ORIGINAL PAPER

Mammography screening in Greece: An exploratory survey of women's views, experiences and behaviours.

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Abstract

Background: Internationally, breast cancer comprises 29% of all cancer incidences. In Greece, 1,500-1,800 women die annually from breast cancer out of the 4,000 who are affected. Only 5% are detected at an early disease stage through mammography screening.
Aim: This paper presents findings from a study exploring the factors that influence Greek women's mammography screening behaviour.
Methodology: Data were collected in Athens-Greece, during the period March-July 2008, from individuals who were members of six women's associations. One hundred and eighty six questionnaires were completed and 33 interviews were conducted from a sub-sample. This paper reports the findings from the questionnaire survey.
Results: Participants had a variety of demographic characteristics with 85% of them having attended mammography screening. Only 61% of them intended to continue in the future. The majority of women agreed with a number of factors which supported their decision to participate in regular mammography screening, such as doctors' encouragement and mammogram efficacy to detect breast cancer at an early stage, while anxiety was identified as a possible inhibitor to their participation.
Conclusion: Women's mammography screening behaviour and perceptions of mammography screening appeared to be positive in relation to their participation. However, the reasons as to why a large number of women indicated they were unlikely to go for mammography screening again is not known, and needs further investigation.

Key words: Mammography screening, women's behaviour, breast screening, early detection, breast cancer, factors.

Introduction

In Europe, breast cancer is the third largest cause of all cancer deaths (Ferlay et al., 2007). However, in recent years there has been a decrease in mortality rates associated with breast cancer (Mauri et al., 2009) which can be attributed to a number of interventions including early detection, better treatments and organized screening and follow-up

programmes.In Greece, however, the mortality rates due to breast cancer remain high (Mauri et al., 2009). Between 1,500 and 1,800 women die from breast cancer every year out of the 4,000 who develop the disease (Ioannidou-Mousaka, 2005). In addition, it has been identified that Greek women have been developing breast cancer at an increasingly young age (Ioannidou-Mousaka, 2005).

Early detection of breast cancer could decrease mortality rates and avoid intensive therapies (such as mastectomy). Mammography screening has been established as the most effective screening procedure in detecting cancer (Kimberly and Hogan, 2003; Hoffken, 2001). The role of mammography screening is to detect tumours before they are clinically palpable, minimising the probability of diagnosing breast cancer at an advanced stage (Kimberly and Hogan, 2003). A substantial number of trials have been performed and have clearly shown that mammography screening reduces breast cancer mortality in women aged 50 to 74 years by approximately 26% (Heath, 2009; Savage, 2009; Hoffken, 2001; McCaul and Tulloch, 1999).

Despite the benefits of the mammography screening test, it would appear that some women in Greece abstain from breast screening on a regular basis and in particular from mammography screening. According to a study carried out in two of the largest gynaecological clinics in Athens, out of 1,067 women who underwent surgery for breast cancer in the period 1980 to 2003, only in 40 cases, representing a mere 5% of these women, had the tumour been discovered at an early stage through mammography (Keramopoullos et al., 2005). In a more recent study (Dimitrakaki et al., 2009) it was found that only 3.8% of Greek women aged 50 to 69 underwent mammography screening in the last three years. Kamposioras et al. (2008) identified that from 366 primary care physicians recruited from nine Greek provinces, only 37% of them practice mammography screening. In addition, Mauri et al. (2009) found that only 22.8% of the 7012 adults from 30 Hellenic areas had mammography screening in the last 2 years (Mauri et al., 2009). As a result, the decrease in breast cancer mortality rates in Greece is smaller compared to the rest of Europe over the last decade (Mauri et al., 2009; Levi et al., 2007). Thus, in comparison to other member states of the European Union, the detection and diagnosis of breast cancer at an advanced stage in Greece is problematic. The factors that influence women's mammography screening behaviour is therefore worthy of further investigation.

Background

Factors which influence mammography use

A variety of factors have been identified as responsible for women's abstinence from mammography screening in previous studies worldwide. Among these, fear of breast cancer diagnosis, poor interactions with physicians and the mammography screening procedure itself (such as painful mammograms and discomfort) (Meissner et al., 2004; Nekhlyudov et al., 2003) were identified as inhibitors. Meissner et al. (2004), who provided an overview on the benefits and harms associated with screening before conducting interventions to promote the uptake of screening tests, emphasized women's complaints of painful mammograms and discomfort (Dilhuydy and Barreau, 1997), as a barrier to mammography screening participation. Nekhlyudov et al. (2003), who conducted 16 semi-structured, in-depth telephone interviews, cited that denial of mammography utilization could be attributed to anxiety and fear of breast cancer diagnosis, as well as low-level of risk perceptions and worry. This can lead to lack of engagement with early detecting measures such as mammography screening (Meissner et al., 2004; Nekhlyudov et al., 2003).

Other factors have been identified as facilitators to participating in mammography screening. In the study by Nekhlyudov et al. (2003) it was identified that newspapers, magazines, and television played an important role in motivating most of the participants to undergo mammography screening, and were viewed as an important source of information

regarding the benefits of screening mammograms, and breast cancer risk. In other studies, however, personal communication with health care providers and women was identified to be of greater importance in relation to decisions concerning screening (McCaul and Tulloch, 1999; Clover et al., 1996). Physician's interventions produced higher mammography participation rates than either media or comprehensive community campaigns, by providing the opportunity for face-to-face information exchange and discussion (Clover et al., 1996).

Despite the variety of studies carried out in other European countries in the same field, the subject has only been superficially explored in Greece. Many of the studies are unable to be critiqued in relation to their reliability and validity due to a lack of clear and detailed description of their methodologies. Only a few academic studies (Trigoni et al., 2008; Giakimoba et al., 2003; Borgias et al., 1998) have investigated the factors that influence participation in mammography screening in Greece. Doctors' influence was identified as one of the most important facilitators (Trigoni et al., 2008), while lack of information women had on breast cancer and its early detection was found to be the main inhibitor in relation to women's participation in mammography screening (Giakimoba et al., 2003; Borgias et al., 1998).Fear of cancer and being a long distance from the screening centre were also identified as barriers to participation in mammography screening (Trigoni et al., 2008). These studies are now almost 10 years old and there remains a limited understanding of the factors that influence such a screening behaviour in Greece.

Aim

The aim of the study was to explore the factors that influence mammography screening behaviour in Greece using a survey based approach and follow-up interviews with a sub set of women who participated in the survey. This paper presents the findings from the descriptive questionnaire-survey.

This aimed to establish women's behaviour and attitudes in relation to mammography screening and to identify areas for further discussion through in-depth interviews.

Methodology

Participants

The study sample was drawn from six Greek women's associations.

Only women's associations which were located in the city of Athens were approached, where many breast cancer centres and policlinics are located, in order to exclude the long distance from breast clinics, as a possible reason for women's abstinence from mammography screening. Initially, 10 associations were purposively selected out of the 120 electronically registered associations in Athens, from which 6 agreed to participate in the study.

Their main focuses varied and included: cultural (3), political (1), educational (1) and professional (1) characteristics.

Such a purposive selection based on their main interests and focus was made in order to maximize the variety of the sample's demographic characteristics, background, personalities (interests) and hopefully perceptions and experiences in relation to mammography screening.

Associations which focused on health issues and diseases, including cancer associations, were excluded in order to avoid a biased sample which may have been more educated about cancer and early detection of breast cancer.

A further reason for this exclusion was the different needs of these women in relation to routine breast screening.

Through meetings with the members of each women's association, a total number of 235 questionnaires were distributed.

One hundred and eighty six (186) women completed the survey, resulting in a response rate of 79% (see figure 1).

Data collection

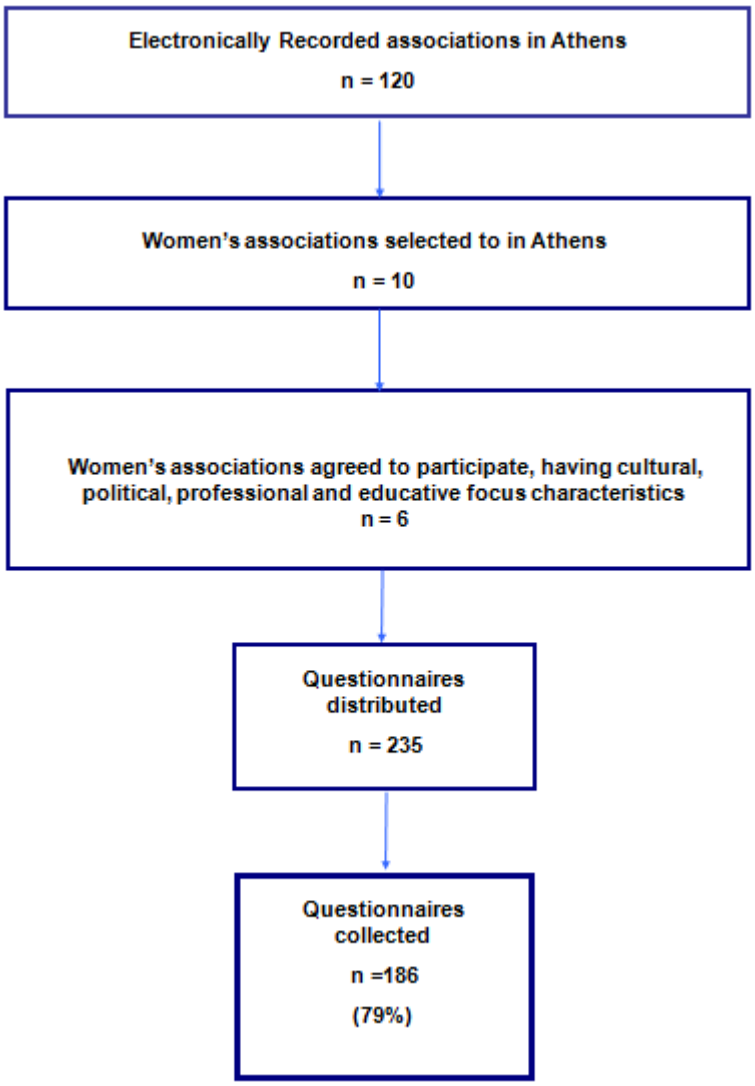
The data collection took place over a five month period. After obtaining the necessary permission from the associations' directors, a

brief description of the study was presented by the researcher to their members during one of their planned meetings. An information sheet outlining the aim and procedures of the study, as well as the researcher's background and interest in the accomplishment of the study was distributed to the members of each association together with a self-completion questionnaire.

The survey tool

The questionnaire was designed to be self-completed in about 20 minutes, so that participants did not feel time-pressured. Most of the participants preferred to return the questionnaire to the researcher on the same day of its distribution; those who did not returned it directly placed their questionnaires in a locked box at the relevant association secretary's office, to be collected two weeks after the questionnaires' distribution. Participants were reassured that their reports would be confidential and anonymous.

Figure 1: Sample recruitment for the survey's implementation



The questionnaire comprised of 3 sections and 21 close-ended, multiple choice questions. In the first section, the distinguishing characteristics of the particular questionnaire included the demographic characteristics of each participant.

These were women's age, marital status, educational level, nationality and family history of breast cancer. The second section of the questionnaire was influenced bythe stages of change element of the Transtheoretical Model of behaviour change (TTM) (Kelaher et al., 1999; Prochaska et al., 1992b). In this section, women were asked to state their breast screening behaviour in the past, current period and in the future. In the third and last section of the questionnaire, the participants of the survey were asked their views on possible motivators and inhibitors in relation to their participation in mammography screening that were identified in previous studies worldwide. All questions in the third section were drawn from a selection of questions included in previous quantitative research studies on similar themes (Wu and West, 2007; Maxwell et al., 2006; Palmer et al., 2005; Rakowski et al., 1997). At the end of the questionnaire, women were asked whether they would like to participate in a further individual interview about their experiences and views on mammography screening (not reported here).

Before distributing any of the questionnaires, health care professionals such as nurse colleagues, gynaecologists, other medical professionals and women belonging to the age group of 40-70 years old were asked to provide feedback on the questionnaire as it developed, and consider whether the questionnaire's content was consistent with the aim and the objectives of the study. Fifteen (15) questionnaires were distributed amongst this group of individuals. Their comments and corrections were focused on the way some of the questions were expressed, requesting greater clarity.

Ethical Considerations

Ethical approval for this study was granted by the Medical School Ethics Committee of the University of Nottingham. Written permission was obtained from the directors of six women's associations who agreed for their members to be approached by the researcher.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to analyse the descriptive data collected from the questionnaires. Since the main goal of the survey was to investigate Greek women's demographic characteristics and their perceptions and behaviours towards mammography screening utilization, descriptive statistical tests were used (Bowling and Embrahim, 2005).

Results

Women's demographic characteristics

The survey participants ranged in age from 40 to 70 years old. Sixty-three (33.9%) of them belonged to the age group 60-70, and 56 (30.1%) were between 50-59 years old. All women were of Greek nationality, 116 were married, 28 widows, 27 single and 14 divorced. Participants had an average to advanced educational level. The demographic characteristics of survey participants are shown in Table 1.

Regarding women's breast cancer family history, the majority (n = 143) stated that they did not have a breast cancer family history, 31 did, while 12 were not sure or they did not know. Five women had previously been treated for breast cancer.

Women's participation in regular mammography screening

The majority of women indicated that they were participating in mammography screening, with 85% (n= 158) stating that they had mammography screening in the past. However, only 61% (n= 113) of those who stated that they had mammography screening in the past indicated that they intended to repeat a mammography test in the next 2 years. Graphical representation of women's participation in and abstinence from mammography screening is shown in Figures 2 and 3 respectively.

Women's perceptions of mammography screening test

With regard to the findings of the third section of the questionnaire and women's

perceptions regarding mammography screening test, the majority of women agreed with a number of factors which could support their decision to participate in regular mammography screening. Such facilitators to mammography screening participation are presented in table 2.

Similarly, the majority of the participants rejected most of the possible negative factors that could lead to their abstinence from mammography screening, with the exception of anxiety. Such inhibitors to mammography screening test are presented in table 3.

However, 68.8% (n = 128) of women agreed that having mammograms causes a lot of worry or anxiety about a possible detection of breast cancer.

Table 1: Demographic characteristics of the survey's participants

	Participants n = 186 (%)
Age	
Under 40	16 (8.6)
40-49	27 (14.5)
50-59	56 (30.1)
60-70	63 (33.9)
Over 70	24 (12.9)
Family Status	
Single	27 (14.5)
Married	116 (62.4)
Divorced	14 (7.5)
Widow	28 (15.1)
Missing*	1 (0.5)
Educational Level	
Less than high school	12 (6.5)
High school	64 (34.4)
College	12 (6.5)
University	72 (38.7)
Master- PhD	25 (13.4)
Missing*	1 (0.5)
Nationality	
Greek	186 (100.0)
Other	0 (0.0)
Breast Cancer Family History	
Women who have	31 (16.7)
Women who do not have	143 (76.9)
Women who do not know/are not sure	12 (6.5)

*Missing value- unanswered question

Discussion

It was found that a high number of participants in the survey had attended mammography screening at least once in the past. This appears surprising given the data previously presented in the literature review, which alluded to low participation rates amongst Greek women (Dimitrakaki et al., 2009; Mauri et al., 2009; Keramopoullos et al., 2005; Fyntanidou and Petropoulou, 2000). The difference between the findings of this survey and those of the pre-mentioned studies may be due to the way of measuring women's frequency of having mammograms. In this survey, women's reports of having mammography screening were in response to a question about whether they had ever had screening which may have only been on one occasion. It is not known whether their participation was on a regular basis. The fact that only 61% of them intended to have mammography screening in the future is probably a more accurate indication of their actual mammography screening behaviour.

Women's perceptions of mammography screening test and their mammography screening behaviour appeared to be positive in relation to their participation. However, there is a gap missing regarding the reasons behind why some women did not intend to continue their participation in the future.. Interestingly, the majority of participants in this survey agreed with most of the positive characteristics, experiences and factors associated with mammography screening practice. Similar to Mc Caul and Tulloch (1999), face to face consultations with health care providers was identified as an important influence towards women's participation in mammography screening. Trigoni et al (2008) also note that personal communication with doctors acted as a facilitator to adherence to mammography screening. Physician's interventions have previously been identified as of greater importance compared to other means of information (Clover et al., 1996).

Women's average to advanced level of knowledge identified in this survey could also be a reason for the high percentage of participants in mammography screening test..

Table 2: Possible motivators towards participation in mammography screening

	Agree n (%)	Disagree n (%)	Don't know n (%)	Total n (%)	Missing data* n (%)
Doctors' motivation/suggestion	164 (88.2)	10 (5.4)	7 (3.8)	181 (97.3)	5 (2.7)
Mammograms' capacity to identify very small lumps	166 (89.2)	4 (2.2)	13 (7)	183 (98.4)	3 (1.6)
Feeling of control over their health	150 (80.6)	13 (7)	21 (11.3)	184 (98.9)	2 (1.1)
Mammograms for also women with average risk	169 (90.9)	6 (3.2)	9 (4.8)	184 (98.9)	2 (1.1)

*Did not answer

Table 3: Possible inhibitors towards participation in mammography screening test

	Agree n (%)	Disagree n (%)	Don't know n (%)	Total n (%)	Missing data* n (%)
Anxiety mammography screening test	128 (68.8)	37 (19.9)	19 (10.2)	184 (98.9)	2 (1.1)
Mammograms only if there is a breast problem/symptom	24 (12.9)	143 (76.9)	14 (7.5)	181 (97.3)	5 (2.7)
Embarrassment and uncomfortable feeling during mammograms	12 (6.5)	158 (84.9)	11 (5.9)	181 (97.3)	5 (2.7)
Pain during mammograms	6 (3.2)	158 (84.9)	18 (9.7)	182 (97.8)	4 (2.2)
Waiting time until get a mammogram	21 (11.3)	146 (78.5)	15 (8.1)	182 (97.8)	4 (2.2)
Cost of mammography screening	22 (11.8)	146 (78.5)	13 (7)	181 (97.3)	5 (2.7)
It is God's Will to develop cancer, so reason to early detect it n (%)	20 (10.8)	137 (73.7)	25 (13.4)	182 (97.8)	4 (2.2)

*Did not answer

Figure 2: Women's participation in mammography screening

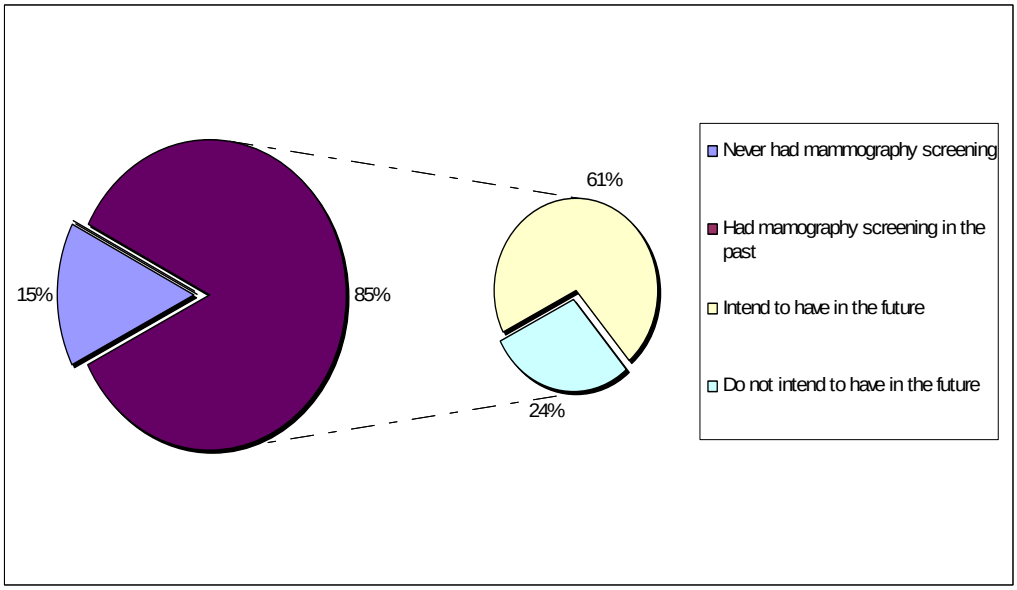
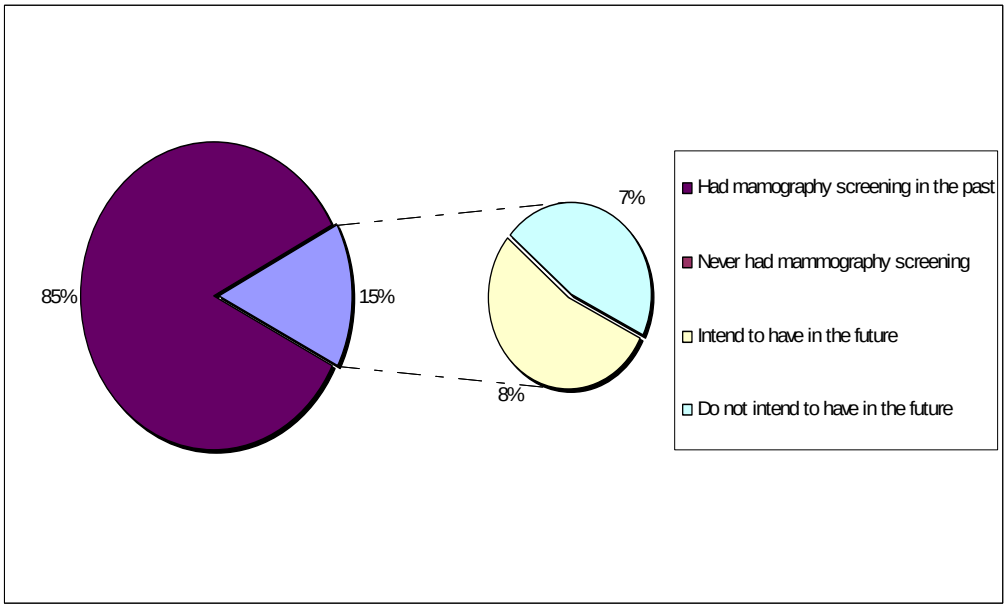


Figure 3: Women's abstinence from mammography screening



High educational levels accompanied by a high socio-economic status have previously been identified as facilitators in relation to mammography screening participation (Meissner et al., 2004; McCaul and Tulloch, 1999)

Anxiety was identified as a possible inhibitor to mammography screening, while the majority of participants in this survey disagreed with the rest of the possible inhibitors. Nekhlyudov et al (2003) stated that denial of adhering to mammography screening test could be due to anxiety, and fear of cancer. Low level of risk perceptions and worry as well as personal neglect could be further reasons responsible for abstinence from mammograms (Meissner et al., 2004; Nekhlyudov et al., 2003; McCaul and Tulloch, 1999).

Conclusion

This paper sets out some of the behavioural characteristics together with some of the factors which appear to influence the decisions of Greek women to participate in routine mammography screening. Interestingly, there is a gap between the high percentage of women agreeing with the positive characteristics, experiences and factors associated with mammograms and the low percentage of women intending to participate in this test again. Since the majority of women disagreed with almost all of the negative factors that could lead to their abstinence from mammograms, it remains unknown why they did not intend to participate in this test again. Additionally, it is unknown whether anxiety is the only reason for their abstinence from this test, as identified throughout this survey. The question of whether there is any association between the influential factors and women's different mammography screening behaviour has not been answered yet. We know little about what individuals think about breast cancer and screening, and what influences their participation in routine mammograms and breast screening. Further in depth investigation regarding the factors that influence women towards their decision to adhere or abstain from mammography screening in Greece is required.

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