



# DOES HEALTH-RELATED QUALITY OF LIFE PREDICT PHYSICAL ACTIVITY AMONG AFRICAN AMERICAN BREAST CANCER SURVIVORS?

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## ABSTRACT

**Objectives:** To determine correlations between physical activity (150 min/week recommendation) and post-treatment outcomes (physical functioning, fatigue, pain) and investigate the impact of treatment exposure (chemotherapy, radiation, surgery) on health-related quality of life (HR-QoL) and physical activity.

**Methods:** 240 African American breast cancer survivors completed a 45-minute lifestyle assessment capturing physical activity (150 min/week recommendation) and HR-QoL using the PROMIS Global Health Scale.

**Results:** Female breast cancer survivors ages  $\geq 18$  years were identified: 58% were aged  $\geq 55$  years; 42% were married; 46% had college or graduate school education; 42% presented with stage I cancer at diagnosis; 51% earned an annual income between \$25,000-\$49,999; and 57% reported meeting the physical activity recommendation of 150 minutes/week [p=0.0042]. Of survivors with college or graduate school education, 65% presented with stage I cancer, and 62% met the recommended weekly physical activity requirement [p=0.0003 and p=0.0288]. Fewer survivors who had chemotherapy (49%) engaged in physical activity relative to those who had none (60%) [p=0.0868], but more of those who had radiotherapy (52%) and surgery (55%) met the required physical activity level [p=0.5622 and p=0.3942]. Most survivors (56%) who participated in physical activity did not report breast cancer recurrence [p=0.4383]. Pain and fatigue did not have a significant impact on physical activity. 88% of survivors who had radiotherapy reported having excellent to good physical health [p=0.0080].

**Conclusions:** Education, income, and stage at diagnosis were significant determinants of physical activity; and survivors reporting radiotherapy had excellent-good physical health, relative to those reporting chemotherapy or surgery. More effort is needed to develop strategies to enhance physical activity among breast cancer survivors.

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## INTRODUCTION

Advances in Medicine and Public Health have led to cures and better treatments of chronic diseases and to delayed mortality, making it logical that the assessment of population health and health outcomes should include improving the quality of lives. HR-QoL is a multidimensional concept that usually includes self-reported measures of physical and mental health. The Patient Reported Outcomes Measurement Information System (PROMIS) is a system of reliable, precise measures of patient-reported health status for physical, mental, and social well-being. PROMIS tools, by asking questions, measure what patients are able to do and how they feel. The measures can be used as primary or secondary endpoints in clinical studies of the effectiveness of treatments and can be utilized for a variety of chronic diseases and conditions and in the general population.

Physical activity provides benefits for breast cancer survivors. Regular exercise ameliorates some of the side effects of breast cancer treatments and improves HR-QoL. It also protects against weight gain; positively affects cardiorespiratory fitness; reduces fatigue, anxiety, and depression. The relationships between recommended levels of physical activity and HR-QoL have not been adequately described, especially among African American breast cancer survivors.

The objective of this study was to determine associations between recommended levels of physical activity, HR-QoL, and treatment exposure among African American breast cancer survivors.

## METHODS

African-American women (240) were recruited from SISTA AH Talk, a breast cancer support group in Miami, Florida. Participants received information on the study and consented to participation. A Lifestyle Assessment Tool (LAT) capturing physical activity (150 min/week moderate to intense activity) and HR-QoL using the PROMIS Global 10-item Health Scale of HR-QoL domains, including physical and mental health, was administered to study participants.

## METHODS

**Measures**—Self-reported sociodemographic variables (age, income, education and marital status); breast cancer history (stage at diagnosis, type of treatment received, and cancer recurrence); HR-QoL/physical functioning (coded as good/very good/excellent) or poor (fair/poor); and level of physical activity.

**Statistical Analysis**—SAS version 9.2 was used to analyze all data. Chi-square analysis or Fisher's Exact tests were performed to examine differences between survivors who engaged in physical activity and those who did not, according to sociodemographic variables, breast cancer history, and HR-QoL.

## RESULTS

**Table 1: Demographics by physical activity status**

Variable	Engaged in Physical Activity	Did not engage in physical activity	Total	P-value
<b>Age (Years)</b>			N= 234	0.1030
18-34	2 (22.2)	7 (77.8)	9 (3.9)	
35-54	53 (58.9)	37 (41.1)	90 (38.4)	
55+	72 (53.3)	63 (46.7)	135 (57.7)	
<b>Income</b>			N= 233	<b>0.0042</b>
\$0-\$24,000	27 (39.7)	41 (60.3)	68 (29.2)	
\$25,000-\$49,999	67 (56.8)	51 (43.2)	118 (50.6)	
\$50,000+	33 (70.2)	14 (29.8)	47 (20.2)	
<b>Education</b>			N= 236	<b>0.0003</b>
Less than high school	0 (0.0)	7 (100.0)	7 (3.0)	
High school graduate	14 (35.0)	26 (65.0)	40 (17.0)	
Some college	44 (54.3)	37 (45.7)	81 (34.3)	
Graduate school	70 (64.8)	38 (35.2)	108 (45.7)	
<b>Marital status</b>			N= 233	0.1738
Single	23 (44.2)	29 (55.8)	52 (22.3)	
Married	59 (60.2)	39 (39.8)	98 (42.1)	
Widowed or divorced	45 (54.2)	38 (45.8)	83 (35.6)	

P-values < 0.05 are significant

**Table 3: Impact of treatment on HRQoL**

Type of Treatment	Health Related Quality of Life - Physical Health			p-value
	Good/Very Good/ Excellent	Poor/Fair	Total N=235	
<b>Surgery</b>				0.9164
Yes	167 (83.1)	34 (16.9)	201 (85.5)	
No	28 (82.4)	6 (17.6)	34 (14.5)	
<b>Radiation</b>				<b>0.0080</b>
Yes	131 (87.9)	18 (12.1)	149 (63.4)	
No	64 (74.4)	22 (25.6)	86 (36.6)	
<b>Chemotherapy</b>				0.8231
Yes	111 (83.5)	22 (16.5)	133 (56.6)	
No	84 (82.4)	18 (17.6)	102 (43.4)	

P-values < 0.05 are significant

## RESULTS

**Table 2: Medical characteristics and physical health by physical activity status**

Variable	Engaged in physical activity	Did not engage in physical activity	Total	P-value
<b>Stage at Diagnosis</b>			N=231	<b>0.0288</b>
I	60 (61.9)	37 (38.1)	97 (42.0)	
II	35 (54.7)	29 (45.3)	64 (27.7)	
IIIA	17 (56.7)	13 (43.3)	30 (13.0)	
IIIB	1 (10.0)	9 (90.0)	10 (4.3)	
IV	2 (40.0)	3 (60.0)	5 (2.2)	
Don't know / refused	10 (21.7)	15 (78.3)	25 (10.8)	
<b>Treatment</b>				
<b>Surgery</b>			N=240	0.3942
Yes	112 (54.9)	92 (45.1)	204 (85.0)	
No	17 (47.2)	19 (52.8)	36 (15.0)	
<b>Radiation</b>			N=240	0.5622
Yes	79 (52.3)	72 (47.7)	151 (62.9)	
No	50 (56.2)	39 (43.8)	89 (37.1)	
<b>Chemotherapy</b>			N=240	0.0868
Yes	66 (48.9)	69 (51.1)	135 (56.3)	
No	63 (60.0)	42 (40.0)	105 (43.7)	
<b>Recurrence</b>			N=236	0.4383
Yes	25 (48.1)	102 (56.4)	52 (22.0)	
No	27 (51.9)	79 (43.7)	181 (76.7)	
Don't know	1 (33.3)	2 (66.7)	3 (1.3)	
<b>HRQoL</b>				
<b>Physical Health</b>			N=235	0.6146
Good/Very good/Excellent	106 (54.4)	89 (45.6)	195 (83.0)	
Poor/Fair	20 (50.0)	20 (50.0)	40 (17.0)	
<b>Fatigue</b>			N=235	0.1208
Not at all/A little bit / Somewhat	113 (57.1)	85 (42.9)	198 (84.3)	
Quite a bit/ Very much	16 (43.2)	21 (56.8)	37 (15.7)	
<b>Pain</b>			N=232	0.3354
0 (no pain)-Level 5	61 (50.8)	59 (49.2)	120 (51.7)	
6-10 (worst imaginable pain)	64 (57.1)	48 (42.9)	112 (48.3)	

P-values < 0.05 are significant

## DISCUSSION/CONCLUSIONS

- 240 African American female breast cancer survivors, 18 years and older, participated.
- 58% were aged  $\geq 55$  years, 42% were married, 46% had college or graduate school education, and 42% presented with stage I cancer at diagnosis, 51% earned an annual income between \$25,000-\$49,999.
- Of those who reported having radiotherapy, 88% had excellent to good physical health [p=0.0080].
- 57% of survivors reported meeting the recommended 150 minutes/week of moderate to intense physical activity [p=0.0042].
- Level of education and stage of cancer at diagnosis were significant determinants of engaging in physical activity [p=0.0003 and p=0.0288, respectively].
- Pain, fatigue, and physical health were not statistically significant factors in predicting physical activity.
- A large proportion of African American breast cancer survivors are not achieving the recommended level of physical activity.
- More effort is needed to develop strategies to enhance physical activity among breast cancer survivors.