

Association of social support and religiosity with survival among breast cancer patients in a low-income population in the southeastern United States



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Background

- Breast cancer (BC) is one of the leading cancer deaths among women across the globe.
- Black and low-income women have increased mortality after BC diagnosis
- While survival of women with BC is mainly dependent on clinical factors (cancer stage, ER status), psychosocial characteristics plays an important role.
- Socially isolated women have a lower survival rate after BC diagnosis compared to those with large social networks
- We evaluated the associations of psychosocial variables (social support and religiosity) with BC survival in a low socio-economic status setting.

Study Population

- Southern Community Cohort Study (SCCS): a cohort study of predominant low income enrolled during 2002-2009 from in 12 states in southeastern of United States.
- The SCCS enrolled approximately 85,000 participants, 2/3 of whom reported their race as Black or African-American, predominantly from underserved population and 60% (50484/84797) were women.
- 1,347 BC cases occurred during over 16 years of follow-up were included in the analysis.

Exposure and Outcome Assessment

- In-person interview (86%) and mailed survey(14%) were conducted at baseline
- Social support was measured by asking questions on number of people who help in emotional and instrumental support
- Other information collected included: race, smoking status, alcohol intake, age, education, marital status and clinical factors.
- Mortality information was obtained via linkage with the National Death Index (NDI).

Statistical Analysis

Outcome variable was time to mortality/end of study (in months) from diagnosis.

Chi-squared used to assess association between death and other variables

Used Kaplan Meier curves to compare survival of the two groups with different social supportive people.

Cox proportional hazards in determining association between exposure and survival adjusting for other covariates.

The Cox proportional hazards assumption was assessed using Schoenfeld residuals

RESULTS

- Out of the total of 1,347 BC cases included in the study, 2/3 were black (69.2%), and remaining were white (30.2%).
- 365 (27.1%) died and 982 (72.9%) were alive by the time data was analyzed.
- Age, education, income, cancer stage, surgery, radiation therapy, ER status, PR status, hypertension, diabetes, spirituality, marital status were associated with all cause mortality.

Survival Rate by Social Support Status

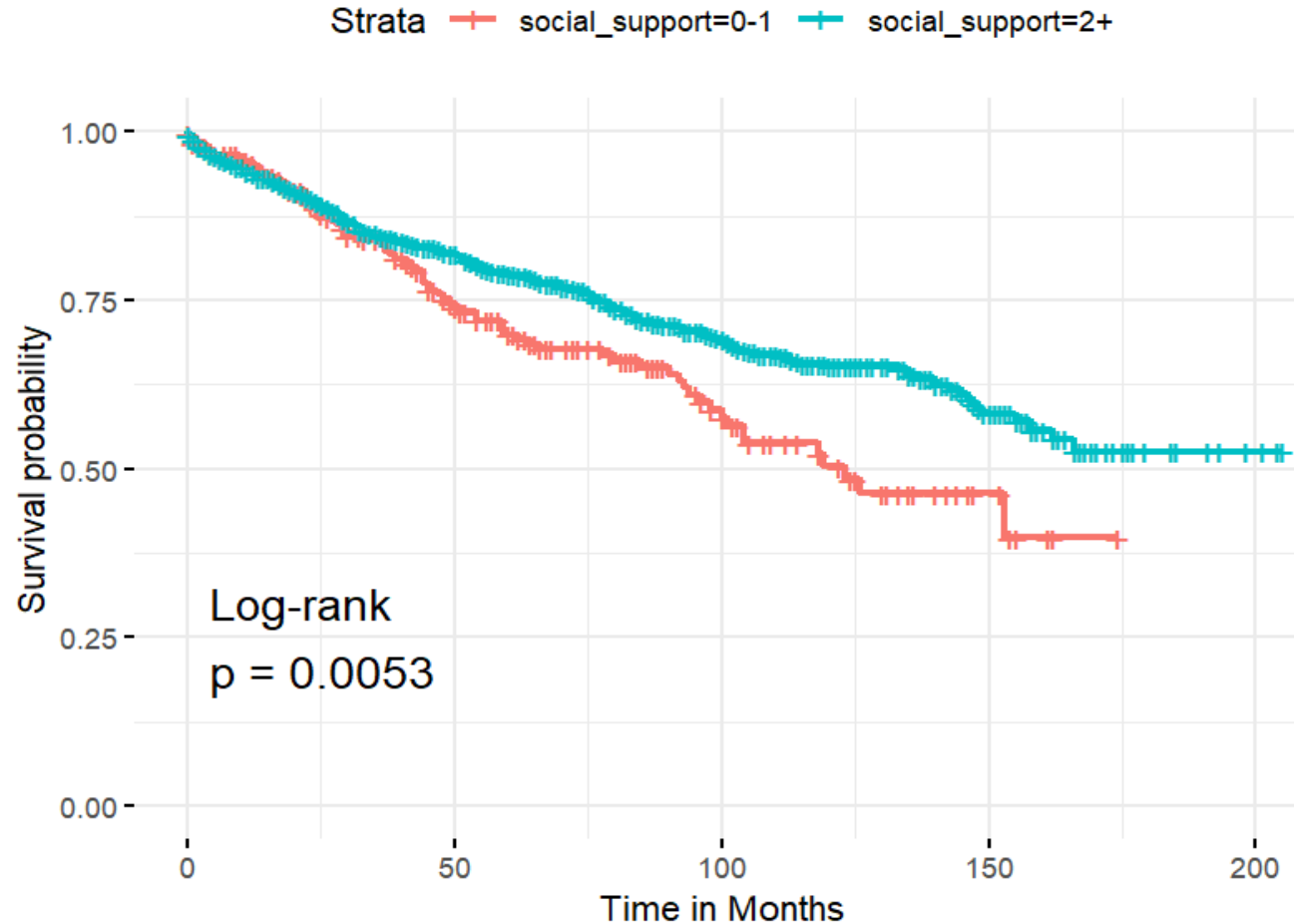


Figure 1. Survival of breast cancer patients, those with 0 to 1 support compared to those with 2 or more supportive individuals.

Association of All Cause Mortality With Social Support

Psychosocial Variables	All Women with Breast cancer			
	Deaths/13 47	HR ¹ (95% CI)	HR ² (95% CI)	HR ³ (95% CI)
Emotional support: How many close friends or relatives would help you with your emotional problems or feelings if you need it?				
0 to 1	77/236	Ref	Ref	Ref
2 or more	288/1111	0.76 0.64-0.91	0.82 0.69-0.98	0.80 0.67-0.96
Instrumental support: How many people could you ask for help in an emergency or with lending you money?				
None to 1	108/342	Ref.	Ref.	Ref
≥ 2	252/982	0.69 0.55-0.86	0.77 0.61-0.97	0.75 0.59-0.95
Perceived spirituality: How spiritual or religious do you consider yourself to be?				
Not at all/slightly	27/106	Ref	Ref	Ref
Fairly	86/388	0.99 0.75-1.33	1.05 0.79-1.41	1.07 0.80-1.43
Very	252/853	1.19 0.94-1.51	1.17 0.92-1.49	1.16 0.91-1.47

Association of All Cause Mortality with Religiosity and Spirituality

Religiosity/Spirituality Variables	All Women with Breast cancer			
	Deaths/ 1347	HR ¹ (95% CI)	HR ² (95% CI)	HR ³ (95% CI)
<i>Perceived psychosocial benefits of faith: How much is religion, faith, or God a source of strength and comfort to you?</i>				
Not very much / Somewhat	20/103	Ref	Ref.	Ref
Quite a bit	63/210	1.17 0.84-1.63	1.19 0.85-1.67	1.18 0.84-1.66
A great deal	279/1021	0.83 0.63-1.09	0.88 0.66-1.16	0.86 0.65-1.13
Religious service attendance: How often do you attend religious or faith services during the year?				
Never	46/137	Ref	Ref	Ref
Holidays only	109/420	0.60 0.42-0.85	0.61 0.43-0.87	0.61 0.43-0.88
Once per week	106/405	0.54 0.38-0.78	0.62 0.43-0.90	0.65 0.45-0.95
≥ Once per week	104/385	0.55 0.38-0.79	0.62 0.42-0.90	0.60 0.41-0.89

HR¹: Cox proportional hazards adjusted for age at breast cancer diagnosis, race and time from cohort enrollment to diagnosis.

HR²: Cox proportional hazards adjusted as in model 1 with the addition of income, education, marital status, insurance.

HR³: Cox proportional hazards adjusted as in model 2 with the addition of tumor ER status, tumor PR status.

Conclusion and Discussion

- In our study of predominant low income and black women with BC, having more friends to help them emotionally was associated with a lower overall and BC specific mortality.
- This is consistent with earlier reports that larger social networks were associated with better BC-specific and overall survival
- Compared to those who never attended religious services, BC cases who attended in holidays only or more than once per week had 40% reduced hazards of BC specific mortality.

Conclusion and Recommendations

- Greater church attendance has been associated with reduced hazards of all cause mortality compared to those who never attended.

We recommend:

1. Peer support/family therapy, behavioral/cognitive therapy, counseling, meditation, and psychology classes.
2. Health care providers should encourage breast cancer patients to participate in a supportive network of friends and family members.

Acknowledgements

- Participants and research team of the SCCS
- Prof Loren Lipworth
- Prof Xiao-ou Shu
- Prof W. Mutale
- Dr Isaac Fwemba

Special thanks to the **Vanderbilt-Zambia Cancer Research (VZCARE) grant** for the scholarship.

Thank you



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