Predictors of Breast Self-Examination Among Family Practice Patients

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The predictors of breast self-examination (BSE) and knowledge of BSE technique were examined among patients of a family practice group. There was found to be little relationship between the frequency with which women practiced BSE and their knowledge of effective BSE technique. The most important predictors of frequency of BSE were patients' perception of the social support for BSE and the extent to which they found BSE to be distasteful. Perceived health benefits of BSE were of less importance in predicting behavior. Knowledge of BSE technique was unrelated to any of these predictors. Women's self-reported confidence in their knowledge of BSE technique was only weakly related to their assessed knowledge. Further analysis showed that formal instruction in BSE was associated with a higher frequency of self-examination and greater knowledge of technique. The implication of the findings for family practice are discussed.

Breast self-examination is an attractive method of early detection because it is inexpensive, noninvasive, without apparent risk, and can be done without the use of specialized medical facilities or personnel. Although correlational evidence concerning the effectiveness of breast self-examination is mixed, recent reports show that education programs on breast self-examination skills have been associated with an increase in the number of breast cancers detected at an early stage by self-examination.[1-3] Successful identification of the personal factors related to breast self-examination should help both in identifying those groups who most need encouragement of this health habit and in designing effective programs for increasing its adoption.

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Although past research has found statistically significant relationships between psychological and social characteristics and breast self-examination, estimates of their relative importance are generally not given. In this paper the relative importance of three factors that have been most frequently suggested to be of major importance in the determination of health and other behaviors are compared within a sample of family practice patients.[4-7] These three factors are the individual's perception of the health benefits resulting from the action, how distasteful the act is considered to be, and the degree to which the individual perceives social support from significant others for undertaking the behavior.

Another focus of this paper is on knowledge of the breast self-examination technique. It is likely that the manner in which the examination is practiced is a critical moderator of its value for the early detection of breast cancer.[6,8] It is, therefore, important to examine the factors that are related to knowledge of the proper breast self-examination technique in addition to predictors of frequency of

examination practice. In addition to the three predictors already described, an effort was made to check the relationship between the reasons reported by women for beginning breast self-examination and the form of instruction they received in breast self-examination with the frequency with which they practiced self-examination and their knowledge of the examination technique.

METHODS

The initial sample consisted of 1,120 women aged 16 years and over who were on the register of the Department of Family Practice at Memorial University. This sample was selected on the basis of their names having been entered on a computer registry being adopted by the practice—the order of registration was essentially a random process.

Participants were mailed a questionnaire that was introduced by a letter from one of the authors (F.T.). Recipients were assured that their responses would be anonymous and were asked to complete the questionnaire and return it in the addressed and stamped envelope provided. The post office returned 88 of the questionnaires because the addresses were no longer valid, leaving a net mailing of 1,032. A total of 640 completed questionnaires were received for an overall response rate of 62 percent.

The total questionnaire consisted of four pages with 36 questions using rating-scale or fixed-alternative response formats. Practice of breast self-examination was scored on a five-point scale: a score of 5 indicating regular practice of more than once a month; 4 for once a month; 3 indicating reported practice at least once every three months; 2 indicating having done breast self-examination, but less than once every three months; and 1 indicating that the respondent reported never having practiced breast self-examination.

Six true or false questions (based upon Milan[9]) were asked to assess knowledge of the breast self-examination technique. The number of correct responses was used as a measure of knowledge of the self-examination procedure. Two observations support the value of these questions as a measure of knowledge of the breast self-examination technique. The first is that for 101 respondents it was possible to correlate scores on the six items with an expanded 20-item measure of knowledge of the breast self-examination method (also based on Milan[9]). The correlation between the six-item measure and the longer 20-item measure was .88. The other observation, which is consistent with the knowledge measure having validity, was the finding that women who had higher scores on the knowledge measure were rather more likely to report having found a breast lump in the past ($r = .18, df = 610, P < .001$). This finding is as would be expected if the knowledge measure is related to the efficacy of the technique that women are using for self-examination.

The measure of perceived benefits of breast self-examination was derived from ratings of (1) how beneficial or harmful for her well-being the respondent thought self-examination was; (2) the respondent's rated degree of certainty that she could detect breast cancer at an early stage through breast self-examination; and (3) rated belief in the extent to which early detection of breast cancer would increase her chances of surviving the disease. The sum of standard scores on each of these ratings was used as the index of perceived benefits of breast self-examination.*

The index of the distastefulness of breast self-examination was derived from the addition of standard score values for answers to questions about how pleasant or unpleasant the respondent considered self-examination to be, the extent to which she felt embarrassed about examining her own breasts, and the extent to which the idea of examining her breasts made her worry about

*Questions concerning perceived susceptibility to breast cancer and perceived seriousness of breast cancer were also included in the questionnaire, but these measures did not correlate with either the overall ratings of benefits of breast self-examination or with actual practice of breast self-examination, and so they are not included in this report. It should also be noted that, contrary to expectancy × value models of behavior, the product of confidence in ability to detect breast lumps and the value of early detection was not as highly related to the overall rating of breast self-examination benefits as the sum of the standardized scores on these measures.

cancer. The index of social support for breast self-examination was based on the total standard score values of the respondents' answers to three questions concerning her perception of: the proportion of her female friends or family members who practiced breast self-examination; her husband or partner's attitude toward her practicing breast self-examination; and her physician's attitude toward breast self-examination.

Those respondents who indicated that they practiced breast self-examination were asked why they began. Responses were coded into three categories: (1) recommendation of a physician or other health professional; (2) a magazine article, pamphlet, or something on television or radio about the importance of breast self-examination; (3) some other factor (eg, the recommendation of a friend or family member, an acquaintance having developed breast cancer). Each respondent was also asked whether she knew how to do a breast self-examination, and if so, how she learned the procedure. The categories into which responses to this question were coded included (1) having been instructed by a physician or other health professional, (2) having read an article or pamphlet that explained how to carry out breast self-examination, (3) having been instructed by a health professional and having received written instructions, (4) other ways (eg, having been taught by a friend or family member or having figured out a way by herself).

RESULTS

Of the respondents 6.1 percent were between 16 and 21 years of age, 84.9 percent fell within the 21- to 60-year age bracket, and 9 percent were over the age of 60 years. In terms of marital status 67.2 percent were married, 23.8 percent had never been married, and 9 percent were widowed or divorced or separated. Regarding education, 49.3 percent indicated having post-secondary education, indicating a somewhat higher level of education than in the general population.[10]

There was found to be little relationship between the frequency with which breast self-examination is practiced and knowledge of effective breast self-examination technique ($r = .11$, $P < .001$).**

TABLE 1. CORRELATIONS OF PREDICTOR VARIABLES WITH PRACTICE OF AND ASSESSED KNOWLEDGE OF BREAST SELF-EXAMINATION (BSE)*

Predictor Variable	Practice of BSE	Assessed Knowledge
Social support	.36**	.04
Perceived benefits	.22**	.10
Distastefulness	−.26**	−.08

As there were missing data for the components of some of the measures, the n's for the correlations vary between 400 and 617
***P < .001*

Correlates of Breast Self-Examination Practice

Table 1 presents the correlations of each of the three main predictors with practice of breast self-examination. When the three predictors were jointly entered into a multiple regression formula to predict breast self-examination, the resulting multiple correlation was a substantial .42. To estimate the relative importance of each of the variables in predicting breast self-examination, a stepwise forward inclusion multiple regression procedure was also used. The results showed that the perceived social supports for breast self-examination was the best single predictor of self-examination practice and that the index of distastefulness added significantly ($P < .001$) to the prediction of frequency of self-examination. The perceived benefits of breast self-examination did not add significantly to the prediction of breast self-examination beyond that which was achieved using the other two predictors.

Analysis of variance revealed that there was no

***Because of the comparatively large number of statistical tests carried out, it was decided to use .01 as the level for inferring statistical significance.*

TABLE 2. FREQUENCY OF PRACTICING BREAST SELF-EXAMINATION AND KNOWLEDGE OF TECHNIQUE BY REPORTED FORM OF INSTRUCTION

Form of Instruction	Frequency	Knowledge
Personal instruction by physician or nurse (n = 194)	2.8	4.7
Written instruction (article, pamphlet) (n = 205)	2.8	4.7
Both personal and written instruction (n = 77)	3.0	4.6
No professionally based instruction (n = 148)	2.0*	3.8*

**For both frequency and knowledge the average score of the first three groups was significantly higher than for the fourth group (P < .001)*

significant difference in frequency of breast self-examination between those who had begun self-examination because of a physician or nurse's recommendation or as a result of media health promotion in comparison with those who did so for other reasons. Table 2 shows that frequency of breast self-examination did, however, vary as a function of respondents' reports concerning how they learned to perform a breast self-examination ($F = 26.5$, $df = 3,620$, $P < .001$). Individual comparisons showed that this variation was due to the lower frequency of breast self-examination by those who had received no formal instruction.

Correlates of Knowledge of Breast Self-Examination Technique

No single one of the social or psychological predictor variables was found to relate significantly to assessed knowledge of breast self-examination technique (Table 1). Table 2 shows the average knowledge scores of respondents as a function of their indicated source of information about how to perform breast self-examination. A one-way analysis of variance showed a significant difference between groups ($F = 21.6$, $df = 3,620$, $P < .001$). Planned comparisons showed that the average score of the first three groups who had received professionally based instruction in breast self-examination technique was higher than for those having had no such instruction ($t = 7.73$, $df = 620$, $P < .001$).

Responses to the question that asked women whether they knew how to perform a breast self-examination showed a point biserial correlation with the actual knowledge scores of .19 ($P < .001$ level). Despite the significant P value, the rather low magnitude of the correlation suggests that there is at best only a modest correlation between individuals' self-perceived competence and a more objective measure of their knowledge of breast self-examination technique, a finding consistent with other recent reports.[11,12]

DISCUSSION

The findings of this study show some significant associations that can help family physicians promote breast self-examination.

Both common sense and the available data[6,8,13] suggest that only when self-examination is practiced regularly and skillfully is it likely to be of value in the early detection of breast cancer. It is, therefore, significant that in this study relatively little relationship was found between frequency of performing breast self-examination and assessed knowledge of the most effective technique. This finding suggests that many of the respondents who were practicing self-examination on a regular basis were not using optimal methods. Reminding patients of the importance of self-examination or asking them how often they examine their breasts is not adequate to insure effective use of this method of early detection.

The low relationship found between self-perceived competence in the breast self-examination technique and scores on a more objective measure also demonstrated that a positive answer to the question "Do you know how to examine your breasts?" is not an adequate assurance that a patient will not benefit from additional instruction.

Since perceived social supports are so closely related to the practice of breast self-examination,

the family physician should use patients' families and peer groups to help her or him promote the practice of this procedure.

Explicit instruction by physicians or nurses (in person or through professionally developed pamphlets or brochures) is positively related to both knowledge of technique and frequency of breast self-examination. Such instruction is likely to increase a woman's confidence in her ability to perform breast self-examination, thereby stimulating her to do so more regularly and more effectively.

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