

The Use of Mammography by Survivors of Breast Cancer

ABSTRACT

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Objectives. Survivors of breast cancer are at high risk for development of a second breast cancer and are thus a group for whom annual mammography screening is recommended. However, survivors' use of mammography rarely has been examined.

Methods. We surveyed a representative population sample of survivors who lived in rural communities about their mammography use after cancer.

Results. Of these women, 30% had not received a mammogram in the preceding year. Predictors of mammography use included physician recommendation and whether the original cancer had been detected by mammography.

Conclusions. Physicians should recommend mammography to survivors of breast cancer to ensure regular use. (*Am J Public Health.* 1998;88:1713-1715)

Because survivors of breast cancer are at high risk for a new cancer of the breast,¹ physicians recommend annual mammography screening for these women.^{2,3} Despite considerable interest in the use of mammography by women in general,⁴⁻¹¹ little is known about survivors' use.

In this study, we examined the breast cancer survivors' use of mammography. We focused on potential predictors of use, including characteristics of women's treatment for breast cancer, as well as insurance, access to care, and recent physician recommendation of mammography.

Methods

Participants

Breast cancer survivors were identified during their participation in a 1994 survey of 14 080 randomly sampled women aged 50 to 80 living in 40 communities in predominantly rural areas of Washington State.⁸ Of the sample, 11 596 women were eligible, and 9484 (82%) were interviewed.

Among the respondents, 485 survivors were identified based on their unvalidated self-report of a history of breast cancer. Because the survey identified all women reporting breast cancer in a representative community sample, the women identified were a prevalence sample of survivors. All were contacted for re-interview in 1996. Sixty-two (13%) of the 485 women were ineligible for the 1996 interview because they were deceased, were institutionalized, or had moved from the community. Of the remaining 423 women, 351 (83%) participated in the 1996 interview. Eligible women who did not participate included 9 (2%) who were too ill, 24 (6%) who chose not to complete the interview, and 39 (9%) who could not be contacted. Interviews were conducted according to procedures approved by the institutional review board of the Fred Hutchinson Cancer Research Center, Seattle, Wash.

Measures

Survivors interviewed in 1996 were asked about their use of mammography, their diagnosis and treatment of breast cancer, and facilitators of mammography use. Questions used to assess mammography use were developed in collaboration with the National Can-

cer Institute Breast Cancer Screening Consortium^{5,8} and are similar to questions in prior studies.¹² Survivors were asked the date of their most recent mammogram to determine whether a mammogram had been received within 1 year of the interview. Survivors were also asked what year and month their cancer was diagnosed, how their cancer was detected, and what type of surgery they received. Additional questions included whether a physician had recommended mammography to them in the last 2 years, the extent of their insurance coverage, and whether they usually went to a particular physician's office, clinic, health center, or other place for medical advice or care.

Results

Of the 351 breast cancer survivors interviewed, 248 were included in these analyses. Women who did not report a history of cancer at the time of the second interview ($n = 7$), had had a double mastectomy ($n = 49$), were currently being treated for cancer ($n = 36$), or received the diagnosis within the last 3 years ($n = 11$) were excluded.

The 248 survivors were between age 52 and 82 years and reported receiving the diagnosis 3 to 30 years before the interview. The sample reflected the population of the rural areas of Washington State and was predominantly White, with a reported median annual household income of more than \$15 000 but less than \$35 000. Most (95%) of the survivors reported having medical insurance, and all but 2 (99%) reported having a regular health care provider. More than half (61%) reported a physician's recommendation of mammography within 2 years of the interview.

Of the survivors, 174 (70%) reported having received a mammogram within the

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year, but 74 (30%) did not. Seventy-two percent reported having had a mammogram within the past 2 years. Of those not reporting recent mammography use, 30 (41%) reported that they did not know the date of their last mammogram or if it was within the past 2 years. Past research has found that women who inaccurately report mammography use generally overreport it¹³⁻¹⁷; thus these women were not considered recent users in this study.

Mammography use was not significantly related to survivors' treatment of breast cancer, age, or insurance coverage. However, women were more likely to have had a recent mammogram if their cancer had been diagnosed between 6 and 20 years previously, their physician had recommended mammography recently, or their cancer had been detected by mammography. Results of bivariate analyses are shown in Table 1.

A multiple logistic regression analysis was used to examine the relative importance of the identified predictors after adjustment for covariation. The model tested included the predictors of mammography use examined in bivariate analyses. In this analysis, both physician recommendation and the way in which a woman's breast cancer was originally detected were significant predictors of mammography use ($P < .05$). Women who had received a recent recommendation for mammography or whose breast cancer had been detected by mammography were more likely to have had a recent mammogram than were those who did not have a recent recommendation or whose breast cancer was detected by other methods, as shown in Table 2.

Discussion

Despite being at high risk for a new primary cancer of the breast, almost 30% of the self-identified survivors surveyed reported no mammography use within the past year, and 28% reported no mammography within the past 2 years. These rates of use are not much higher than those reported in the literature for women at average risk,^{5,10} and the rate of annual use is similar to that for women without breast cancer who were interviewed as part of the 1994 survey. Survivors whose prior cancer had been detected by means other than mammography, or who had not received a recent recommendation for mammography from their physician, were less likely to have had a recent mammogram than were other survivors. For patients whose breast cancer was treated successfully many years ago, physicians may need to clearly recommend mammography to ensure that their patients receive regular screening. □

TABLE 1—Characteristics of 248 Breast Cancer Survivors Who Had or Had Not Used Mammography in the Last Year, Washington State, 1994

	Recent Use of Mammography, % (n = 174)	No Recent Use of Mammography, % (n = 74)	χ^2 (df) = P
Age, y			
50–59	15.6	14.9	
60–69	31.2	24.3	
70–79	37.6	46.0	$\chi^2(3) = 1.79$
≥80	15.6	14.9	$P > .50$
Insurance ^a			
Yes	94.8	94.6	$\chi^2(1) = 1.00$
No	5.2	5.4	$P > .50$
Years since diagnosis			
3–5	13.2	13.5	
6–9	37.4	21.6	
10–20	33.3	31.1	$\chi^2(3) = 11.62$
>20	16.1	33.8	$P < .01$
How cancer found			
Mammography	34.5	17.6	$\chi^2(1) = 7.15$
Other	65.5	82.4	$P < .01$
Treatment			
Mastectomy	67.2	64.9	
Lumpectomy	22.4	20.3	$\chi^2(2) = 1.06$
Both mastectomy and lumpectomy	10.3	14.9	$P > .50$
Recent recommendation of mammography			
Yes	67.3	49.3	$\chi^2(1) = 6.83$
No	32.7	50.7	$P < .001$

^aCalculated using Fisher exact test because of small numbers.

TABLE 2—Predictors of Mammography Use by Breast Cancer Survivors Within the Last Year: Washington State, 1994

	OR	(95% CI)
Age, y		
50–59	1.5	(0.6, 3.8)
60–69	1.1	(0.7, 1.7)
70–79	1.1	(0.8, 1.6)
≥80	1.0	...
Insurance		
Yes	1.2	(0.3, 4.4)
No	1.0	...
Years since diagnosis		
3–5	1.2	(0.4, 3.4)
6–9	2.0	(0.8, 4.8)
10–20	1.6	(0.7, 3.6)
>20	1.0	...
How cancer found		
Mammography ^a	2.2	(1.0, 4.8)
Other	1.0	...
Recommendation of mammography		
Yes ^a	2.0	(1.1, 3.7)
No	1.0	...

Note. OR = odds ratio; CI = confidence interval.

^a $P < .05$.

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ABSTRACT

Objectives. This study examined errors in estimating household gun ownership that result from interviewing only 1 adult per household.

Methods. Data from 2 recent telephone surveys and a series of in-person surveys were used to compare reports of household gun ownership by husbands and wives.

Results. In the telephone surveys, the rate of household gun ownership reported by husbands exceeded wives' reports by an average of 12 percentage points; husbands' reports also implied 43.3 million more guns. The median "gender gap" in recent in-person surveys is 7 percentage points.

Conclusions. Future research should focus on respondents' reports about personally owned guns. (*Am J Public Health.* 1998;88:1715–1718)

The Gender Gap in Reporting Household Gun Ownership

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How many households contain firearms, and how many guns do members of these households own? This question is of considerable importance given evidence that keeping a firearm in the home is associated with elevated rates of homicide, suicide, and fatal gun accidents.^{1–7}

In this article, we study measurement errors in survey estimates that result from asking only 1 adult from each selected household to report on household gun ownership, a practice motivated by considerations of surveying costs.⁸ While comparisons between self-reported personal gun ownership and data from administrative records reveal low false-negative rates,^{9,10} little is known about the degree to which respondents may misreport about guns kept by other household members.^{11,12}

Methods

In order to learn more about the accuracy of reports on household gun ownership, we compared the responses of husbands and wives using data from 3 recent surveys. Husbands and wives were reporting on the same

event (gun ownership in households containing a married couple), but wives were more likely to be proxy reporters for someone else's gun in the home, since men are more likely to own firearms.^{13–15} Because of social desirability bias,¹⁶ false positives are expected to be rare relative to false negatives; thus, the larger of the 2 estimates is likely to be more accurate.

We also assessed the relative accuracy of husband and wife reports by comparing the gun stocks implied by the responses of each

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