005 Rhode Island survey on colorectal cancer prevention among non-Hispanic Black women (n = 160)

In your opinion, which things listed below INCREASE someone's risk of getting colorectal cancer?

(Check all that apply)

Response	Frequency	%
Being overweight	56	35.0
Eating a high fat diet	46	28.8
Eating a high fiber diet	7	4.4
Eating a lot of fruits and vegetables	5	3.1
Taking a vitamin every day	7	4.4
Not being physically active	36	22.5
Smoking cigarettes	42	26.3
Drinking alcohol	53	33.1
Having a blood relative with colorectal cancer	98	61.3
Having polyps in the large intestine or colon	106	66.3
Being over the age of 50	57	35.6
Taking an aspirin every day	7	4.4
Taking estrogen or female hormones after menopause	17	10.6

In your opinion, which things listed below DECREASE someone's risk of getting colorectal cancer?

(Check all that apply)

Response	Frequency	%
Being overweight	13	8.1
Eating a high fat diet	20	12.5
Eating a high fiber diet	77	48.1
Eating a lot of fruits and vegetables	101	63.1
Taking a vitamin every day	86	53.8
Not being physically active	15	9.4
Smoking cigarettes	8	5.0
Drinking alcohol	7	4.4
Having a blood relative with colorectal cancer	6	3.8
Having polyps in the large intestine or colon	10	6.3
Being over the age of 50	11	6.9
Taking an aspirin every day	46	28.8
Taking estrogen or female hormones after menopause	13	8.1

Table 2. Nutrition and physical activity behaviors and body weight perception: results of a 2005 Rhode Island survey on colorectal cancer prevention among non-Hispanic Black women (n = 160)

How often do you walk or exercise?

Response	Frequency	% ¹
Not at all right now	59	37.3
Once or twice a week	38	24.1
Three or four times a week	35	22.2
Every day	26	16.5

How often do you eat fruits and vegetables?

Response	Frequency	% ²
Some about once or twice a week	66	42.3
A serving every day	46	29.5
Two or three servings every day	33	21.2
Five servings a day	11	7.1

How do you consider your current weight?

Response	Frequency	% ³
Underweight	7	4.5
About right	59	37.6
Overweight	77	49.0
Don't know / Not sure	14	8.9

1 n = based on 158 responses

2 n = based on 156 responses

3 n = based on 157 responses

Although most participants had heard of CRC, 38% did not believe, did not know/were not sure if CRC could be prevented. Forty two percent of participants reported never being screened or did not know/were not sure if they were ever screened for CRC. The most commonly reported screenings were **fecal occult blood testing (FOBT)** and colonoscopy. The most commonly to least commonly reported barriers to screening were lack of health insurance, lack of physician referral for screening, cost of screening, and fear of testing.

From a list of 13 risk factors for CRC, participants were asked to identify those which increase and decrease risk. Twenty three to 66% of respondents correctly identified the following as increasing risk: having polyps in the large intestine, having a blood relative with CRC, being over age 50, being overweight, drinking alcohol, eating a high fat diet, smoking cigarettes, and not being physically active. For example, 66% of the respondents knew that having polyps in the large intestine would increase risk; 23% of the respondents knew that not being physically active would increase risk. Likewise, 8 to 63% of respondents identified factors that would decrease risk: eating a lot of fruits and vegetables, taking a vitamin every day, eating a high fiber diet, taking an aspirin every day, and taking estrogen after menopause.

A total of 141 of 160 participants reported their height and weight. Their average BMI (mean $\pm$ S.D.) was 28.4 ± 6.8 kg/m². Ninety two of the 141 respondents were overweight or obese (BMI of 25 kg/m² or greater). Of these 92, the average BMI was 31.6 ± 6.2 kg/m². Of the 65% percent of overweight or obese respondents, only 49% perceived themselves to be overweight. One-third of the respondents were obese, but did not perceive themselves as overweight. Participants were relatively inactive and had a low intake of fruits and vegetables.

DISCUSSION

Compared with Whites, Blacks are diagnosed with CRC at a younger mean age, and have a lower CRC survival rate than Whites.⁹ To date, no established biological explanations account for these differences.¹⁰

This survey was designed to gather qualitative information on the knowledge and behaviors of NHB women in RI. Seventy six percent of the participants obtained health care information from sources other than their doctor. Other studies show that nurse practitioners, as well as faith-based organizations, provide health care information to the NHB or African American population.¹¹ Social support may be among the most critical factors affecting weight management behaviors among NHB women,¹² and trust and strong patient-provider relationships are associated with use of preventive services in this population.¹³

The early removal of polyps can prevent CRC. The US Preventive Services Task Force recommends initiating screening at 50 years of age for men and women at average risk for CRC. Due to the high incidence and younger age at presentation of CRC in African Americans, new recommendations by the American College of Gastroenterology call for CRC screening at the age of 45 years rather than 50 years.¹⁰ Findings confirming the predominance of proximal or right-sided adenomas in asymptomatic average-risk NHBs suggest the use of colonoscopy for CRC screening in this population.¹⁴ In this study, only 38% of the participants reported having a colonoscopy.

Although physician recommendations are strongly associated with CRC screening,¹⁵ 40% of the participants reported that no physician referred them. The participants cited other barriers: lack of health insurance, cost of screening, and fear of testing. Coverage for screening colonoscopy is incomplete even among the insured, and access to colonoscopy is even less for uninsured persons.¹⁶ Safety net clinics do not typically provide colonoscopies for people without symptoms and without insurance. Uninsured people with symptoms (e.g., positive FOBT results and/or GI bleeding) may be placed on waiting lists at hospital-based endoscopy suites for as long as 6 months to a year or more. In RI, NHB adults are twice as likely to be uninsured as non-Hispanic White (NHW) adults.¹⁷

Participants were asked to identify factors that would increase, as well as decrease, the risk of getting CRC. Findings identified discrepancies between knowledge and behavior. Although 63% of respondents knew that eating a lot of fruits and vegetables would decrease the risk of CRC, only 7% reported eating five servings of fruits and vegetables a day. Many NHB communities suffer from inadequate nutrition.¹⁸ Twenty three percent of respondents knew that not being physically active increased the risk of CRC, yet only 17% reported walking or exercising daily.

Sixty five percent of the respondents were overweight or obese by reported height and weight, but only 49% perceived themselves to be overweight. Although 35% of the respondents knew that being overweight is a risk factor for CRC, 33% of overweight or obese participants did not perceive themselves as overweight. In a study of perceived and physiological measures of health in 190 NHB and NHW sedentary women, the

Black women were heavier, more obese, less fit, and consumed a greater percent fat than the White women. However, the Black women perceived their weight, physical shape and appearance, physical fitness, and eating habits to be no worse than those of their White counterparts.¹⁹

Disparities in obesity prevalence and CRC incidence and mortality rates among NHB women may be accounted for by differences in, and interactions between, lifestyle behaviors, cultural or social norms, socioeconomic factors, access to health care and safety-net primary care services, environmental factors, as well as genetic and molecular factors.²⁰ The survey participants were low income women; 61% had less than or equal to a high school diploma or GED. SES accounts for approximately one third of the excess risk of death from CRC among NHBs.²¹

There is limited evidence-based literature on effective, comprehensive, and culturally appropriate interventions among NHB women. Key findings from this study of NHB women in RI include 1) physician recommendations for CRC screening among this population need to be increased; 2) other health care providers (*e.g.*, nurse practitioners), family, friends, and community- and faith-based organizations are important channels for health care information; 3) the cost of CRC screening among the un/underinsured, and access to colonoscopy are system barriers; 4) discrepancies exist between knowledge and behavior related to CRC; and 5) discrepancies exist between actual weight and self perception of body weight. These findings must be considered in the design of obesity and CRC prevention interventions among the NHB female population in RI.

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REFERENCES

1. RI Cancer Statistics Review 2002. A publication of the RI Cancer Registry, RI Department of Health, in collaboration with the Hospital Association of RI. Prepared by Leanne Chiaverini, B.S., John P. Fulton, Ph.D., Dorothy M. Darcy, A.S., CTR.
2. Calle EE, Rodriguez C, et al. *NEJM* 2003;348:1625-38.
3. Astrup A. *Public Health Nutr* 2001;4(2B):499-515.
4. Rosengren A, Lissner L. *Front Horm Res* 2008;36:260-70.
5. Ward E, Jemal A, et al. *CA Cancer J Clin* 2004;54:78-93.
6. James AS, Leone L, et al. *Ethn Dis* 2008;18:157-62.
7. Wise LA, Rosenberg L, et al. *Obesity* (Silver Spring) 2008;16:859-68.
8. Flegal KM, Carroll MD, et al. *JAMA* 2002;288:1723-7.
9. Rex DK, Rawl SM, et al. *Rev Gastroenterol Disord* 2004;4:60-5.
10. Agrawal S, Bhupinderjit A, et al. *Am J Gastroenterol* 2005;100:515-23.
11. Frank D, Swedmark J, Grubbs L. *ABNF J* 2004;15:67-70.
12. Wolfe WA. *Ethn Dis* 2004;14:212-8.
13. O'Malley AS, Sheppard VB, et al. *Prev Med* 2004;38:777-85.
14. Rex DK, Khan AM, et al. *Gastrointest Endosc* 2000;51:524-7.
15. Taylor V, Lessler D, et al. *J Natl Med Assoc* 2003;95:806-12.
16. O'Malley AS, Beaton E, et al. *Prev Med* 2004;39:56-63.
17. RI Department of Health, Office of Minority Health. Office of Minority Health profile: <http://www.health.ri.gov/chic/minority/profile.php>
18. Dreeben O. *J Health Soc Policy* 2001;14:1-17.
19. Duncan GE, Anton SD, et al. *Prev Med* 2003;36:624-8.
20. Montague MC, Broadnax PA. *J Natl Black Nurses Assoc* 2004;15:24-31.
21. Marcella S, Miller JE. *J Clin Epidemiol* 2001;54:359-66.

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Disclosure of Financial Interests

The authors have no financial interests to disclose.

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