

Breast Self-Examination in the Primary Care Setting

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Very little is known about breast self-examination (BSE), a health practice that has been found to be associated with better clinical and pathological breast cancer outcomes. Using data obtained from a sample of 260 women frequenting three primary care centers, this study investigates rates of BSE and how such rates are affected by social and medical factors. Results indicate that BSE practices are influenced to some extent by a woman's race and level of education, while they are significantly affected by her religion. In contrast, there was no evidence to suggest that a woman's knowledge of breast cancer risk factors, or her own level of risk for the disease, affect the extent to which she is likely to self-examine. These findings suggest the need to confirm these social influences on BSE practice using a larger, population based sample. Moreover, the values and attitudes affecting differential rates of BSE performance should be further investigated.

Despite its strong appeal as a noninvasive, cost effective, and simple procedure for early detection of breast carcinoma, very little is currently known about regular breast self-examination (BSE) among adult females in the United States. The dearth of information concerning BSE is, in part, a reflection of the medical community's general failure to devote attention to the prevention of breast cancer, even though this disease is well known as the leading cause of death from cancer among American women.^{1,2}

Where interest in breast cancer prevention has been shown, it has most typically been in the area of early diagnosis using radiologic techniques (eg, mammography), rather than in behavioral control methods such as self-examination.³⁻⁵ Given the cost differential between these two approaches, and the fact that the former has not been proved

effective in the early detection of the disease,² this situation is not ideal.

The need for understanding BSE as a behavioral method for early detection of breast cancer is also apparent when findings from several recent studies concerning the effects of routine self-examination on clinical and pathological staging of breast tumors are considered. For example, data reported by Greenwald et al indicate that whereas 27 percent of breast tumors accidentally detected by subjects were found to be at Clinical Stage I, some 37.7 percent were found at this stage among subjects who reported that they had been detected by regular self-examination.⁶ This study also indicates that tumors found during routine self-examination averaged 6.1 mm smaller in diameter than those discovered accidentally. Such data led these researchers to estimate that breast cancer mortality might be reduced by 18.8 percent through regular self-examination.

Similarly, Foster et al found more frequent performance of BSE to be associated with more

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favorable clinical stage and fewer axillary-lymph-node metastases on histologic examination.⁷ On pathological examination, the age adjusted maximum tumor diameter of patients in this study who practiced monthly self-examination of the breasts was considerably smaller ($1.97 \pm .22$ cm) than that of patients reporting less frequent rates of self-examination ($2.47 \pm .20$ cm), or those reporting that they had never self-examined ($3.59 \pm .15$ cm).

These data are encouraging since they indicate that regular self-examination of the breasts may have a considerable, positive impact on breast cancer prognosis. However, additional findings from these studies regarding the rate of regular self-examination among subjects are far less favorable. Less than a quarter of all women in both studies reported self-examining on a monthly basis, while nearly a majority in both (47 percent) reported self-examining only rarely or never.^{6,7} Similar low rates of self-examination have also been reported by Marchant and Neurath in another study based on data from symptomatic women.² The paradox between the potential benefits of regular BSE and the less than ideal rate at which women have been found to perform it, as indicated by these recent studies, strongly suggests the need to better understand factors which could influence the extent to which this simple, noninvasive, and inexpensive preventive health behavior is practiced.

As an initial attempt in this direction, this paper will investigate the association between several medical and nonmedical factors and self-reported rates of BSE in a selective sample of women. In addition to considering the effects of ethnicity, religion, and education on BSE rates, the present research considers how such rates are influenced by an individual's level of risk for the disease and by her degree of knowledge concerning its known risk factors. Given that all available findings concerning BSE are based on populations of women with breast carcinoma or its symptoms, a peripheral goal of this inquiry is to consider these antecedents of differential rates of BSE in an asymptomatic population.

Methods

A three-page questionnaire was distributed during a two-month period in the summer of 1978 to female patients of all ages at three primary care

health centers in San Diego, California. The questionnaire was preceded by a statement assuring that the responses to the survey would be kept confidential. Participation was voluntary, and no attempt was made to record the extent to which patients failed to comply with the request for information.

Part I of the questionnaire was comprised of 12 three-answer multiple choice questions. This test was designed to assess an individual's knowledge of eight known risk factors for breast cancer based on the latest available epidemiological information.¹ Included were items testing the respondent's awareness of the importance of age, nulliparity, increasing age at first childbirth, early menarche, late menopause, family history of breast carcinoma, and fibrocystic disease. It was also thought that women familiar with breast tumor risks should be aware of factors commonly believed to be either positively or negatively associated with the disease, but for which no known association has actually been found. So the remaining test items covered three controversial breast cancer risk factors—smoking, oral contraceptive use, use of post-menopausal estrogens, and one controversial protective factor, breastfeeding.⁸⁻¹⁰

A subject's knowledge of breast cancer risks was measured in terms of the total number of correct responses she gave on the 12-item test. Performance for members of the sample ranged from a low of 0 to a high of 9 correct answers, with the mean being 5.1. The modal frequency of correct responses was 5. Since an extensive item analysis was not performed on test results, it is not possible to determine whether this generally low level of performance (when measured absolutely) is a reflection of either the difficulty of the risk factor inventory, or a lack of knowledge on the part of the sample. Nonetheless, it was possible to rate the relative knowledge of sample numbers by curving their individual test performance in terms of the performance of the group as a whole. Thus, those subjects who received a score of 7 or more were classified as high in knowledge of risk factors (19.6 percent); those receiving a score of 5 or 6 as average in knowledge (46.5 percent); and those receiving a score of 4 or below as low in knowledge (33.8 percent).

Part II of the survey contained a series of background items assessing a subject's ethnicity, reli-

Table 1. Breast Self-Examination Rates of the Primary Care Sample by Selected Background Characteristics

Selected Characteristics	Average Number of Yearly Breast Self-Examinations	Number of Subjects	F-Ratio
Ethnicity			
Black	7.4	20	
White	7.0	207	
Oriental	7.0	4	.57
Mexican-American	5.0	12	P>.05
Religion			
Jewish	7.5	6	
Protestant	7.3	101	2.72
Catholic	5.3	65	P<.05
Level of Education			
>College Graduate	7.9	24	
College Graduate	7.8	31	
Some College	7.4	86	1.5
≤High School Graduate	6.1	105	P>.05

gion, level of education, and age. Also included was a question which asked the individual to circle the number of times per year she practiced self-examination of the breasts; responses on this item ranged from 0 to 12.

The increased level of risk for each of these factors was assigned using the following weighting system: subject previously had breast cancer = +4; subject had fibrocysts or had a mother or sister with breast cancer = +3; subject had another relative with breast cancer, or had first child after age 35 = +2; subject had menarche age 12 or less, or had menopause after age 50, or had first child between ages 30-35, or is nulliparous over age 30 = +1.5. These weights were determined from relative risk data in a recent (1977) epidemiological study of breast carcinoma.¹ Secondly, a total increased risk for each subject was determined by adding up her score of increased risk for individual factors. And thirdly, according to the distribution of total risks obtained for the sample, individuals were classified into one of three groups: (a) where total increased risk was 1.6 or greater (33.1 percent); (b) where total risk was equal to 1.5 (34.2 percent); and (c) where there was no level of additional risk (32.7 percent).

Results

At the three primary care centers 260 women completed the BSE survey over the two-month

period. The sample was, for the most part, white (83 percent), Christian (67 percent), and highly educated (23 percent college graduates or higher, 34 percent reporting some college). Moreover, the sample was skewed in favor of younger women, despite the fact that one of the data collection sites was a local senior citizen's health center. While only 12.6 percent of the subjects was over age 55, some 69 percent was 30 years or younger. The sample bias favoring white educated respondents was probably a function of (1) the fact that the other collection sites were University Hospital primary care clinics, and (2) self-selection, since no means of controlling who responded to the survey was instituted.

Table 1 reports the mean yearly frequency of self-reported BSE among sample members classified in terms of three selected background characteristics. While the yearly rate of self-reported BSE was only slightly higher for blacks than for either whites or orientals, it was considerably lower for Mexican Americans than for all other groups. Since the F-Ratio is sensitive to marginal frequencies, the fact that this trend is not statistically significant (P>.05) is most probably due to the small number of non-whites in the test population. Such small numbers also make significance tests of BSE rate differences between the various ethnic subgroups meaningless.

A statistically significant trend (P<.05) indicat-

Level of Risk	Average Number of Yearly Breast Self-Examinations	Number of Subjects	
No Added Risk	6.5	88	
1.5 Increased Risk	6.5	86	F=2.3
>1.5 Increased Risk	8.0	76	P>.05

Age (years)	Average Number of Yearly Breast Self-Examinations	Number of Subjects	
≤30	6.9	164	
31-55	6.8	43	
>55	8.2	28	
			F=.929 P>.05

ing that the level of self-reported BSE is less for Catholic sample members than for their Protestant and Jewish counterparts is also found in Table 1. This trend is further substantiated by statistically significant differences in the rate of self-reported examination between Catholic and Protestant women in the sample ($t=2.66$; $P=.008$). However, the small number of Jewish women in the sample does not allow for meaningful comparisons of the rate of BSE between this group and the other two religious groups.

Table 1 also suggests that self-reported rates of BSE are positively associated with the level of education among sample members, although this trend is not statistically significant ($P>.05$). When rates of the various educational subgroups are compared individually, only the differences between the rate for most educated (ie, >college graduate), and that for least educated (ie, ≤high school graduate) sample members is statistically significant ($t=2.06$; $P=.05$).

Yearly rates of BSE for sample members classified in terms of two measures of "objective" risk—measured increased risk and age—are presented in Tables 2 and 3, respectively. Subjects with greater than 1.5 increased risk report self-examining at a rate greater than those at 1.5 increased risk or at no increased risk. Similarly, women 55 years of age or older are found to self-examine at a yearly rate greater than women in the

two younger age brackets. These trends for both variables, however, are not statistically significant. Moreover, no statistical significance is found ($P>.05$) when BSE rate differences between various "objective" risk subgroups are compared.

The association between knowledge of risk factors and rates of self-reported BSE among sample members is presented in Table 4. Those women having a high level of knowledge, as measured by their breast cancer risk test performance, self-examine at a slightly higher rate than women subjects measuring either average or low in knowledge. But this trend is not statistically significant ($P>.05$). Similarly, when specific comparisons between various groups of subjects with different levels of breast cancer knowledge are made, no statistically significant differences in the rate of self-reported BSE are found ($P>.05$).

Discussion

The pattern of findings from this investigation suggests that BSE behavior may be conditioned more by culturally determined attitudes than by "rational" factors such as a woman's "objective" risk for, and knowledge of, the disease. Sample members who performed well on the risk factor examination were not significantly more likely than those performing at moderate or low levels to report self-examining on a regular basis. Similar

Level of Knowledge (Breast cancer risk test performance)	Average Number of Yearly Breast Self-Examinations	Number of Subjects
Low (4 or less)	6.8	83
Average (5 or 6)	6.8	117
High (7 or more)	7.7	50
F=.69 P>.05		

findings were obtained in a recent Australian study of BSE behavior among 90 symptomatic women.¹¹ In addition, no significant differences in the rate of self-examination between high-risk women and women at lower level of risk, measured in terms of age and known factors, were found. However, the actual importance of the "objective" risk variable can only be inferred from the data presented, since its "linking" factor to self-examination behavior, viz, whether or not a subject was aware of her own risk level, was not investigated in this study.

In contrast, the general pattern and relative strength of the association between rates of BSE and the background factors considered does indicate that a differential sociocultural response to BSE is likely to exist in the asymptomatic population. Put differently, the considerably lower rate of self-examination for Mexican-Americans, and the significantly lower rate for Catholics, found to obtain in this study, may represent differences in attitudes pertinent to BSE practices on the part of women in these groups.

Before this interpretation can be accepted, however, two conditions must be met in future studies of BSE. First, since the background factors under consideration are themselves strongly related, their relationship to rates of BSE in this limited sample may be spurious. Thus, BSE rates need to be reanalyzed in a population based sample with sufficient numbers of minority women to allow for a test of the association of each of these variables, controlling for the effects of the others. Secondly, possible differences in attitudes which might inhibit BSE need to be explored among women in various religious, ethnic, and educational groups. Examples of such attitudes might be uneasiness about the body and its examination by self and others; lack of belief in the importance of personal health care; and belief in the major impact of chance or other uncontrollable factors on health.

The findings of this study point to the possibility that socioculturally based attitudes may be at work to inhibit BSE among certain groups of women in our society. However, given the selective nature of the sample, this thesis needs to be verified using data from a population based sample. At the same time, the attitudes thought to be operating need to be more clearly defined. The results of these research efforts may be useful in designing programs to educate health practitioners in the primary care setting to be more sensitive to differences in BSE practices among adult females, thereby helping to increase the rate at which they are likely to self-examine.

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