

Mammography uptake predictors in older women

Tess J Harris^a, Derek G Cook^b, Sunil Shah^b, Christina R Victor^b,
Stephen DeWilde^a, Carole Beighton^{a,b} and Elizabeth Rink^a

Harris TJ, Cook DG, Shah S, Victor CR, DeWilde S, Beighton C and Rink E. Mammography uptake predictors in older women. *Family Practice* 2002; **19**: 661–664.

Background. In women aged under 65 years, socio-economic factors and general health behaviours are important predictors of mammography uptake. Little is known about whether these factors are important in older women.

Objective. To examine a broad range of mammography uptake predictors in women aged 65 and older registered with a London (UK) practice.

Methods. A survey of all female patients aged 65 and over ($n = 613$) in a south London practice included questions on mammography and cervical screening, general health and functional ability, socio-economic factors, mental health, health behaviours, and attitudes to health. Associations between mammography uptake and other factors were examined using logistic regression.

Results. The response rate was 70% (432/613). Increased age was strongly associated with decreased mammography uptake. Additionally, socio-economic factors and general health behaviours (previous cervical smear, drinking alcohol and being a non-smoker) were independently predictive of mammography uptake. Measures of physical and mental health and health attitudes were not independent predictors. Restricting analyses to the oldest women, outside the national screening programme, gave very similar results.

Conclusions. In this sample of older women, socio-economic factors and general health behaviours were more predictive of mammography uptake than measures of physical and mental health or attitudes to health. Knowledge of these predictors is of increasing importance as the screening programme in the UK is extended up to age 70.

Keywords. Breast cancer, elderly, mammography, screening.

Introduction

Although there has been recent controversy over the value of mammography,¹ breast cancer incidence and mortality both increase with age, and the NHS Breast Cancer Screening Programme, introduced in 1988 in England and Wales which covered women aged 50–64, is now planning to extend cover to age 70. In the United States there is no recommended upper age cut-off for screening and it remains available on request for older women in the UK. In younger women, socio-economic factors (being employed, being married) and general health behaviours (previous cervical smear, drinking alcohol, not smoking, regular contact with doctor)

predict mammography uptake.² Less is known about predictors in older women. Research from the United States in women over 65 years showed mammography use declined with age, worsening health and smoking, and increased with income, education, health insurance, drinking alcohol and physician recommendation.^{3,4} The only UK study in older women was carried out in the early 1990s. Only 8% of women (120) had received mammography. It showed an association with marital status, but not with social class, depression or disability; and important factors such as smoking, alcohol intake, other socio-economic measures and previous cervical smear were not assessed.⁵ Our study aim therefore, was to examine a broad range of mammography uptake predictors in women aged 65 and older registered with a London practice.

Received 4 December 2001; Revised 29 April 2002; Accepted 16 July 2002.

Departments of ^aGeneral Practice and Primary Care, and ^bPublic Health Sciences, St George's Hospital Medical School, London, UK. Correspondence to Dr Tess Harris, Department of General Practice and Primary Care, St George's Hospital Medical School, Cranmer Terrace, Tooting, London SW17 0RE, UK; E-mail: tharris@sghms.ac.uk

Methods

Bridge Lane Group Practice serves a population of approximately 10 500 in a socially diverse south London community. As part of a broader study of older people, a

postal survey of all female patients aged 65 and over ($n = 613$) was carried out in 2000 (excluding terminally ill patients). Women identified by the practice as being more appropriate to interview, and those requesting help, were assisted with questionnaire completion.

The questionnaire included questions on mammography and cervical screening; functional ability (modified Townsend disability score⁶); socio-economic factors (income, home ownership, education and social class); mental health (15 item Geriatric Depression Score, GDS15⁷); health behaviours (smoking and alcohol use); and health control beliefs.⁸ The modified Townsend disability score has nine items assessing self-reported ability to perform everyday tasks. Subjects score zero for each task they can perform without difficulty, one for each task they would have difficulty with, and two for each task they are unable to do alone. Subjects were identified as physically disabled if they scored 11 or more out of 18.⁶ The GDS15 has 15 items to be answered in a yes/no format. Both the modified Townsend disability score⁶ and GDS15⁷ have been validated in UK community populations of older people. The measure of health control beliefs used has six items, two on each of the following three scales: internality (subjects feel they control their own health); powerful others (they feel their health is controlled by others); and chance (their health is controlled by fate). It has been used successfully with community populations of older people in Switzerland.⁸

This practice population was first screened in 1993, thus women aged 72 and over would have been 65 or over then, and would not have been part of the NHS Screening Programme. Associations between mammography (positive response to “Have you ever had an x-ray screening test for breast cancer (mammogram)?”) and other factors were examined using logistic regression. The association with age was not linear, thus age was fitted in bands (see Table 1). Analyses were repeated, restricted to women aged 72 and over.

Results

The response rate was 70% (432/613). Nine women had dementia, 12 omitted the mammography question and 11 were unsure of their mammography status. Thus 400 women had a clear mammography self-report history. Ninety-six per cent (380/400) of women were white, there were too few women from other ethnic groups to look at the effect of ethnic group on mammography uptake. Increased age was strongly associated with decreased mammography uptake (see Table 1). Results are expressed as odds ratios (OR) with 95% confidence intervals. After age adjustment, private health insurance OR 2.7 (1.2–6.0); home ownership OR 2.4 (1.4–3.9); manual social class OR 0.5 (0.3–0.9); previous cervical smear OR 9.8 (5.4–17.8); current smoking OR 0.3 (0.1–0.5);

and not drinking alcohol OR 0.4 (0.2–0.7) remained independent predictors. Measures of physical and mental health and health attitudes were not independently associated with uptake. Restricting analyses to women aged 72 and over (not affected by screening programme) gave similar findings, but with wider confidence limits. Additionally in this age group, single women and those living alone were less likely to have had mammography.

Discussion

This study has some limitations. It relates to women registered with a single practice and the response rate was only 70%, potentially limiting generalizability. However, whilst there are variations between practices in mammography uptake, Majeed *et al.*⁹ showed that social and economic factors relating to the patient population were more important than practice characteristics. An advantage of this practice is that it covers deprived and affluent neighbourhoods. The 70% response rate is acceptable as this study examined associations between mammography uptake and other factors and was not a prevalence study. The study has external validity, as these findings in older women broadly mirror previous results in younger women.² We were unable to separate women having clinically indicated mammograms from those having purely screening mammograms. Our measure of uptake is similar to that used as a measure of the success of the NHS breast screening programme, which also does not distinguish the reason for a mammogram. Increased age was strongly associated with decreased mammography uptake. However, this is effectively confounded by screening programme participation for women aged under 72, with the youngest women having had more than one screening opportunity. Since the study covered a wide age range, we examined the confounding effect of the screening programme by restricting analyses to subjects aged 72 and over, who never participated in the NHS screening programme. This produced comparable results, suggesting that similar factors affected mammography uptake in older women within and outside the screening programme.

We found that poor general health, limiting long-standing illness, physical disability and high depression scores were not related to mammography uptake after age adjustment. This contrasts with previous work from the United States which showed decreased mammography uptake with worsening health status.³ Results from the previous UK study are difficult to interpret. They showed a trend for decreased uptake with increased disability, but this was not statistically significant and they did not allow for the important confounding effect of age.⁵

In our sample of women aged 65 and over, age, socio-economic factors and general health behaviours (previous cervical smear, drinking alcohol and being a

Table 1 Factors associated with mammography uptake in women aged 65 and over from a south London practice

Variable	Had a mammogram (n (%))	Odds Ratio (95% CI)	Age adjusted OR ^a (95% CI)	Age adjusted OR (95% CI) (women aged ≥ 72 only) ^b
Age (n = 400)				
65–71	116 (85)	1		
72–79	63 (44)	0.1 (0.08–0.3)		
80 or more	33 (27)	0.07 (0.04–0.1)		
Marital status (n = 369)				
Married	68 (67)	1	1	1
Widowed	72 (40)	0.3 (0.2–0.6)	0.7 (0.4–1.2)	0.6 (0.3–1.2)
Divorced	25 (61)	0.8 (0.4–1.6)	0.9 (0.4–2.2)	0.9 (0.3–2.4)
Single	24 (49)	0.5 (0.2–0.9)	0.6 (0.3–1.3)	0.3 (0.1–0.8)
Live alone (n = 400)				
No	120 (60)	1	1	1
Yes	92 (46)	0.6 (0.4–0.8)	0.7 (0.5–1.1)	0.6 (0.4–0.9)
Social class (n = 328) ^c				
Non-manual	111 (61)	1	1	1
Manual	61 (43)	0.48 (0.3–0.8)	0.5 (0.3–0.9)	0.6 (0.3–0.9)
School leaving age (n = 374)				
14	81 (43)	1	1	1
15 or more	123 (66)	2.5 (1.7–3.8)	1.6 (0.99–2.6)	1.4 (0.8–2.3)
Own home (n = 342)				
No	78 (44)	1	1	1
Yes	105 (64)	2.3 (1.5–3.6)	2.4 (1.4–3.9)	2.0 (1.1–3.6)
Weekly household income (n = 266)				
<£120	65 (50)	1	1	1
£120–£299	47 (50)	1.0 (0.6–1.6)	0.7 (0.4–1.4)	0.9 (0.4–1.9)
£300 or more	32 (76)	3.2 (1.4–6.9)	2.6 (1.1–6.2)	2.0 (0.8–5.4)
Private health insurance (n = 380)				
No	171 (51)	1	1	1
Yes	32 (76)	3.1 (1.5–6.6)	2.7 (1.2–6.0)	1.9 (0.8–4.7)
General health (n = 397)				
Fair, bad or very bad	86 (48)	1	1	1
Good or very good	126 (58)	1.5 (1.04–2.3)	1.0 (0.6–1.6)	0.9 (0.6–1.6)
Limiting longstanding illness (n = 400)				
No	127 (57)	1	1	1
Yes	85 (47)	0.7 (0.5–0.9)	0.9 (0.6–1.5)	0.9 (0.6–1.6)
Townsend disability score (n = 345) ^d				
0–10	163 (59)	1	1	1
11 or more	31 (44)	0.5 (0.3–0.9)	1.4 (0.7–2.7)	1.1 (0.6–2.4)
GDS15 score (n = 390) ^e				
≤5	150 (58)	1	1	1
>5	57 (44)	0.6 (0.4–0.9)	0.8 (0.5–1.4)	0.8 (0.5–1.4)
Previous cervical smear (n = 380)				
No	27 (19)	1	1	1
Yes	173 (73)	12.5 (7.5–20.8)	9.8 (5.4–17.8)	8.0 (4.2–15.3)
Current smoker (n = 397)				
No	181 (55)	1	1	1
Yes	29 (43)	0.6 (0.4–1.1)	0.3 (0.1–0.5)	0.3 (0.1–0.8)
Alcohol (n = 381) ^f				
Frequent	60 (65)	1	1	1
Occasional	93 (54)	0.6 (0.4–1.1)	0.6 (0.3–1.0)	0.6 (0.3–1.1)
Never	47 (41)	0.4 (0.2–0.7)	0.4 (0.2–0.7)	0.3 (0.1–0.6)
Health control beliefs (n = 362)				
Internality (per unit increase)		1.2 (1.0–1.4)	1.1 (0.9–1.4)	1.2 (0.9–1.6)
Powerful others (per unit)		1.1 (0.9–1.3)	1.2 (0.9–1.6)	1.2 (0.9–1.6)
Chance (per unit)		0.9 (0.8–1.2)	1.0 (0.8–1.3)	1.0 (0.8–1.3)

^aAge adjusted odds ratios: age was fitted in six age bands: 65–68; 69–71; 72–75; 76–79; 80–84; 85 or more.

^bAge adjusted odds ratios: restricting analyses to women aged 72 and over (n = 263) age was fitted in four age bands: 72–75; 76–79; 80–84; 85 or more.

^cSocial class (n = 328): all women coded by own previous occupation if given. Housewives, those who had never worked and those who could not be classified were classified by husband or partner's previous occupation if given, or if not, were treated as missing.

^dTownsend disability score: identified as physically disabled if they scored 11 or more out of 18 on the modified Townsend disability scale, i.e. would need help with at least 2 of the specified 9 activities and have difficulty with some or all of the rest.

^eGDS15 score: a score of >5/15 is the usual cut-off taken to indicate caseness for depression on this screening instrument.

^fAlcohol: Frequent = daily use; Occasional = weekly or monthly use; Never = not at all.

non-smoker) were more predictive of mammography uptake than physical and mental health measures, or health attitudes. Knowledge of mammography uptake predictors in this age group is of increasing importance as the screening programme in the UK is extended up to age 70.

Acknowledgements

We would like to thank Bridge Lane Group Practice for all their help and support with the project, and all the patients who generously gave their time to fill in the questionnaire. Thanks also to the Duchess of Kent Breast Cancer Screening Unit, Tooting, London for providing information on local screening. The study was funded by the BUPA Foundation.

References

- ¹ Horton R. Screening mammography—an overview revisited. *Lancet* 2001; **358**: 1284–1285.
- ² Lagerlund M, Sparen P, Thurffjell E, Ekblom A, Lambe M. Predictors of non-attendance in a population-based mammography screening programme; socio-demographic factors and aspects of health behaviour. *Eur J Cancer Prev* 2000; **9**: 25–33.
- ³ Lane DS, Zapka J, Breen N, Messina CR, Fotheringham DJ for the NCI Breast Cancer Screening Consortium. A systems model of clinical preventive care: the case of breast cancer screening among older women. For the NCI Breast Cancer Screening Consortium. *Prev Med* 2000; **31**: 481–493.
- ⁴ Fredman L, Sexton M, Cui Y *et al.* Cigarette smoking, alcohol consumption, and screening mammography among women aged 50 and over. *Prev Med* 1999; **28**: 407–417.
- ⁵ Edwards N, Jones DA. Uptake of breast cancer screening in older women. *Age and Ageing* 2000; **29**: 131–135.
- ⁶ The Medical Research Council Cognitive Functioning and Ageing Study (MRC CFAS). The description of activities of daily living in five centres in England and Wales. *Age and Ageing* 1998; **27**: 605–613.
- ⁷ D'Ath P, Katona P, Mullan E, Evans S, Katona C. Screening, detection and management of depression in elderly primary care attenders. 1 The acceptability and performance of the 15 item Geriatric Depression Scale (GDS15) and the development of short versions. *Fam Pract* 1994; **11**: 260–266.
- ⁸ Perrig-Chiello P, Perrig WJ, Stahelin HB. Health control beliefs in old age—relationship with subjective and objective health, and health behaviour. *Psych Health Med* 1999; **4**: 83–94.
- ⁹ Majeed FA, Cook DG, Given-Wilson R, Vecchi P, Poloniecki J. Do General Practitioners influence the uptake of breast cancer screening? *J Med Screen* 1995; **2**: 119–124.