

# Social Factors Associated with Breast Self-Examination Among High Risk Women

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**Abstract:** A sample of 708 women, who by sociodemographic characteristics are high risk to breast cancer, were interviewed by telephone about their knowledge, attitude, and practice of breast self-examination (BSE). Reported frequency of BSE, knowledge of BSE and breast cancer, and BSE attitude in this sample are comparable to data reported by others. This report analyzes the associations between the fre-

quency of a breast self-examination practice and the variables, age, education, detection confidence, social influence, modesty, preventive health behaviors, and memory. These relationships are discussed and several new hypotheses are proposed. Since the data were collected retrospectively, they are not able to describe causal relationships. (*Am J Public Health* 1981; 71:251-255.)

## Introduction

Breast self-examination (BSE) has been widely promoted in cancer control efforts for some time. Only recently, however, has scientific and clinical interest in BSE flourished. The need for greater understanding of the social-psychological factors affecting acceptance of BSE are of growing concern.

The literature has included many descriptive studies of women's beliefs, attitudes, and practices of breast self-examination.<sup>1-4</sup> The descriptions of these beliefs and behaviors are generally corroborative. Women seem to be aware of BSE, but not well-informed about the specifics of how to do it. Their attitude toward the practice of BSE is positive, but the confidence in their detection ability is not.

Data from the most recent population survey showed that less than one in four women state they practice BSE monthly.<sup>2</sup> Reports in the literature that relate the frequency of a woman's BSE practice to these knowledge and attitude variables are rare.<sup>5</sup> There are no reports that relate BSE frequency to other important factors, such as her confidence in self-detection; her feeling about breasts in general, and BSE and breast cancer specifically; her personal (breast cancer) risk; or her orientation toward preventive health behavior. This paper reports on the differences in the frequency of BSE practice as related to these and other pertinent characteristics.

## Methods

### Data Collection

Data were collected from the baseline survey of women participating in a health behavior change experiment.<sup>6</sup> A sys-

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tematic sample was drawn from the Polk City Directories of two predominately White, suburban villages in Western New York. The sampling frame was selected to represent women characterized as having a higher risk to breast cancer, i.e., white, married women of high socioeconomic status.<sup>7</sup>

The data were collected by telephone interviews in February 1978. Because of the assumed sensitivity to this topic, all interviewers were female. The questions focused on the subject's knowledge, attitude, and practice of BSE. Medical information relevant to breast cancer risk was obtained. Additional questions focused on the degree of modesty in discussing the breast, the social influences and support for adopting BSE, the ability to remember to do the examinations and to remember what was found, and a general orientation toward practicing preventive health. Age and level of education were also requested from participants.

Callbacks were made to measure the quality of data collection. About 10 per cent of each interviewer's listing was contacted a second time and asked several of the original questions. In all cases, the subjects remembered being interviewed and they remembered answering the specific questions. Agreement of the responses from the two interviews was complete for all but a few women who replied they could not remember their first response.

### Measurement

The dependent variable, breast self-examination, was measured three ways: first generally by the question, "How often do you do BSE?" and then by two specific questions, "How often have you done it in the last three months?" and "How often have you done it in the last four weeks?"

All reported frequencies to these questions were converted to a yearly rate and correlated. The correlation coefficient of the last two specific questions was very high ( $r = .97$ ), and the relationships between the general and specific questions were lower ( $r = .64$  for the first and second question;  $r = .63$  for the first and third question).

**TABLE 1—Sociodemographic Characteristics of the Sample**

Characteristics	Per Cent
<b>Marital Status (N=684)*</b>	
Married	86
Divorced	5
Separated	1
Widowed	6
Never Married	2
<b>TOTAL</b>	<b>100</b>
<b>Age (Years) (N=696)*</b>	
21-25	4
26-30	12
31-35	18
36-40	12
41-45	14
46-50	12
51-55	10
56-60	10
61-65	8
<b>TOTAL</b>	<b>100</b>
<b>Education (N=690)*</b>	
8th grade or less	1
Some high school	6
High school degree	33
Technical training	9
Some college	22
College degree	15
Graduate work/degree	14
<b>TOTAL</b>	<b>100</b>
<b>Race (N=708)*</b>	
White	100

\*Total Ns are not the same because nonresponses are omitted.

The second question was chosen as the basic measure for the dependent variable. Responses were then grouped into four categories of BSE frequency to complete the analysis (see Table 2).

Using factor analysis with varimax rotation, scales were constructed from interview questions to measure BSE attitude, detection confidence, modesty, social influence, and preventive health orientation.<sup>6</sup> The appendix lists the specific questions for each of these areas.

All variables contributing to any scale had a factor score over .60 except one whose score was .53. Factor components were summed without weighting.

Five factors emerged that were significant. Variables measuring attitude loaded heavily on factor one; social influence variables loaded on factor two; variables measuring modesty and detection confidence loaded on factor three; and the preventive health variables were split between factors four and five. No variable loaded heavily on more than one factor.

Five scales were developed from the five significant factors. They were named: 1) the ATTITUDE scale, measuring the value one placed on BSE; 2) the SOCIAL INFLUENCE scale, measuring the support received for performing BSE; 3) the INHIBITION scale, measuring the comfort one felt

**TABLE 2—Prevalence of Breast Self-Examination Knowledge, Attitude, and Practice in the Sample**

	Per Cent
<b>Have ever done BSE (N=690)*</b>	
Yes	91
No	9
<b>TOTAL</b>	<b>100</b>
<b>Frequency of BSE practice (N=671)*</b>	
Never practice it	12
Less-than-monthly practice	44
Monthly practice	26
Greater-than-monthly practice	18
<b>TOTAL</b>	<b>100</b>
<b>BSE Attitude (N=708)*</b>	
Least Positive (0-3)	7
Positive (4-6)	41
Most Positive (7-9)	52
<b>TOTAL</b>	<b>100</b>
<b>BSE Knowledge (N=447)*</b>	
Low (0-3)	8
Medium (4-5)	68
High (6-7)	24
<b>TOTAL</b>	<b>100</b>

\*Total Ns are not the same because nonresponse and "do not know" respondents are omitted. If a subject did not answer any one of the knowledge questions, she was omitted from the calculation of index scores.

talking about breast concerns and how confident one felt in self-detection of breast cancer; 4) the MEDICAL PREVENTIVE HEALTH BEHAVIOR scale, measuring preventive health behaviors requiring a physician visit; and 5) the AUTONOMOUS PREVENTIVE HEALTH BEHAVIOR scale, measuring those health practices that can occur independent of medical visits.

Since responses to knowledge items were nominal measures, they were not included in the factor analysis. An additive index, however, was devised of the total number of correct responses to questions on the subject's general and specific knowledge about breast self-examination.

**Results**

Sixty per cent of the 1,181 subjects completed interviews (708 women); 19 per cent (223 women) refused the interview; 21 per cent (251 women) could not be reached during the interview period.

The sociodemographic characteristics of the sample are presented in Table 1. The sample resembles the population of women characterized as having a higher incidence of breast cancer in the United States. All participants were White, 86 per cent were married, and 60 per cent had formal education beyond high school. The mean age was 42 years, with 48 per cent of the sample falling within the age range of high breast cancer frequency (36-55).

**TABLE 3—Summary of Associations between BSE Frequency and Relevant Social Factors**

Association with BSE	Social Factor	Cramer's V	Chi Square	df	p	N*
Positive	BSE Knowledge	.173	38.8	24	.03	468
	BSE Attitude	.424	501.06	36	.0001	708
	Ease remember to do BSE	.424	202.1	6	.0001	568
	Ease remember what was felt	.244	65.48	6	.0001	558
	Medical preventive health behavior	.141	28.4	8	.0005	697
	Autonomous preventive health behavior	.100	16.6	8	.04	697
	Social influence for BSE	.300	238.23	20	.0001	640
Negative	Education	.141	40.37	18	.002	646
	Inhibition	.141	45.7	24	.005	606
Mixed	Age	.141	47.46	24	.003	642
None	Perceived breast cancer risk	.100	7.49	6	.278	592

\*Totals differ due to question nonresponse.

Table 2 shows that most women in the sample had tried BSE, while 44 per cent reported doing it at least monthly. Their general attitude toward BSE was very positive. Regarding BSE knowledge, most women reported that they had heard about BSE (99 per cent) and that they knew it should be done at least monthly (67 per cent). However, only 9 per cent stated that the pads of the finger tips should be used to do the examination and only 38 per cent knew it should be done following the menstrual period. Lack of correct responses to the more specific questions resulted in a lower score on the knowledge index.

#### Associations with BSE Frequency

The results of contingency table analyses of the associations between the four categories of BSE frequency and the independent variables are summarized in Table 3.

Most of the statistically significant tables displayed positive associations with BSE frequency. For example, as BSE knowledge increases, BSE frequency increases. This positive association is also true for BSE attitude, the ease of remembering to do BSE, the ease of remembering what is felt from one examination to the next, both preventive health behavior scales, the social influence scale, and the level of education.

The association of BSE frequency with age follows a different pattern. Seventy per cent of those who never practice BSE are over age 40. Only 42 per cent of those with a monthly practice are over 40. However, 65 per cent of those who practice BSE more frequently than once a month are over 40.

The variables measuring modesty have a nearly linear negative association with BSE frequency. A Guttman Scale

analysis suggests that there is a sequential or developmental process that women move through in working out their inhibitions. Only 53 per cent of the women feel comfortable talking to their friends about breast concerns; 72 per cent feel comfortable talking with their doctors; 80 per cent feel comfortable touching their breasts to do an examination; and 82 per cent feel comfortable talking to their husbands. The coefficient of reproducibility for the Guttman Scale is .9, and the coefficient of scalability is .6.

The results indicate that perceived breast cancer risk is not associated with BSE frequency. Women generally believe they are low risk to breast cancer. In many cases significant differences exist between their belief and their actual risk status according to known epidemiologic factors of breast cancer. For example, two of five women with a personal history of breast cancer did not consider themselves high risk. Seventy-two of 95 women with a family history of breast cancer did not consider themselves high risk. Sixty-six of 71 women having a first pregnancy after age 30 did not consider themselves high risk. And 86 of 95 women experiencing menopause after age 45 did not consider themselves to be high risk. In addition, none of these epidemiologic risk indicators were associated with the frequency of a BSE practice.

#### Discussion

The characteristics of this sample regarding BSE are comparable to other reports of similar population groups: women who can be classified by their sociodemographic characteristics as having a higher risk to breast cancer are more likely than the general population to practice BSE

monthly.<sup>3, 4</sup> These findings can be generalizable only to other White, high socioeconomic subgroups in the population.

The nonresponse and refusal rates were higher than one would have hoped. Dillman reported an average response rate of 85 per cent from telephone surveys.<sup>8</sup> The Gallup Organization, Inc., estimates a completion rate of about 50 per cent in similar surveys of women's personal health concerns.\* Warwick and Lininger state that a 75 per cent response rate is often considered the minimal acceptable level for telephone surveys.<sup>9</sup> The wide variation in these figures suggest the difficulty in comparing survey response rates. The denominators can vary widely depending on the sampling list used (can the ineligible persons be defined) and the inclusion or exclusion of calls "not answered" or "busy."

From the Polk Directory, we could not determine if the women were over age 65 or if they had died or moved. Everyone was called at least six times and most were called ten times. Since this survey was the pretest of a panel study of health behavior change, it was not possible to extend the two-week interviewing period without interfering with the experimental design.

As in other cross-sectional surveys, there were no data available on the breast self-examination practices of the non-respondents. One would expect that a woman who was less knowledgeable about BSE, who felt less positive about it, and who did not practice it would be less likely to participate in a BSE survey. In the panel study of BSE behavior change mentioned above, women who practiced BSE less often, who had less knowledge about it, and who had a more negative attitude toward it were more likely to drop out of the study.<sup>10</sup> If this bias is similar for all cross-sectional surveys of BSE practice, our estimates of the knowledge, attitude, and practice of BSE may be too optimistic.

An estimate of the extent of the bias for this study may be obtained by assuming that all 233 women who refused to participate did not practice BSE monthly; in this case the estimate of monthly practitioners would decrease from 44 per cent to 33 per cent.

Due to the retrospective nature of the study, no causal sequence can be suggested to explain the positive association between BSE frequency and knowledge of BSE or attitude toward both breast cancer and BSE. BSE knowledge and a positive BSE attitude could precede, follow, or develop concomitantly with the adoption of the monthly practice of BSE.

The positive association between level of education and BSE frequency is not surprising. However, the age distribution within the categories of BSE frequency is somewhat different from what might be expected. Not only are women who never practice BSE more likely to be older, but also women who practice BSE more often than monthly are more likely to be older. Inversely, the two intermediate frequency categories (monthly and less-than-monthly) are more likely to contain younger women.

It is interesting that BSE frequency has a stronger association with medical preventive health behaviors than with

autonomous preventive health behaviors. According to the definition used, BSE is an autonomous preventive health behavior. One might have expected that it would have been more strongly associated with the autonomous scale.

All preventive health practices, however, can not be homogeneously grouped.<sup>11</sup> They are multidimensional and often complex. This increases the difficulty of measuring a general preventive health orientation and of being able to predict the practice of individual behaviors from this orientation. It could be hypothesized that BSE is similar to medical preventive health behaviors in that something abnormal could be found during the course of practicing the behavior. In addition, unlike preventive behaviors such as wearing seat belts or exercising and similar to regular physicals done by a physician, practicing BSE does not lessen the risk or chance of getting the disease.

The data show that some women do feel uncomfortable dealing with breast concerns. The Guttman Scale analysis suggests that these inhibitions are overcome with closest intimates first. In other words, if a woman does not feel comfortable in discussing her breast concerns with her husband, she probably does not feel comfortable discussing them with her doctor or friends. On the other hand, if she does feel comfortable talking with her friends, she probably feels comfortable in the other closer, more intimate situations as well. The data do not suggest that breasts are an open topic for discussion.

The data also suggest that BSE is not openly discussed. Ten per cent of the sample reported that they had no social influence to practice BSE. Thirty-eight per cent stated that they had only one or two people who influenced them to practice BSE. This lack of social influence and support may leave women unsure about the acceptability or normativeness of doing BSE. Thus they remain less willing to commit themselves to a diligent practice.

No relationship is seen between BSE frequency and the epidemiologic indicators of breast cancer risk. This may be attributed either to an ignorance of these high risk indicators or an ignorance of their etiologic strength. It is also possible that these women are denying that they are personally susceptible or vulnerable to this disease.

In summary this study of the associations of social variables and BSE frequency has shown that in a sample of White, mostly married, well-educated women, the frequency of BSE practice is associated with age, education, knowledge, attitude, modesty, social influence, preventive health orientation, and ease in establishing a BSE routine. However, from these data we can not predict which, if any, of these variables are causal in adopting a BSE practice. Prospective research is needed to begin a delineate the causal role of these variables.

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#### APPENDIX

##### BSE Attitude Questions

1. How informed, if at all, do you think you are about breast self-examination?
2. Some women feel breast self-examination is worthwhile and some do not. How do you feel about it?
3. Some women do not care if they do breast self-examination, while others do. How about you?
4. How interested or uninterested are you in doing breast self-examination?
5. How important or unimportant is breast self-examination to you?
6. How important or unimportant do you think early detection is to saving the life of a woman who has had breast cancer?
7. How often, if at all, have you thought of doing breast self-examination?
8. How seriously, if at all, have you considered doing breast examinations?
9. How likely, if at all, would it be for you to do a regular breast examination?

##### Detection Confidence

1. How simple or difficult do you think it would be for you to find an abnormal lump in your breasts?
2. How sure, if at all, are you in your ability to notice changes in your breasts?

##### Modesty

1. How comfortable or uncomfortable are you in talking to your doctor about concerns with your breasts?
2. How comfortable or uncomfortable would you be in talking with your friends about your breast concerns?
3. If you are married, how comfortable or uncomfortable are you in talking with your husband about your breast concerns?
4. How comfortable or uncomfortable are you in touching your breasts to do a breast examination?

##### Social Influence

1. Has anyone suggested to you that you should do a breast examination?
2. Does anyone encourage you to do your breast examinations?
3. Have you and your friends ever talked about breast self-examination?
4. How influential, if at all, would you say . . . (your friends) . . . have been in your decision to do or not to do breast self-examination?
5. Does anyone other than yourself do a breast examination for you?

##### Preventive Health Orientation

1. (When was) . . . the last time you had a vision test?
2. (When was) . . . the last time you had your blood pressure checked?
3. How often, if at all, do you use your seatbelt while driving?
4. How frequently, if at all, do you go to a doctor for a female checkup?