RESEARCH COMMUNICATION

Socio-Demographic Correlates of Participation in Mammography: A Survey among Women Aged between 35-69 in Tehran, Iran

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Abstract

　　Background: The rates of breast cancer have increased over the past two decades, and this raises concern about physical, psychological and social well-being of women with breast cancer. Further, few women really want to do breast cancer screening. We here investigated the socio-demographic correlates of mammography participation among 400 asymptomatic Iranian women aged between 35 and 69. **Methods**: A cross-sectional survey was conducted at the four outpatient clinics of general hospitals in Tehran during the period from July through October, 2009. Bi-variate analyses and multi-variate binary logistic regression were employed to find the socio-demographic predictors of mammography utilization among participants. **Results**: The rate of mammography participation was 21.5% and relatively high because of access to general hospital services. More women who had undergone mammography were graduates from university or college, had full-time or part-time employment, were insured whether public or private, reported a positive family history of breast cancer, and were in the middle income level (all P <0.01).The largest number of participating women was in the age range of 41 to 50 years. The results of multivariate logistic regression further showed that education (95%CI: 0.131-0.622), monthly income (95%CI: 0.038-0.945), and family history of breast cancer (95%CI: 1.97-9.28) were significantly associated (all P <0.05) with mammography participation. **Conclusions**: The most important issue for a successful screening program is participation. Using a random sample, this study found that the potential predictor variables of mammography participation included a higher education level, a middle income level, and a positive family history of breast cancer for Iranian women, after adjusting for all other demographic variables in the model.

Keywords: Breast cancer - mammography - socio-demographic predictors

Introduction

　　Health seeking behaviour is so crucial to society's sustainable development. All countries appreciate their human capital prospects in the pursuit of community sustainable development and well-being. For this paper, health seeking behavior denotes having mammograms which could be done for diagnostic or screening purposes. Incidence of breast cancer among Iranian women is 22 per1000 and its prevalence is 120 per 1000. Breast cancer prevalence arises among 15 to 84 year-old women with those from 40 to 49 being the most and it has been as a main public health problem since 1998 (Mousavi et al., 2007).

　　Average of breast cancer in Iran, is roughly one decade lower compared to developed countries (Harirchi et al., 2000). In terms of breast health seeking behavior, only a limited number of women do breast self examination or refer for breast-clinical examination, and mammography (Shahhoseini, 1998). Therefore, there is a need to investigate the preventive breast health behavior among Iranian women regarding to growing prevalence of breast cancer in the country. Encouragement of this preventive behavior among women requires an estimation of related multifaceted factors on the behavior. Up to now, mammography is a broadly used and highly recommended screening tool, and is confirmed to reduce breast cancer death rates (Elmore et al., 2005). A broad review of health literature uncovered that no study was related to socio-demographic correlates of participation in mammography among those who adhered to this screening test in Iran. The paper attempts to determine socio-demographic determinants of mammography adherence among Iranian women based on cross-sectional data collected at the outpatient clinics in Tehran, Iran.

Materials and Methods

　　The data for this study were acquired from a cross-sectional survey entitled "Factors Influencing Women's Participation in Breast Cancer Prevention Program in Tehran, Iran" (Ahmadian, 2011). Details of this research

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have been already published somewhere else (Ahmadian et al., 2010; 2011; 2012; Ahmadian, 2011). In summary, this survey adopted a multistage cluster random sampling procedure at four gynecological clinics in Tehran, Iran between July and October 2009.

Dependent variable

In this study, mammography utilization which was assessed based on mammography adherence or non-adherence in the last two years by asking whether women have ever had a mammogram (yes/no).

Independent Variables

Socio-demographic characteristic used in this study were age, education level, marital status, occupation, monthly income, insurance status, and family history of breast cancer. Age was classified into four age groups: < 40 years, 41-50 years, 51-59 years, and 61 years and over. The 61years and over group was used as the reference class. Education level was categorized into two groups: No formal education included primary and secondary education level (reference group) and graduate level. Marital status was categorized as married and unmarried which included separated, widowed, divorced, and single (reference group). Occupation or employment status was classified as employed category =1 (full-time and part-time employee), and unemployed category =0(reference group). Monthly income was categorized into three groups as high income, middle income, and low income (reference group). Insurance was dummy-coded as insured =1 (public insurance and private insurance), and non-insured=0 (reference group). Family history of breast cancer was dichotomized as yes=1, and no=0 (reference group). An alpha level of 0.05 with two-tailed distribution was used to determine the statistical significance for all analyses.

Data Analysis

The prevalence of women's adherence and non-adherence to mammography were computed for the total sample as well as by age, education level, marital status, occupation, monthly income, insurance status, and family history of breast cancer. Bi-variate analyses were carried out using a series of χ^2 tests. Multi-variate binary logistic regression was utilized to find the socio-demographic characteristic associated with participation in mammography among women in Tehran, Iran. The logistic regression results appeared as odds ratios (ORs) and 95% confidence intervals, which provided the base for evaluating the amount of the differences in socio-demographic factors. An odds ratio was studied as a factor to explain the effects of the socio-demographic correlates of participation in mammography in the study. All analysis was performed using SPSS version 20.0 (SPSS, Inc., Chicago, IL).

Results

As shown in Table 1, 21.5% of the women who had undergone mammogram test in the past two years and 78.5% of the women who had not practiced a mammogram or for whom it had been done over 2 years since their last

mammogram.

The results of all bivariate correlations between socio-demographic characteristics and participation or non participation in mammography is illustrated in Table 2. The largest number of women in the participant group was in the age range of 41 to 50 years (67.45%), likewise the largest proportion of the women in the non-participant group was in the age range of 41 to 50 years (40.44%). The result also showed approximately 82.56 % of the participant group (n=71) were university graduate whereas 61.46% of the non-participant group (n=193) had no formal education or they had primary or secondary educational level. With respect to occupation, almost 83.72% women who have experienced a mammogram test in the last two years were full-time and part-time employees, while, the largest proportion of women in non-participant group were unemployed or housewives (53.19%). Most women in both groups had middle income. The results demonstrated that the participant group with 81.39 % and the non-participant group with 55.09% were the middle income category. In this study, most women had public or private insurance. The results illustrated almost 100% of participant-group (n=86) had insurance and the non-participant group with 77.70% (244) were the largest

Table 1. Percentage of Women Both Participant and Non-Participant in Mammography(n=400)

Criteria	N	Percent
Participation	86	21.50%
Non-participation	314	78.50%

Table 2. Prevalence of Participating and Non-Participating Women in Mammography with Socio-Demographic Characteristics (n=400)

Variable	Participant No. (%)	Non-participant No. (%)	χ^2	P
Age <40	20 23.25%	76 24.20%		
41-50	58 67.45%	127 40.44%		
51-60	6 6.98%	66 21.01%	26.34	0.0001
>61	2 2.32%	45 14.35%		
Education				
No formal education (primary and secondary)				
	15 17.44%	193 61.46%		
Graduate	71 82.56%	121 38.54%	52.41	0.0001
Marital Married	59 68.60%	215 68.47%		
Unmarried	27 31.40%	99 31.53%	0.001	0.981
Occupation				
Full time & Part Time Employee				
	72 83.72%	147 46.81%		
Unemployed &Housewives				
	14 16.28%	167 53.19%	37.11	0.0001
Income High	13 15.13%	30 9.56%		
Middle	70 81.39%	173 55.09%	34.23	0.0001
Low	3 3.48%	111 35.35%		
Insurance Insured	86 100%	244 77.70%		
Non-insured				
	0 -	70 22.30%	23.23	0.0001
Family History of Breast Cancer				
Yes	20 23.25%	11 3.50%		
No	66 76.75%	303 96.50%	10.87	0.001

group. Significant differences were observed for indicators of the socioeconomic status including age (χ^2= 26.34, p<0.001), education (χ^2=52.41, p<0.001), occupation (χ^2=37.11, p<0.001), income (χ^2=34.23, p<0.001), insurance (χ^2=23.23, p<0.001) and family history of breast cancer (χ^2=10.87, p<0.01). Results showed that the educated women with full or part-time employment, aged ranging from 41 to 45 years had higher percentage of mammography participation within the last two years. This finding showed that disparities in mammography use in Iran result from socioeconomic disadvantages and thus suggests multiple community-based breast cancer interventions at which disparities can be reduced.

Results of Multivariate Binary Logistic Regression

Table 3 has shown that the results of multivariate logistic regression which revealed education, monthly income (middle level income), and family history of breast cancer were significantly associated with mammography participation. Among social demographic factors, family history of breast cancer is a salient significant factor enhancing women actual participation in mammography. Participants with a positive family history of breast cancer are nearly five times more likely to participate in mammography comparing non-participants (95%CI: 1.97-9.28).

In the adjusted analysis, differences were smaller and failed to reach statistical significance after accounting for the confounding influence of education, monthly income, and family history of breast cancer. The significant independent variables associated with mammography participation in the multivariate binary logistic regression compromised a positive family history of breast cancer (OR=4.28), higher education (OR=0.28), and middle income level (OR=0.19). In other words, women in higher education with a positive family history of breast cancer considered their breast health to be better than women with no formal education and a negative history of breast cancer in the family. In addition, most participating women with a middle monthly income had more participation in mammography than their counterparts from lower and higher monthly income.

Table 3. Odds Ratios for Participation in Mammography and Related Demographic Factors from Logistic Regression Analysis

Variable	Category	B	P	OR	95.0% CI Lower	95.0% CI Upper
Age	<40	-1.212	0.197	0.298	0.047	1.873
	41-50	-0.060	0.947	0.942	0.162	5.484
	51-60	-1.216	0.222	0.296	0.042	2.084
Education	-	-1.253	0.002	0.286	0.131	0.622
Marital status	-	-0.146	0.634	0.864	0.472	1.580
Occupation	-	0.291	0.481	1.337	0.596	2.999
Family history of breast cancer						
	-	1.454	0.0001	4.280	1.974	9.283
Income	High	-0.230	0.593	0.795	0.343	1.843
	Middle	-1.662	0.042	0.190	0.038	0.945
Insurance	-	-18.339	0.997	0	0.0002	-

*Hosmer and Lemshow goodness -of-fit test, p=0.996

Discussion

This study aimed at exploring the impact of socio-demographic predictors or correlates of mammography participation among women attending four outpatient clinics in Tehran, Iran. Having done this study, we found that mammography participation among asymptomatic women aged 35-69 years varies by education level, monthly income and family history of breast cancer. Specifically, women with no formal education and a negative history of breast cancer were less likely to have undergone mammography during the previous last two years than graduate women with a positive history of breast cancer. Several studies have also revealed that education level is an important socio-demographic variable linked with mammography use (Straughan and Seow, 2000; Juon et al., 2002; Finney et al., 2003) which proves the study result. Besides, mammography utilization was high among women with a family history of breast cancer (Murabito et al., 2001). Babu et al. (2011) cited from previous literature that lower income and a low level of education are major risk factors for women's delay in seeking breast cancer screening in Iran, as they are lack of access to healthcare services, and lack of knowledge of breast cancer symptoms.

We also observed that higher level of income was not an independent predictor for mammography participation, whereas a middle level of income was associated with mammography use. One possible explanation for the difference in mammography participation among women with different income levels is that the reason for mammography use. The emphasis on women's socio-demographic factors does not mean ignorance of the reason for participation in mammography. There are doctors who diagnose largely the mammography need for the women in Iran (Ahmadian et al., 2012). Previous studies also showed that physician referral is an important factor in a woman's choice to undergo mammography (Zapka et al., 1992; Maxwell et al., 2001). Additionally, clinical breast exam by physicians denotes an opportunity for them to discuss breast cancer screening and to suggest mammography (Murabito et al., 2001).

In conclusion, this study has shown that participating women who were more likely to undergo a mammogram are middle-income women, and have higher level of education and a positive family history of breast cancer. Iran is comprised of people with different socio-cultural contexts and social class; and this accounts for a difference in health seeking behaviours and screening programs. Our analysis indicates that breast health awareness campaigns and raising knowledge about the importance of mammography should be a strategic action in particular for diverse populations such as illiterate and low-income women.

The current study revealed that breast health seeking behaviour is a function of socio-demographic variables among Iranian women. Therefore, when health literacy and public health program are to be developed either in Iran or other less developed countries, health care-seeking behaviour models must not only be tailored but should utilize socio-demographic data (statistics)

Asnarulkhadi A Samah and Maryam Ahmadian
from those populations for tackling health inequities. In a way, the issue of health care-seeking behaviour with emphasis on socio-demographic factors could improve the development of human capital in the country.

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