

FEAR OF CANCER RECURRENCE AMONG BLACK AND WHITE MOTHERS

Rechael Acheampong, Katelynn Bergman, Melissa Wilson, & Kate Sweeny
Department of Psychology

ABSTRACT

Fear of cancer recurrence (FCR), often defined as fear, worry, or concern related to the possibility that cancer may return or progress, is frequently expressed by breast cancer survivors. Previous research on breast cancer survivors suggests that mothers tend to report greater FCR than non-mothers and that FCR differs by ethnicity. This existing body of research often treats motherhood and race as separate entities by which to examine levels of FCR. The purpose of the present study is to investigate the differences in FCR between Black and White mothers. Breast cancer survivors were recruited using Amazon's MTurk service ($n = 138$) and were asked to respond to self-report questionnaires regarding FCR and demographic information. An independent t -test revealed that black mothers ($n = 37$, $M = 3.94$, $SD = 0.58$) tended to report greater FCR levels than White mothers ($n = 54$, $M = 3.54$, $SD = 0.92$; $t(88.46) = -2.55$, $p = 0.01$). Our findings provide initial support for differences in FCR among mothers of different races. Potential explanations for the observed differences are discussed. Further research is needed to identify the causes of differences in FCR levels among Black and White mothers in order to craft informed interventions for these populations.

KEYWORDS: *Fear Of Cancer Recurrence; Breast Cancer Survivorship; Black Mothers; White Mothers*



FACULTY MENTOR

Kate Sweeny, *Department of Psychology*

Dr. Kate Sweeny is a Professor in the Department of Psychology. She received her PhD from the University of Florida. Her work primarily addresses the common and stressful experience of uncertainty, most recently including the widespread uncertainty surrounding the COVID-19

pandemic. She has also studied the experiences of law graduates awaiting their bar exam results, voters awaiting election results, and patients awaiting biopsy results, among other experiences of acute uncertainty. She has received several mentoring and research awards, and her work has been featured on NPR and in *The New York Times*, *The Washington Post*, and *The Wall Street Journal*.



Rechael Acheampong

Department of Psychology

Rechael Acheampong is a fourth year Psychology major. She studies coping strategies during uncertain waiting periods in Dr. Sweeny's Life Events Lab. With funding from the Jack Richard Foti Scholarship and a Psychology Honors Society membership, she hopes to participate in the upcoming research conferences on campus. Rechael's passions include working with patients in the medical field and, as a current graduate of the Cope Health Scholars program, she plans to pursue a professional degree in medicine.



Katelynn Bergman

Department of Psychology

Katelynn Bergman is a fifth year Psychology major. She works as a research assistant in the Life Events Lab, where she studies fear of cancer recurrence and uncertain waiting periods under the direction of Dr. Kate Sweeny. In the future, she plans to pursue a PhD in Social and Personality Psychology to achieve her goal of building a career in academia.

FEAR OF CANCER RECURRENCE AMONG BLACK AND WHITE MOTHERS

INTRODUCTION

Among women of all major ethnic groups, breast cancer is the most common form of cancer (Ashing-Giwa et al., 2004). As such, there are over 3.8 million breast cancer survivors living in the United States today (American Cancer Society [ACS], 2019). Though they have entered a period of remission, fears that cancer will return often persist into survivorship. Fear of cancer recurrence (FCR) has been defined by the literature as “fear, worry, or concern relating to the possibility that cancer will come back or progress” (Lebel et al., 2016, p. 3267), and it is one of the most commonly reported causes of distress among breast cancer survivors (Vickberg, 2003; Simard et al., 2013). In the current investigation, we explore differences in FCR by racial identity, particularly among Black and White mothers.

FCR and Race

Research on the relationship between race and FCR is limited, but the handful of investigations focused on this topic are consistent in their findings. One study regarding worry and FCR in a diverse sample of cancer survivors found that African Americans reported fewer concerns about recurrence and greater psychological well-being than their White and Latinx counterparts (Deimling et al., 2006). Another study mirrored these findings in breast cancer survivors specifically (Janz et al., 2011). Black cancer survivors often report better mental health than White survivors, but they also report poorer physical functioning (Bowen et al., 2007).

FCR and Motherhood

In addition to race, motherhood is also known to play a role in FCR. Mothers diagnosed with breast cancer face additional hardships that persist into survivorship. Research suggests that breast cancer survivors with children tend to sacrifice their own needs

for care in an effort to meet the needs of their children (Billhult & Segesten, 2003), and they display high levels of psychological distress (Schmitt et al., 2008). Additionally, they describe a sense of loss in the quality time spent with their children, guilt for being unavailable, and worries regarding their children’s well-being if they should die (Billhult et al., 2003).

Other Correlates of FCR

Young mothers are the most vulnerable to these hardships, likely because they have younger children who are more dependent (Arès, Lebel & Bielajew, 2014). Therefore, FCR in mothers may be exacerbated by younger age and may also be influenced by other demographic variables, such as socioeconomic status.

Age. According to a review of the FCR literature, younger age was related to greater FCR in 14 studies, with only two studies reporting a non-significant relationship (Crist & Grunfeld, 2013). Younger people tend to have greater anxiety, higher perceived risk, and more intrusive thoughts regarding their cancer, and these thoughts tend to dissipate over time as people age (Mullens et al., 2004). Young survivors may show higher levels of FCR due to less psychological resilience, as well as the fear that breast cancer may result in more life disruptions (Lebel et al., 2012).

Socioeconomic status. There is limited research investigating the relationship between socioeconomic status (SES) and FCR, specifically. However, research has linked lower SES with poorer disease outcomes that may increase FCR. African American women have lower breast cancer survival rates (ACS, 2019) and poorer physical functioning (Bowen et al., 2007) compared to White survivors, often due to late-stage diagnoses and disparities in access and quality of treatment (Brawley & Freeman, 1999). Low income and a lack of private health insurance are also risk factors for a late-stage diagnosis (Lannin et al., 1998). FCR may be heightened in breast cancer survivors to whom these risk factors apply.

The Current Study

The existing body of research surrounding FCR in breast cancer survivors often treats motherhood and racial identity as separate entities. To our knowledge, no study has investigated differences in FCR between mothers of different racial backgrounds. The present study aims to fill this gap in the literature. The goal of the current study is to investigate the differences in FCR between Black mothers and White mothers who are breast cancer survivors. We had three hypotheses. First, we hypothesized that mothers as a whole, and particularly young mothers, would report greater FCR than non-mothers. Second, we hypothesized that White breast cancer survivors would report greater FCR in comparison to Black cancer

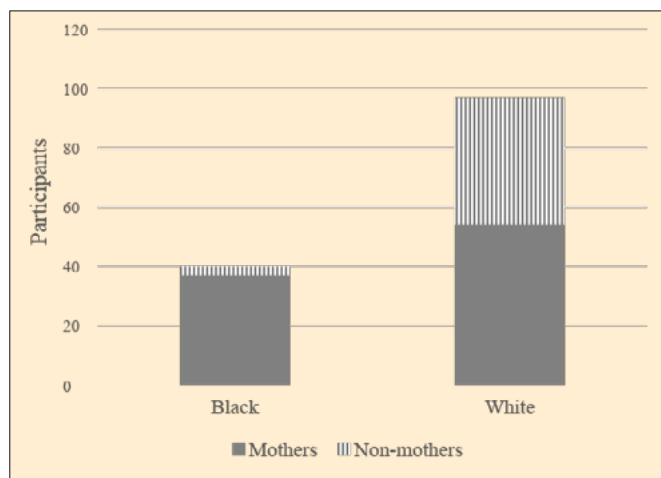


Figure 1. Mothers and non-mothers by race.

Table 1. FCR, Age, and Subjective SES in Black and White Mothers

	BLACK MOTHERS		WHITE MOTHERS		t(90)	p
	M	SD	M	SD		
FCR	3.94	0.58	3.54	0.92	-2.55	.01
Age	33.68	4.76	37.07	8.93	2.35	.02
Subjective SES	7.97	1.46	7.02	1.57	-2.97	<.01

survivors. Finally, we hypothesized that Black mothers would report lower levels of FCR in comparison to White mothers. An additional goal of the present study was to examine demographic variables, such as age and SES, that might shed light on potential differences between Black and White breast cancer survivors with children.

METHODS

Participants

Breast cancer survivors ($N = 138$) were recruited through Amazon's Mechanical Turk (MTurk) service. MTurk is a crowdsourcing platform designed to provide a large, online participant pool for tasks and may be particularly well suited for the recruitment of a diverse sample of young breast cancer survivors (Arch & Carr, 2017). All participants reported their gender as female. Participants ranged in age from 23 to 64 years old ($M = 37.00$, $SD = 10.24$). The sample was primarily White (70%) but also included participants who identified as Black (29%), and Hispanic/Latinx (0.7%). A majority of our sample reported having at least one child (66%). **Figure 1** provides a visual representation of our sample based on both race and motherhood.

Procedure

Participants were asked to respond to a survey regarding their demographic information and FCR they have experienced as a breast cancer survivor. We asked screening questions to ensure participant eligibility for our study. If participants reported having a breast cancer diagnosis and that they had undergone treatment for breast cancer, but were no longer undergoing treatment, they were eligible for our study. The survey took an estimated 15 minutes to complete and participants were compensated with \$2 for their time.

Measures

Demographics. Demographic information obtained included the participants' age, race, and socioeconomic status. Additionally, participants were asked to indicate if they have children. Socioeco-

nomics was assessed using the MacArthur Scale of Subjective Social Status (Adler & Stewart, 2007). Participants were shown an image of a ladder that represents their standing in society, along with a prompt asking them to report where they feel they belong on the ladder. The lowest rung (coded as a 1) represented those in society with lower status and the highest rung (coded as a 10) represented those with higher status ($M = 6.70$, $SD = 1.89$). This single-item measure of subjective SES outperforms or closely mirrors objective measures of social status, particularly in domains of psychological functioning and health-related outcomes (Adler, Epel, Castellazzo, & Ickovics, 2000; Cundiff, Smith, Uchino, & Berg, 2013).

Fear of Cancer Recurrence. Fear of cancer recurrence was measured using the FCR-4, a short form scale adapted from the FCR-7 (Humphris, Watson, Sharpe & Ozakinci, 2018). This four-item scale was designed to measure anxiety and worry about cancer recurrence with low participant burden (e.g., "I am afraid that my breast cancer may recur," "I get waves of strong feelings about the breast cancer coming back"; 1 = *not at all*, 5 = *all the time*). The four items in this scale were averaged to form a composite variable of FCR ($M = 3.47$, $SD = 0.90$, $\alpha = .81$).

RESULTS

Black and White breast cancer survivors were the primary focus of this investigation, as the majority of our sample identified as either Black or White, with only one participant identifying as Latina. Contrary to our hypothesis, an independent samples *t*-test revealed that Black mothers tended to report greater FCR levels than White mothers (see **Table 1**; all comparisons corrected for unequal variances across groups).

Further analyses revealed demographic differences between Black and White mothers. In our sample, Black mothers were significantly younger than White mothers. Age was negatively correlated with FCR, such that younger survivors reported greater FCR, $r(135) = -.23$, $p < 0.01$. Black mothers were of a higher subjec-

FEAR OF CANCER RECURRENCE AMONG BLACK AND WHITE MOTHERS

tive SES than White mothers and subjective SES was positively correlated with FCR, such that those with higher subjective SES reported higher FCR, $r(135) = .42, p < 0.001$.

Only three Black women who were not mothers participated in our study, leaving our comparison of FCR in mothers and non-mothers by race underpowered. In total, mothers ($n = 91, M = 3.70, SD = 0.82$) had higher rates of FCR than non-mothers ($n = 46, M = 3.02, SD = 0.89, t(84.43) = 4.35, p < 0.001$), and Black women ($n = 40, M = 3.88, SD = 0.63$) had higher rates of FCR than White women ($n = 91, M = 3.70, SD = 0.82, t(107.89) = -4.20, p < 0.001$).

DISCUSSION

The current study tested three hypotheses regarding the relationship between FCR, race, and motherhood. First, we hypothesized that mothers in our sample of breast cancer survivors would report increased levels of FCR. This hypothesis was supported; mothers reported significantly higher levels of FCR in comparison to those who were not mothers. Second, we expected to see lower levels of FCR among Black breast cancer survivors in comparison to White survivors. Our results did not confirm this hypothesis. Instead, our findings revealed that Black women reported significantly higher levels of FCR than their White counterparts. This finding runs contrary to previous research on this topic (Deimling et al., 2006; Janz et al., 2011). Our third and primary hypothesis was that Black mothers would report less FCR than White mothers. Consistent with the rejection of our second hypothesis, our third hypothesis was also not confirmed. In our sample, Black mothers reported significantly greater levels of FCR than White mothers.

Next, we made an effort to identify potential underlying demographic differences driving the discrepancies in FCR levels between mothers of both races. Our additional analyses revealed that, on average, Black mothers in our sample were significantly younger than White mothers. Past research has revealed that younger survivors experience increased FCR in comparison to older survivors (Lebel et al., 2012), and age was negatively correlated with FCR in our study. This suggests that age may have played a role in our contradictory findings. As such, a mother's age may be an important contributing factor to FCR due to age-related differences in perceived physical or socioeconomic consequences of cancer.

Subjective SES was positively correlated with FCR in our sample, such that those with higher subjective SES also reported greater FCR. Although those with higher SES are more likely to have access to healthcare, their FCR remains high. Black mothers reported significantly higher subjective SES than White mothers and, therefore, reported greater FCR. Greater subjective SES may not be a protective factor for Black mothers against the stress and

uncertainty related to cancer recurrence. FCR may persist in Black women despite their SES because of a lack of quality of care or a distrust of healthcare providers, and not because of a lack of access to healthcare (Hausmann et al., 2013).

Past research has suggested that women of color experience more distrust in the health domain in comparison to White women, often arising from uncertainty about the quality of treatment they will receive (Halbert et al., 2006). This uncertainty that many Black women face may be due to past incidents in the medical sector in which physicians provided a lower quality of care to patients of color (Perloff et al., 2006). If that is the case, then it is not entirely surprising that Black mothers exhibited higher levels of FCR in this study. Black women may perceive doctor-patient interactions as stressful. This stress could exacerbate their FCR due to the inevitable increase in time they would spend advocating for themselves with their doctor if their cancer were to return. Further research is needed to identify the specific causes of heightened FCR in Black breast cancer survivors in our sample, particularly those with children, and informed interventions can be crafted for physicians and breast cancer survivors alike.

LIMITATIONS AND FUTURE DIRECTIONS

The primary focus of this study was to examine FCR, race, and motherhood at a single point in time using a cross-sectional design. Future studies on this topic should consider taking a longitudinal approach in order to examine how FCR changes in these populations over time. Additionally, our participants were gathered from Amazon's MTurk service, which may have masked group differences as all of these individuals voluntarily completed an online survey. The next step in this investigation is to work with a community sample of breast cancer survivors, made possible through partnerships with local medical centers. Furthermore, our conclusions regarding FCR and motherhood are only applicable when comparing Black and White breast cancer survivors, as our sample was only representative of these two races. Additional research is needed with a more diverse sample of breast cancer survivors to understand how FCR compares in the Hispanic and Latinx women, for example.

CONCLUSION

The findings of the present investigation contradicted current knowledge regarding FCR among African American women and shed new light on differences in FCR levels among Black and White mothers. Further research examining factors beyond age and subjective SES that could explain the higher FCR levels reported by Black survivors are needed. Additionally, our study provides

further support for the notion that mothers and younger women experience greater FCR. Our findings have implications for much-needed interventions that target African American breast cancer survivors with children, as they may be of an increased risk for FCR than previous research would suggest.

ACKNOWLEDGMENTS

We would like to express our utmost gratitude to our advisor Dr. Kate Sweeny and the Life Events Lab (University of California, Riverside) for allowing us this opportunity. We would also like to thank psychology graduate student Melissa Wilson (University of California, Riverside), without her guidance this project would not have been possible.

REFERENCES

- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White women. *Health Psychology, 19*(6), 586-592
- Adler, N., & Stewart, J. (2007). The MacArthur scale of subjective social status. *MacArthur Research Network on SES & Health*. Retrieved from <http://www.macses.ucsf.edu/Research/Psychosocial/subjective.php>
- American Cancer Society. *Breast Cancer Facts & Figures 2019-2020*. Atlanta: American Cancer Society, Inc. 2019
- Arch, J. J., & Carr, A. L. (2017). Using Mechanical Turk for research on cancer survivors. *Psycho-Oncology, 26*(10), 1593-1603
- Arès, I., Lebel, S., & Bielajew, C. (2014). The impact of motherhood on perceived stress, illness intrusiveness and fear of cancer recurrence in young breast cancer survivors over time. *Psychology & Health, 29*(6), 651-670
- Ashing-Giwa, K. T., Padilla, G., Tejero, J., Kraemer, J., Wright, K., Coscarelli, A., & Hills, D. (2004). Understanding the breast cancer experience of women: a qualitative study of African American, Asian American, Latina and Caucasian cancer survivors. *Psycho-Oncology, 13*(6), 408-428
- Billhult, A., & Segesten, K. (2003). Strength of motherhood: Non-recurrent breast cancer as experienced by mothers with dependent children. *Scandinavian Journal of Caring Sciences, 17*(2), 122-128
- Bowen, D. J., Alfano, C. M., McGregor, B. A., Kuniyuki, A., Bernstein, L., Meeske, K., ... & Ganz, P. A. (2007). Possible socioeconomic and ethnic disparities in quality of life in a cohort of breast cancer survivors. *Breast Cancer Research and Treatment, 106*(1), 85-95
- Brawley, O., & Freeman, H., (1999). Race and outcomes: Is this the end of the beginning for minority health research? *Journal of the National Cancer Institute, 91*(22), 1908-1909
- Crist, J. V., & Grunfeld, E. A. (2013). Factors reported to influence fear of recurrence in cancer patients: A systematic review: Fear of recurrence. *Psycho-Oncology, 22*(5), 978-986
- Cundiff, J. M., Smith, T. W., Uchino, B. N., & Berg, C. A. (2013). Subjective social status: Construct validity and associations with psychosocial vulnerability and self-rated health. *International Journal of Behavioral Medicine, 20*(1), 148-158
- Deimling, G. T., Bowman, K. F., Sterns, S., Wagner, L. J., & Kahana, B. (2006). Cancer-related health worries and psychological distress among older adult, long-term cancer survivors. *Psycho-Oncology, 15*(4), 306-320
- Halbert, C. H., Armstrong, K., Gandy, O. H., & Shaker, L. (2006). Racial differences in trust in health care providers. *Archives of Internal Medicine, 166*(8), 896-901
- Hausmann, L. M. R., Kwok, C. K., Hannon, M. J., & Ibrahim, S. A. (2013). Perceived racial discrimination in healthcare and race differences in physician trust. *Race and Social Problems, 5*(2), 113-120
- Humphris, G. M., Watson, E., Sharpe, M., & Ozakinci, G. (2018). Unidimensional scales for fears of cancer recurrence and their psychometric properties: The FCR4 and FCR7. *Health and Quality of Life Outcomes, 16*(1), 30
- Janz, N. K., Hawley, S. T., Mujahid, M. S., Griggs, J. J., Alderman, A., Hamilton, A. S., ... & Katz, S. J. (2011). Correlates of worry about recurrence in a multiethnic population-based sample of women with breast cancer. *Cancer, 117*(9), 1827-1836
- Lannin, D. R., Mathews, H. F., Mitchell, J., Swanson, M. S., Swanson, F. H., & Edwards, M. S. (1998). Influence of socioeconomic and cultural factors on racial differences in late-stage presentation of breast cancer. *JAMA, 279*(22), 1801-1807

FEAR OF CANCER RECURRENCE AMONG BLACK AND WHITE MOTHERS

- Lebel, S., Beattie, S., Arès, I., & Bielajew, C. (2012). Young and worried: Age and fear of breast cancer recurrence in breast cancer survivors. *Health Psychology, 32*(6), 695-705
- Lebel, S., Ozakinci, G., Humphris, G., Mutsaers, B., Thewes, B., Prins, J., ... Butow, P. (2016). From normal response to clinical problem: definition and clinical features of fear of cancer recurrence. *Supportive Care in Cancer, 24*(8), 3265–3268
- Mullens, A. B., McCaul, K. D., Erickson, S. C., & Sandgren, A. K. (2004). Coping after cancer: Risk perceptions, worry, and health behaviors among colorectal cancer survivors. *Psycho-Oncology, 13*(6), 367–376
- Perloff, R. M., Bonder, B., Ray, G. B., Ray, E. B., & Siminoff, L. A. (2006). Doctor-patient communication, cultural competence, and minority health: Theoretical and empirical perspectives. *American Behavioral Scientist, 49*(6), 835-852
- Schmitt, F., Piha, J., Helenius, H., Baldus, C., Kienbacher, C., Steck, B., ... & Romer, G. (2008). Multinational study of cancer patients and their children: Factors associated with family functioning. *Journal of Clinical Oncology, 26*(36), 5877-5883
- Vickberg, S. M. J. (2003). The concerns about recurrence scale (CARS): A systematic measure of women's fears about the possibility of breast cancer recurrence. *Annals of Behavioral Medicine, 25*(1), 16–24