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THE DIFFERENCES IN HEALTH BELIEFS
AND THE FREQUENCY OF MAMMOGRAMS
AMONG OLDER WOMEN

A Project
Presented to
The Faculty of the School of Nursing
San Jose State University

In Partial Fulfillment
of the Requirement for the Degree
Master of Science

by
Angela E Hall
November, 1998

Abstract

Increasing age is the primary risk factor for breast cancer, yet older women underutilize mammography for early detection. The purpose of this study was to explore any differences in perceived benefits, perceived barriers, and physician recommendation rate between older women who do and those who do not follow current mammogram screening guidelines.

A convenience sample of women over 65 years old ($N = 70$), completed the Health Belief Model questionnaire on mammography.

The findings indicate a statistical difference in the perceived benefits to mammograms between the two groups ($t = 2.72$, $p = .008$). There was no statistical difference in the perceived barriers. Physician recommendation rates were higher in the group who were compliant.

The study demonstrated that the belief in the benefit of annual mammograms and a high rate of physician recommendation were the most important factors for compliance. Nurses can improve the health outcomes of older women by discussing the benefits with them.

The Differences 3

The Differences in Health Beliefs
and the Frequency of Mammograms
among Older Women

Presently, half of all breast cancer cases in the United States (US) occur in women aged 65 years and older (United States Department of Health and Human Services [USDHHS] 1992; American Cancer Society [ACS], 1997). The United Kingdom (UK) reported 13,585 new cases of breast cancer in women over 65 years in 1991 with an average of 35,000 new cases diagnosed annually (Cancer Research Campaign, 19 June 1997).

The older population is expected to grow rapidly in the US with people over 65 years increasing from 13% of the population by the year 2000 to 20% by 2030 (USDHHS, 1992). The UK has a similar rate of increase in the aging population (Olson, 1994). With the graying of both countries, breast cancer will be an important health concern for older women in the future.

Increasing age is a woman's most important risk factor for developing breast cancer, although other factors exist (ACS, 1997). For a woman currently in her forties the probability rate for developing breast cancer within the next 10 years is 1 in 67, increasing to 1 in 39 in her fifties, and 1 in 29 in her sixties (ACS, 1997). In the US the incidence rate by race is greatest in white women (111.8 per 100,000 population) and lowest in Korean women (28.5 per 100,000 population), but the mortality rate is greatest in African-American women (31.4 per 100,000 population) and lowest in Chinese women (11.2 per 100,000) (ACS, 1997). The UK reports the highest mortality rate in the world from breast cancer (Patnick, 1995; Van Dijck et al., 1997).

Breast cancer cannot be prevented easily, but it can be detected by mammogram screening. The fatty tissue of older

womens' breasts allows x-ray to contrast better between tumor and normal tissue (Kopans, 1992; Scura & Whipple, 1997). Mammograms are known to detect breast cancer before a lump is palpable (Kopans, 1992). Mammography screening in women over 65 years is as effective in detecting breast cancer as for women aged 50-64 years (Faulk et al., 1995). Early detection reduces morbidity and mortality by finding breast cancer at an earlier stage (Gabriel et al., 1997; Kimmick & Muss, 1997).

The ACS recommends annual mammography for women over 40 years old. They recommend no upper age limit on annual mammograms, but state that the presence of chronic illnesses should be considered in the decision to continue annual mammogram screening. The UK recommends screening mammograms every 3 years by self-request to women over 64 years old. The US government through Medicare has paid 80% of the cost for biannual mammogram screening for eligible women, but recently increased this coverage to annual mammogram screening to comply with most breast cancer authority recommendations. The UK pays 100% of the cost of triennial screening mammograms.

In spite of increasing age as a primary risk factor, good x-ray sensitivity for the detection of breast cancer, and subsidized mammograms, women over 65 years of age are less likely to utilize mammogram screening than other age groups (Costanza, Stoddart et al., 1992; Thomas et al., 1996).

There are many reasons women do not participate in regular mammogram screening. Barriers to mammogram compliance have been well documented (Rimer et al., 1991; Caplan et al., 1992; Glasse, 1992; Rimer, Ross, et al., 1992; Zapka & Berkowitz, 1992; Champion, V. L. 1994a; McCool, 1994; Salazar, 1996). The most common are (a) fear of discovering cancer, (b) embarrassment,

(c) pain of the procedure, (d) logistical problems, (e) cost, and (f) lack of awareness of age as a risk. Several studies agree that physician recommendation is one of the most influential reasons for compliance with mammography screening (Rimer et al., 1989; Rimer, Resch et al., 1992; Rimer, 1993; Breen & Kessler, 1994; Marwill et al., 1996; Thompson et al., 1997).

Purpose

The purpose of this study was to investigate the differences in the perceived benefits and the perceived barriers between older women who follow and those who do not follow ACS guidelines for regular mammogram screening in the detection of breast cancer. The second purpose of this study was to compare differences in the frequency of physician recommendation for mammograms between the two groups of women.

Research Questions

1. What is the difference in the perceived benefits of mammograms between older women who follow the ACS guidelines and older women who do not?
2. What is the difference in the perceived barriers to mammograms between older women who follow the ACS guidelines and older women who do not?
3. What is the difference in the frequency of physician recommendation for mammograms between older women who follow the ACS guidelines and older women who do not?

Literature Review

A review of literature indicates that most of the previous studies divide underutilization of mammography into two areas, either (a) individual client factors, or (b) health care provider factors. Most of these studies included in their sample women in all age groups.

A few studies have been conducted specifically using women over 65 years old (Rimer, Trock, et al., 1991; Rimer, Ross, et al., 1992; Zapka & Berkowitz, 1992).

Individual client factors

Rimer, Ross et al. (1992) stated that older women were unaware that age was a risk factor for breast cancer, and that 70-74 year old women thought mammograms were only necessary if signs of breast cancer were found.

Champion (1994b) found that women undergo mammogram screening if perceived benefits outweigh the barriers. She concluded that interventions should be targeted towards the attitudes about susceptibility and seriousness of breast cancer in women who do not comply with mammography guidelines. Her population was mostly white middle class women 40-88 years old; therefore, her results could not be generalized to other populations.

Rimer, Resch et al. (1992) found that Medicare coverage alone was insufficient incentive for compliance. Their study suggests that access to a mammogram van and health education intervention increased compliance.

A qualitative study by Thompson et al. (1997) suggested that all the common barriers to mammogram screening existed with their population of low-income urban women between 50-69 years old, but also identified ease or difficulty making the appointment as an important factor. Van Dijck et al. (1997) suggest that chronic disease in older women reduces their motivation and mobility for mammogram screening.

Health care provider factors

Roetzheim et al. (1995) reported that although 73% of physicians agreed with screening women aged 65-74 years, only 24% actually did it. White physicians practicing

obstetrics/gynecology had the highest actual screening rates for all age groups over 65 years. Champion (1994a) found that physician recommendation for mammogram was a stronger cue for older women than for younger women because they historically do not question medical decisions. Thompson et al. (1997) reported that a high proportion of their subjects stated that physician recommendation was the most important factor to getting a mammogram. Eardley and Elkind (1991) found that over 50% of their population attended for mammogram because of the accompanying letter of invitation from their family physician.

Rimer et al. (1991) concluded that mammography screening education strategies should be directed towards women and their physicians because physician support for mammography was found to be an important variable in compliance. Constanza (1994) agreed with their findings.

Conceptual Framework

The Health Belief Model (HBM) provided the conceptual framework for this study. The HBM focuses on beliefs and perceptions, which are subjective, and attempts to predict preventative health behaviors through these beliefs and perceptions (Rosenstock, 1974). The author states that individuals must believe that they are (a) personally susceptible to the disease, (b) the disease must have moderate perceived severity, (c) a preventative action must be perceived as beneficial, (d) overcoming barriers would not be perceived as difficult, and (e) a "cue to action" either by internal or external stimulus must occur before a health intervention will occur. Additionally, in the absence of symptoms, individuals must believe they could have the disease to submit to screening test for early detection. (Rosenstock, 1974).

The HBM variable perceived benefits focuses on the individual's

belief in the effectiveness of an action in reducing the seriousness or susceptibility to a disease. The variable perceived barriers focuses on the negative psychological obstacles which prevent the action such as cost, inconvenience, or unpleasantness (Rosenstock, 1974). The HBM has empirical support and has been used in many previous studies (Champion, 1984; Dickason, 1991; Norman & Conner, 1993; Norman, 1995).

Methodology

Sample

The sample was a non-probability, convenience sample. The women were 65 years old and over, recruited voluntarily, made their own health decisions, and lived in Alameda and Santa Clara counties, California. They were able to speak and read English, and had no history of breast cancer or fibrocystic breast disease. The women were divided into two groups (a) those who did follow the ACS guidelines (group F) with 5 self-reported mammograms between 1993 and 1997, and (b) those who did not follow the ACS guidelines (group NF) with 4 or fewer self-reported mammograms between 1993 and 1997.

Subjects were approached by the researcher prior to their lunch programs or at the end of their classes to request their participation. Informed consent was provided in a letter prior to being given the questionnaire. Two dollars were paid to each subject upon completing this 15-20 minute questionnaire.

Setting

The sample population was recruited from senior centers in the cities of Fremont, Mountain View, Cupertino, and Palo Alto, California. Approval for entry into these centers was given by the managers. These settings were chosen because they provide convenient access to a large number of this study population.

Older women living in the community can be difficult to access due to social, medical, and psychological problems (Preski & Burnside, 1992). Approval for the study was obtained through San Jose State University Human Subject's Institutional Review Board prior to beginning this study.

Instrument

The instrument for this study was the HBM scale in the form of a questionnaire modified by Dickason for her 1991 doctoral study (see Appendix A). Dickason (1991) modified Champion's Breast Self Exam Tool by substituting mammography terms, assuring face validity, and pretesting the instrument prior to her study. The instrument was also designed to be used in her study with women over 62 years old, and Dickason reported its reliability and validity. Permission was granted by Dickason for its use in this study (see Appendix B).

The final questionnaire for this study consisted of 45 questions in seven sections. Six sections asked about the subjects' beliefs on (a) barriers to mammogram screening, (b) benefits of mammogram screening, (c) cues to action, (d) seriousness of breast cancer, (e) susceptibility to breast cancer, and (f) health motivation. The seventh section included demographic information and physician recommendation questions (see Appendix C). The responses were scored on a seven point Lickert scale which ranged from one, strongly disagree, to seven, strongly agree. Neutral, no feeling either way, was at midpoint.

The benefit section included questions on the subjects' feelings that mammography will (a) detect breast cancer before physical examination, (b) reduce mortality, (c) reduce anxiety about breast cancer, and (d) reduce the chance of disfiguring breast surgery. The perceived barrier section asked questions

related to obstacles to annual mammograms such as (a) increasing worry, (b) time consuming, (c) pain level, (d) radiation risk, (e) transportation difficulty, (f) cost, (g) embarrassment, and (h) fear of breast cancer.

Data Collection

The data were collected onsite over 8 days with two questionnaires being returned by mail. Seventy-three questionnaires were completed. Three questionnaires were excluded as they were incomplete. The investigator explained the study, assessed eligibility, distributed, collected, and checked the completed forms.

Materials on breast cancer and mammograms were offered after completion of the questionnaire, and the researcher was available for any questions. The questionnaires were transcribed onto a scantron and divided into two groups, those who followed the ACS guidelines and those who did not.

Data Analysis

The independent variables were (a) the perceived benefits of mammograms, (b) the perceived barriers to mammograms, and (c) the frequency of physician recommendation for mammogram screening. The dependent variable was whether or not the ACS guidelines were followed as measured by the number of mammograms self-reported from 1993 through 1997.

Results

There were a total of 70 subjects. Thirty six subjects, group F, reported having received 5 mammograms from 1993-1997. This group met the ACS guidelines. Thirty-four subjects, group NF, reported having received 4 or fewer mammograms from 1993-1997. This group did not follow the ACS guidelines.

Each group was predominantly white, educated, and Christian.

More women in group NF were widowed. More women in group F were married. Equal numbers in each group were divorced. Demographic characteristics for both groups are summarized in Table 1.

Table 1
Description of Sample by Percent (n=70)

	<u>Group</u>	
	F (%)	NF (%)
Age		
65-69	22.2	35.3
70-74	33.3	32.4
75-79	33.3	32.4
Over 80	11.1	0
Marital Status		
Single	8.3	2.9
Married	38.9	23.5
Divorced	19.4	17.6
Widowed	33.3	55.9
Ethnicity		
White	97.2	70.6
Hispanic	2.8	5.9
Asian	0	20.6
Other	0	2.9

(table continues)

	<u>Group</u>	
	F (%)	NF (%)
Religion		
Catholic	36.1	44.1
Protestant	50	41.2
Jewish	5.6	2.9
Hindu	8.3	2.9
Other	0	8.8
Highest Level of Education		
Did not finish High School	5.6	5.9
High School graduate	36.1	41.2
Trade School	8.3	2.9
College/University	50	50

Note N_F =36

N_{NF} =34

Statistical significance was analyzed by the t-test for independent samples. A statistically significant difference between the two groups was found for perceived benefits ($t = 2.72$, $p = .008$), indicating that the group who had more mammograms had stronger beliefs in the benefits of annual mammogram for the early detection of breast cancer than did the group with fewer mammograms.

There was no statistical difference found between the two groups for perceived barriers to mammograms. Table 2 presents the statistical analysis for perceived benefits and perceived barriers of the HBM for both groups.

Table 2

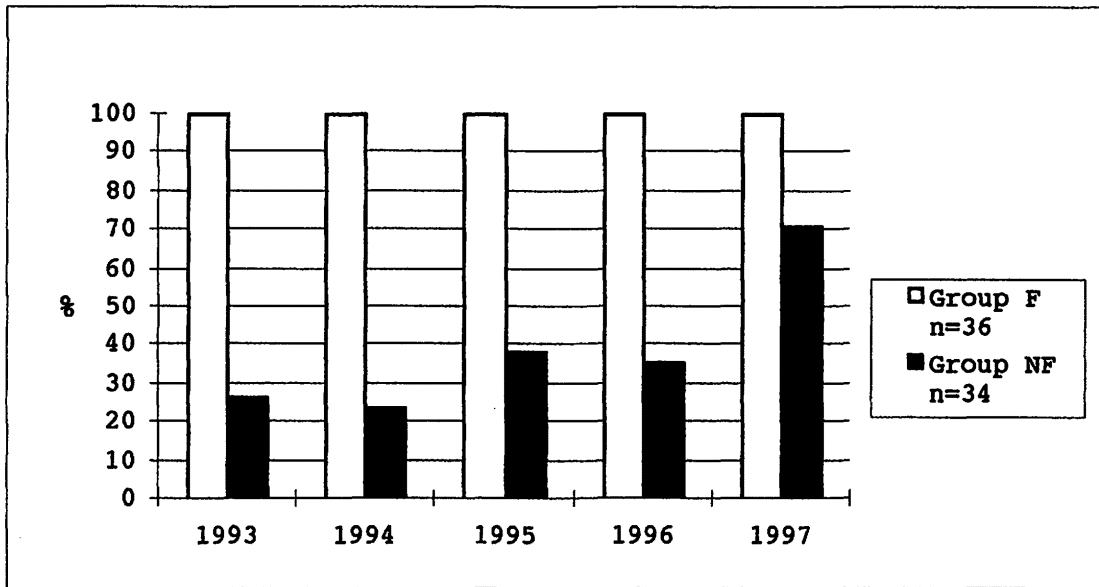
Perceived Barriers and Benefit to Mammograms

Variable	Group	Mean	Std	T-value	Df	Significance
Perceived Barriers	F	2.09	1.24			
	NF	2.61	1.13	-1.81	68	0.074
Perceived Benefit	F	6.45	0.75			
	NF	5.79	1.22	2.72	68	0.008*

Note * $p < .05$, two-tailed

In group NF during 1993-1997, the collective rates of mammograms by calendar year reported were 26% in 1993, 23% in 1994, 38% in 1995, 35% in 1996, and 70% in 1997. Figure 1 compares the mammogram rates for both groups by year.

Figure 1
Each Groups Annual Rate of Screening Mammograms by percent



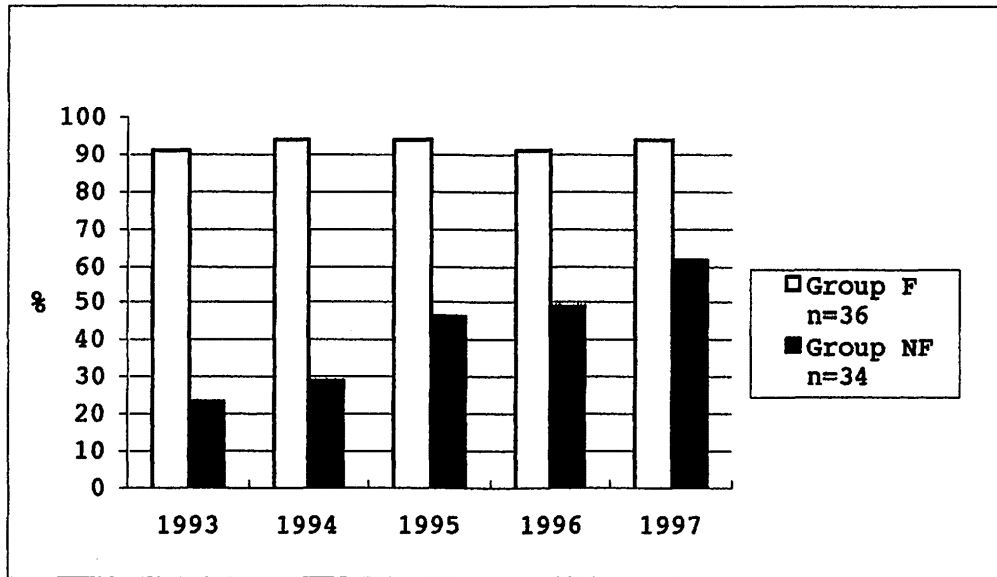
Also in group NF, the results by individual subject show two women (6%) had never had a single mammogram, fourteen women (41%) reported only one mammogram, six women (18%) reported two mammograms, eight woman (23%) had three mammograms, and four women (12%) had four mammograms.

Group F reported that 94% of their physicians recommended at least one mammogram between 1993-1997 while group NF reported a recommendation rate of 91%. When analyzed by year, however, the frequency of physician recommendation was much lower in group NF. This group reported 23.5% in 1993, 29.4% in 1994, 47.1% in 1995, 50% in 1996, and 61.8% in 1997. Recommendation rates for group F

were higher and ranged from 91.7% to 94.4% each year. Figure 2 compares the physician recommendation by groups between the years 1993 and 1997.

Figure 2

Physician Recommendation Rates by Year and Percent



Nineteen subjects in group NF (56%) had a mammogram the same year they reported their physician made a recommendation. Seven women (21%) had mammograms despite no physician recommendation. Six women (18%) had physician recommendation, but did not follow the recommendation as given. Two women (5%) had more mammograms than physician recommendation.

The US government, through Medicare, now pays for annual screening mammograms for women over 65 years old. Ninety five percent of the women in Group F and 79.4% of the women in Group NF reported being aware of this change. Interestingly, group NF had a lower awareness of this change than group F.

There were notable differences and similarities between the

groups in their responses to specific questions. Group NF responded that mammograms were embarrassing, painful, and carried a radiation risk more frequently than group F. Both groups felt that if their breast looked or felt different to them they would likely have a mammogram. Both groups equally agreed that pamphlets by the ACS recommending annual mammograms would provide them with a cue to action for annual mammograms.

Group F felt more vulnerable to developing breast cancer at some time in their lives than group NF, but neither group felt they were any more vulnerable to developing breast cancer than a woman aged 50 years old.

Discussion

In this comparative study, links between the belief in the benefit of annual screening mammograms for the early detection of breast cancer and physician recommendation for the procedure and the rate of mammograms were the most important findings.

A statistically significant difference was found between the perceived benefits of mammograms in the two groups. Previous data regarding perceived benefits as a predictor of mammogram usage was inconclusive. Stein et al. (1992) reported that perceived benefits were not significant predictors of mammogram. Rutledge et al. (1988), on the other hand, reported that perceived benefits were important in mammography behavior. Champion (1994b) agreed. The results of this study suggest that women will be more likely to get a mammogram if they believe that mammography is an effective method of early detection.

No statistically significant difference between the two groups was found in the perceived barriers to mammogram. However, women in group NF more frequently reported a belief that mammograms were painful, carried a radiation risk, and were embarrassing

than did women in group F. While not statistically significant, this does support other studies that cite pain, radiation risk, and embarrassment as a barrier to mammograms (Morisky et al., 1989; Rimer et al., 1991; Champion, 1994a; Fox & Roetzheim, 1994).

In this study more women in group NF were from a non-white ethnic group. The literature suggests that ethnic groups are less likely to utilize recommended screening mammograms (Breen & Kessler, 1994; Roberson, 1994; Burns et al., 1996; Salazar, 1996). Women in Group F were more likely to be white and married and this supports similar findings in a previous study (Rimer et al., 1989).

This study indicated that 97% of the women reported at least one mammogram within the five years studied. Earlier studies show lower percentages. Dickason (1991) reported 68.5% of women in her study had a minimum of one mammogram. Fox et al. (1991) reported that 47% of their over 65 years old female population had never had even one mammogram. Similarly, Herman et al. (1995) reported 54% of their randomized controlled sample had never had one mammogram recorded within the 27 months prior to their study. Burns et al. (1996) reported that only 15% overall in their study had had a mammogram.

The number of mammograms for group NF ranged from one to four. The rate of repeated mammograms for group NF was low at 65% having two or less. Four women (11%) in group NF had received 4 mammograms in 5 years. No history was available on these women to deduce why they had missed one annual mammogram. Eight women (23%) had obtained three mammograms.

Marwill et al. (1996) reported that while 80% of physicians were aware of the ACS mammography guidelines for women 65-74

years old that number decreased to 54% being aware that the guidelines are also annual for women 75 years and older. In this study, the annual physician recommendation rate for group NF was low at 23.5% in 1993, but increased annually reaching 61% in 1997. Group F had a consistently high physician recommendation rate ranging between 91-94% for screening mammograms. These results support previous studies that suggest physician recommendation is strongly associated with screening compliance (Rimer et al, 1989; Rimer et al. 1991; Constanza, Stoddart, Zapka et al., 1992; Rimer, Resch et al., 1992; Rimer, 1993; Breen & Kessler, 1994; Roetzheim et al., 1995)

The annual rate of screening mammograms in group NF remained relatively steady between 23.5% and 38.2% during 1993-1996, but then almost doubled in 1997 to 70.6%. Interestingly, the physician recommendation rate also increased in 1997. Women over 70 years old are a special target population for the nation's "healthy people 2000" objectives (USDHHS, 1995). It is hoped to increase to 60% the number of women in this age group who have had a mammogram in the proceeding 2 years and this result may show a trend toward that goal.

This study population was a convenience sample of women who attended senior centers, were predominantly white, English-speaking women over 65 years old, which limits the ability to generalize the findings to other older women in different settings.

Limitations of this study also include (a) the self-reporting instrument, and (b) the potential for memory problems with this population while responding to the two questions on the actual years they had mammograms and physician recommendation.

Conclusion

This study demonstrated that there were differences between older women who follow the ACS guidelines for annual mammogram screening and those who do not. A statistically significant difference was found in the beliefs about the benefit of mammograms for the early detection of breast cancer between the groups that did and did not follow the guidelines. The group who did follow the guidelines believed the benefit of mammograms outweighed the barriers to mammograms. The group who did not follow the guidelines reported more barriers to mammogram screening, and although the difference did not reach statistical significance in this study, it is a factor to be considered by health professionals.

Physician recommendation was considered important in the compliance of mammogram screening. The women in this study who had annual mammograms also reported a higher incidence of physician recommendation than those women who had intermittent mammograms. This study showed that when the rate of physician recommendation increased sharply in 1997 for group NF, the rate of mammograms also sharply increased for that group during 1997. Earlier studies have suggested that low screening compliance was related to low physician recommendation, and education of physicians was required to increase the compliance by older women (Roetzheim et al., 1991; Rubenstein, 1991; Roetzheim et al., 1995).

Recommendation

This study was limited by the mostly white, active, and highly educated population who responded to the questionnaire. Further studies should be done to include older women in (a) ethnically diverse populations, (b) various education levels, (c) other

community settings, and (d) with chronic health problems.

Nursing Implications

The health of an aging female population will need specific attention from nurses in the future. Preventing unnecessary breast cancer deaths by promoting early detection is one focus that community, practice, and geriatric nurses can target through education of their clients.

Nurses in the UK can utilize these results. They should stress the benefit of early detection, increase their older clients knowledge of age as an increasing risk factor for breast cancer, reinforce that symptoms do not have to be obvious for the presence of breast cancer, and assist their clients in maneuvering through the barriers to mammogram screening that they may encounter. According to Rubenstein (1991) older people consider health promotion important and engage in behavior changes related to health.

While the UK currently does not actively recruit women over 65 years for routine screening mammograms, they can be screened on request triennially. Patnick (1995) reports that women over 65 years old in the UK were not routinely invited for mammograms as their attendance was poor. This study demonstrated that if women perceived that mammography was beneficial in the early detection of breast cancer then they were more likely to attend for routine screening. Also, when the physician recommendation was high then the number of mammograms was also high.

Nurses can educate their older clients about the importance of requesting regular screening mammogram from their family physician or nurse practitioner. Nurses can also discuss directly with the clients' physician or nurse practitioner the benefit of recommending screening mammograms for the early detection of

breast cancer in their female clients over 65 years of age.

Therefore, nurses can provide a crucial intervention that may well improve the health outcomes of older women.

References

American Cancer Society (ACS) (1997) Breast cancer facts & figures: 1997. Georgia: ACS

Burns, R. B., McCarthy, E. P., Freund, K. M., Marwill, S. L., Shwartz, M., Ash, A., Moskowitz, M. A. (1996) Variability in mammography use among older women. *Journal of American Geriatric Society*; 44: 8, 922-926.

Breen, N., Kessler, L. (1994) Changes in the use of screening mammography: evidence from the 1987-1990 national health interview surveys. *American Journal of Public Health*; 84: 1, 62-67.

Cancer Research Institute for Cancer Studies (19 June 1997) Cancer Research Campaign. University of Birmingham, <<http://www.medweb.bham.ac.uk/cancerhelp/hp/crc/factshts/breastuk/fig03.html>> (accessed 18 September 1998).

Caplan, L. S., Wells, B. L., Haynes, S. (1992) Breast cancer screening among older racial/ethnic minorities and whites: barriers to early detection. *Journal of Gerontology*; 47: 101-110.

Champion, V. L. (1984) Instrument development. *Advances in Nursing Science*; 6: 3, 73-75.

Champion, V. (1994a) Relationship of age to mammography compliance. *Cancer Supplement*; 74: 1, 329-335.

Champion, V. L. (1994b) Beliefs about breast cancer and mammography by behavioral stage. *Oncology Nursing Forum*; 21: 6, 1009-1014.

Constanza, M. E. (1994) The extent of breast cancer screening in older women. *Cancer Supplement*; 74: 7, 2046-2050.

Constanza, M. E., Stoddart, A., Gaw, V. P., Zapka, J. G. (1992) The risk factors of age and family history and their relationship to screening mammography utilization. *Journal of the*

American Geriatric Society; 40: 8, 774-778.

Constanza, M. E., Stoddard, A. M., Zapka, J. G., Gaw, V. P., Barth, R. (1992) Physician compliance with mammography guidelines: barriers and enhancers. Journal of American Board of Family Practice; 5: 2, 143-152.

Dickason, E. L. (1991) Use of health belief model in determining mammography screening practices in older women (doctoral dissertation, Temple University, 1991). Microfiche, Eugene: Microfilm Publications, University of Oregon.

Eardley, A., Elkind, A. (1991) Breast cancer screening among women aged 65 and older: what do they think of it. Journal of Public Health Medicine; 13: 3, 172-177.

Faulk, R. M., Sickles, E. A., Sollitto, R. A., Ominsky, S. H., Galvin, H. B., Frankel, S. D. (1995) Clinical efficacy of mammographic screening in the elderly. Radiology; 194: 193-197.

Fox, S. A., Murata, P. J., Stein, J. A. (1991) The impact of physician compliance on screening mammography for older woman. Archives Internal Medicine; 151: 1, 50-56.

Fox, S. A., Roetzheim, R. G. (1994) Screening mammography and older Hispanic women. Cancer Supplement; 74: 7, 2028-2033.

Gabriel, H., Wilson, T. E., Helvie, M. A. (1997) Breast cancer in women 65-74 years old: earlier detection by mammographic screening. American Journal of Roentgenology; 168: 1, 23-27.

Glasse, L. (1992) Breast cancer screening in older women: the consumer perspective. Journal of Gerontology; 47: 137-141.

Herman, C. J., Speroff, T., Cebul, R. D. (1995) Improving compliance with breast cancer screening in older women. Archives Internal Medicine; 115: 717-722.

Kimmick, G., Muss, H. B. (1997) Breast cancer in older women. *Clinics in Geriatric Medicine*; 13: 2, 265-282.

Kopans, D. B. (1992) Screening mammography in women over age 65. *Journal of Gerontology*; 47: 59-62.

Marwill, S. L., Freud, K. M., Barry, P. P. (1996) Patient factors associated with breast cancer screening among older women. *American Geriatrics Society*; 44: 10, 1210-1213.

McCool, W. F. (1994) Barriers to breast cancer screening in older women: a review. *Journal of Nurse-Midwifery*; 39: 5, 283-299.

Morisky D.E., Fox S.A., Murata P.J., Stein J.A. (1989) The role of needs assessment in designing a community-based mammography education program for urban women. *Health Education Research*; 4: 469-78.

Norman, P. (1995) Applying the health belief model to the prediction of attendance at health checks in general-practice. *British Journal of Clinical Psychology*; 34: 3, 461-470.

Norman, P., Conner, M. (1993) The role of social cognition models in predicting attendance at health checks. *Psychology & Health*; 8: 6, 447-462.

Olson, L. K. (1994) *The graying of the world: Who will care for the frail elderly?* New York: Hawthorn Press.

Patnick, J. (1995) Screening: giving the knowledge. *Nursing Standard*; 9: 26, 20-21.

Preski, S., Burnside, I. (1992) Clinical research with community-based older women; 18: 6, 13-18.

Rimer, B. K. (1993) Improving the use of cancer screening for older women. *Cancer Supplement*; 73: 2, 1084-1087.

Rimer, B., Keintz, M., Kessler, H., Engstrom, P., Rosan, J. (1989) Why women resist screening mammography: patient-related

barriers. *Radiology*; 172: 342-246.

Rimer, B. K., Resch, N., King, E., Ross, E., Lerman, C., Boyce, A., Kessler, H., Engstrom, P. F. (1992) Multistrategy health education program to increase mammography use among women ages 65 and older. *Public Health Reports*; 107: 4, 369-380.

Rimer, B. K., Ross, E., Cristinzio, C. S., King, E. (1992) Older women's participation in breast screening. *Journal of Gerontology*; 47: 85-91.

Rimer, B. K., Trock, B., Engstrom, P. F., Lerman, C., King, E. (1991) Why do some women get regular mammograms. *American Journal of Preventative Medicine*; 7: 2, 69-74.

Roberson, N. L. (1994) Breast cancer screening in older black women. *Cancer Supplement*; 74: 7, 2034-2041.

Roetzheim, R. G., Fox, S. A., Leake, B. (1995) Physician-reported determinants of screening mammography in older women: the impact of physician and practice characteristics. *American Geriatrics Society*; 43: 12, 1398-1402.

Roetzheim, R. G., Van Durme, D. J., Brownlee, H. J., Herold, A. H., Pamies, R. J., Woodard, L. (1991) Compliance with screening mammography: survey of primary care physicians. *Journal of Florida Medical Association*; 78: 7, 426-429.

Rosenstock, I. M. (1974) Historical origins of the health belief model. *Health Education Monogram*; 2: 354-385.

Rubenstein, L. (1991) Targeting health advocacy efforts toward the older population. *Cancer*; 68: 2519-2524.

Rutledge, D. N., Hartmann, W. H., Kinman, P. O., Winfield, A. C. (1988) Exploration of factors affecting mammography behaviors. *Preventative Medicine*; 17: 412-422.

Salazar, M. K. (1996) Hispanic women's beliefs about breast cancer and mammography. *Cancer Nursing*; 19: 6, 437-446.

Scura, K. W., Whipple, B. (1997) How to provide better care for the postmenopausal woman. *American Journal of Nursing*; 97: 4, 36-43.

Stein, J. A., Fox, S. A., Murata, P. J., Morisky, D. E. (1992) Mammography usage and the health belief model. *Health Education Quarterly*; 19: 4, 447-462.

Thomas, L. R., Fox, S. A., Leake, B. G., Roetzheim, R. G. (1996) The effects of health beliefs on screening mammography utilization among a diverse sample of older women. *Women & Health*; 24: 3, 77-94.

Thompson, B., Montano, D. E., Mahloch, J., Mullen, M., Taylor, V. (1997) Attitudes and beliefs toward mammography among women using urban public hospitals. *Journal of Health Care for the Poor and Underserved*; 8: 2, 186-200.

United States Department of Health and Human Services (USDHHS). (1992) A profile of older Americans. <<http://www.pr.aoa.dhhs.gov/stats/profile#table>> (accessed 10 October 1997).

United States Department of Health and Human Services, Public Health Service, Center for Disease Control and Prevention, National Center for Health Statistics (USDHHS) (1995) Healthy people 2000: Midcourse review and 1995 revisions. Hyattsville, MD: Government Printing Office.

Van Dijck, J. A., Broeders, M. J., Verbeek, A. L. (1997) Mammographic screening in older women: is it worthwhile? *Drugs-Aging*; 10: 2, 69-79.

Zapka, J. G., Berkowitz, E. (1992) A qualitative study about breast cancer screening in older women: implication for research. *Journal of Gerontology*; 47: 93-100.

Reading List

Preski, S., Burnside, I. (1992) Clinical research with community-based older women. *Journal of Gerontological Nursing*; 18: 6, 13-18.

This article provides practical tips on research strategies with older women living in the community.

Kimmick, G., Muss, H. B. (1997) Breast cancer in older women. *Clinics in Geriatric Medicine*; 13: 2, 265-282.

This article discusses epidemiology, prevention, and medical management of breast cancer in older women.

Diemert, S. (1995) *Breast Cancer: Twenty women's stories*. New York: NLN Press.

This book details the intimate experiences of twenty women diagnosed with breast cancer in their own words. The women describe their treatment, coping mechanisms, family involvement, and feelings on their own mortality as a result of their illness.

National Cancer Institute (NCI) (1995) *What you need to know about breast cancer*. (NIH Publication No. 95-1556). Bethesda, MD: NCI

A comprehensive, easily read government booklet on breast cancer with a glossary of medical terms and resource information for women who reside within the United States

Key Points

1. Older womens' health beliefs affect their use of screening mammography for the early detection of breast cancer.
2. Screening mammograms are effective in women over 65 years old for the early detection of breast cancer.
3. Older women underutilize screening mammography.
4. Nurses must discuss with their older clients the benefits of screening mammograms for the early detection of breast cancer.
5. Increasing age is the main risk of breast cancer in older women.

Key Words

Breast Cancer

Older Women

Mammograms

Health Belief Model

Appendix A

Dickason's modification of
Champion's Health Belief Model Scale

- 7=Strongly agree,
- 6=Moderately agree,
- 5=Slightly agree,
- 4=Neutral,
- 3=Slightly disagree,
- 2=Moderately disagree,
- 1=Strongly disagree,

Benefits

1. Allow a lump to be detected before it can be felt by physical examination.
2. Reduce my chance of dying of breast cancer.
3. Reduce my chance of requiring radical or disfiguring surgery for breast cancer.
4. Reduce my anxiety about breast cancer.

Barriers

2. It is embarrassing for me to have a mammogram.
3. Having a mammogram will take too much time.
4. Having a mammogram is very expensive.
5. Having a mammogram is frightening to me.
6. Transportation to the mammogram screening center is difficult for me.
7. Mammograms can be painful.
8. Having a mammogram exposes me to the risk of radiation.

Cues to Action

1. My doctor recommending a yearly mammogram.
2. A family member or friend is diagnosed with breast cancer.
3. Pamphlets from the American Cancer Society recommending an annual mammogram.
4. A family member urging me to have a mammogram.
5. A TV show featuring Nancy Reagan urging women my age to have a yearly mammogram.
6. Seeing a film that showed a woman having a mammogram.
7. If my breasts looked or felt different to me.

Seriousness

1. The thought of breast cancer if not treated promptly scares me.
2. Feelings about myself would change if I got breast cancer and it were not treated promptly.
3. When I think about breast cancer which is not treated promptly my heart beats faster.
4. I am afraid to even think about breast cancer if it is not treated promptly.
5. Problems I would experience from breast cancer which was not treated promptly would last a long time.

6. If I had breast cancer which was not treated promptly my whole life would change.
7. If I developed breast cancer and it was treated promptly, I would not live longer than 5 years.

Susceptibility

1. I am likely to develop breast cancer sometime in my life.
2. I feel that I will get breast cancer in the future.
3. There is a good probability that I will get breast cancer.
4. My chances of getting breast cancer are great.
5. I am more likely than a 50 year old to get breast cancer.

Health Motivation

1. Maintaining good health is extremely important to me.
2. I search for new information related to my health.
3. I frequently do things to improve my health.
4. I eat a well balanced diet.
5. I will have a mammogram this year.
6. I work hard to discover breast cancer early.

Appendix B

Permission to use instrument

Subject: Re: HBM Mammography Scale
Date: Thu, 11 Dec 1997 12:30:17 -0800
From: [REDACTED]
To: [REDACTED]

Dear Ms. Hall:

Thank you for your interest in using my modification of Dr. Champion's original HBM Scale. You have my permission to use my HBM Scale, however, I believe that it is important that you use the tool in its entirety to achieve the statistical value intended by Becker for his model. Therefore, please use only the complete scale for your work. Please acknowledge the use of my tool in any academic work, presentation or publications. I look forward to receiving a copy of your completed study.

If you have any questions do not hesitate to contact me at [REDACTED] or at [REDACTED]

Sincerely,

Dr. Elizabeth Dickason

Appendix C
Demographics

1. Age

- (a) 65-69
- (b) 70-75
- (c) 76-80 years
- (d) over 80

2. Have you ever had a mammogram? Yes/No

If yes, please tick the years you had the mammograms.

1992 _____ 1993 _____ 1994 _____ 1995 _____ 1996 _____ 1997 _____ 1998 _____

3. Has your physician recommended a mammogram in the last five years? Yes/No

If yes, please tick the years

1992 _____ 1993 _____ 1994 _____ 1995 _____ 1996 _____ 1997 _____ 1998 _____

4. Are you aware Medicare pays for annual screening mammograms?

Yes/No

5. Highest Level of School

- (a) did not finish high school
- (b) finished high school
- (c) trade school
- (d) college

6. Marital Status

- (a) Single
- (b) Married
- (c) Divorced
- (d) Widowed

7. Ethnic Group

- (a) White
- (b) African American
- (c) Hispanic
- (d) Asian
- (e) Other Please state _____

8. Religion

- (a) Roman Catholic
- (b) Protestant
- (c) Jewish
- (d) Muslim
- (e) Hindu
- (f) other Please state _____