

The attendance of migrant women at the national breast cancer screening in the Netherlands 1997–2008

Bertine Vermeer^a and Maria E.T.C. Van den Muijsenbergh^{a,b}

The attendance of migrant women at the national breast cancer screening in the Netherlands is high; however, a much lower attendance was found in a study carried out in one region of the Netherlands some years ago. An increase in the attendance rates of migrant women over time was assumed, but no national data were available until now. The aim of this study is to provide national data about the attendance of migrant women at the national breast cancer screening in the Netherlands and the development of these attendance rates over time. The attendance rates at the national breast cancer screening program in the years 1997–1998 and 2007–2008 of women of all nationalities are compared and the differences are tested with the χ^2 test. The attendance of Dutch women at the breast cancer screening in 2007–2008 was high (83%). The attendance rates of migrant women originating from Africa, Asia or Latin America (63%), such as Turkish women (62%) and especially Moroccan women (54%), were significantly lower ($P=0.00$). Compared with 10 years before, the overall attendance in 2007–2008 stayed almost constant, and changed only from 80 to 83%. The attendance rate of migrant women from Africa, Asia or Latin America increased from 51% in 1997–1998 to 63% in 2007–2008.

Introduction

Breast cancer is the most prevalent cancer among women in the Netherlands (Kiemeney *et al.*, 2008). Since 1998 a national breast cancer screening program has existed in the Netherlands, executed by eight regional screening organizations (Fig. 1). All women between 50 and 75 years of age are invited by letter every 2 years to participate in the screening program (NIVEL, 2005). Names and addresses of the women are provided by the local government. Screening takes place in mobile screening units, in which a mammography is done (NIVEL, 2005).

Although breast cancer screening was shown to be effective in reducing breast cancer mortality rates (Otto *et al.*, 2003; Otten *et al.*, 2008), not all women in the Dutch society benefited equally from it. The participation rate of migrant women coming from countries in Africa, Latin America or Asia except Japan, referred to later as ‘non-western’ migrants (in Holland this group is referred to as ‘non-western’ migrants and used to define persons who are born in, or have at least one parent who was born in Turkey, Africa, Latin America or Asia with the exception of Japan. In this study the term refers to women whose nationality is from one of these countries)

These national figures show that the attendance rates of migrant women at the breast cancer screening have increased substantially over the past 10 years. However, specific efforts to increase the attendance rates of this target group are needed because the current attendance rates of this group are still far below the overall attendance rates. *European Journal of Cancer Prevention* 19:195–198 © 2010 Wolters Kluwer Health | Lippincott Williams & Wilkins.

European Journal of Cancer Prevention 2010, 19:195–198

Keywords: attendance rate, breast cancer, migrants, Moroccans, Turks, the Netherlands, screening

^aPharos: Knowledge and Advisory Center on Refugees, Migrants and Health, Program Somatic Care, Utrecht and ^bWomens Studies Medicine, Radboud University, Nijmegen Medical Centre, the Netherlands

Correspondence to Dr Maria E.T.C. Van den Muijsenbergh, PhD, Pharos: Knowledge and Advisory Center on Refugees, Migrants and Health, PO Box 13318, 3507 LH Pharos, Utrecht, the Netherlands
Tel: +31 302 349800; fax: +31 302 364560;
e-mail: m.mujsenbergh@pharos.nl

Received 12 November 2009 Accepted 28 December 2009

was significantly lower than the average participation rate in a study carried out in one region of the Netherlands (Visser *et al.*, 2005). No figures existed from the other screening regions.

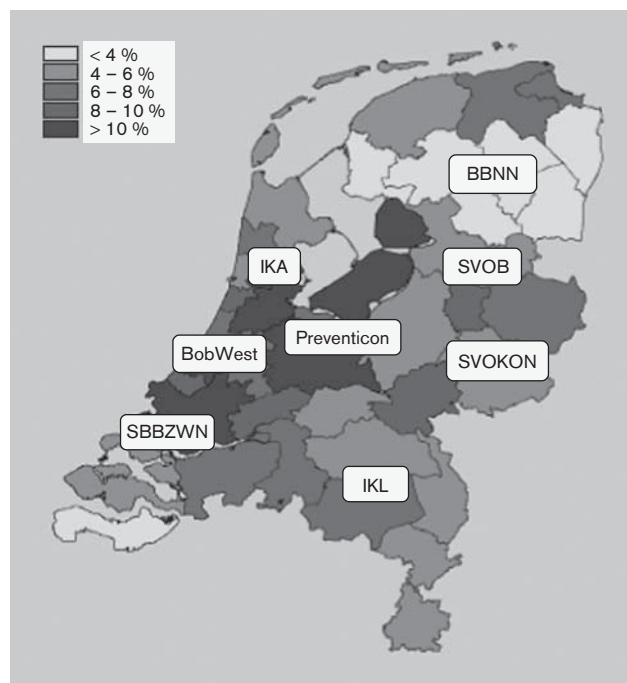
As 10% of the Dutch population consists of ‘non-western’ migrants (CBS, Year report Integration, 2008) and the risk of breast cancer increases in second-generation migrants compared with first-generation migrants (Stirbu *et al.*, 2006; Andreeva *et al.*, 2007), the lower participation of migrants is an important public health issue. The largest migrant groups in the Netherlands are those from a Turkish, Moroccan or Surinam background (CBS, Year report Integration, 2008).

The reasons for the lower attendance of ‘non-western’ migrants are multiple; organizational factors and a lack of knowledge and awareness about screening play an important role (Hartman *et al.*, 2009).

Attendance at the screening program is higher in younger migrants (Visser *et al.*, 2005) and in migrants with a higher socioeconomic status (Leeuwen *et al.*, 2005).

The aim of this quantitative study is to investigate whether the attendance of migrant women at the breast

Fig. 1



A map of the Netherlands with provinces divided into percentages of 'non-western' migrants. In this map the eight different screening organizations are mentioned.

cancer screening is (still) lower than the attendance of Dutch women, and if this possible difference has increased or decreased over time.

Methods

The eight regional screening organizations provided the numbers of invited and attending women, and their age and nationality, as registered by the local government. The data for the years 1997–1998 and 2007–2008 were used to detect differences in attendance rates during the period of 10 years.

The data were computed and analyzed using SPSS 17.0 (www.spss.com). Differences in participation between migrant women and Dutch women and between the two time periods were measured using χ^2 tests. A *P* value of less than 0.01 was considered to be significant.

Results

Study population

In 1997–1998, 977 961 women were invited nationally whereas in 2007–2008 this total amounted to 1 279 982 women (Table 1). Of these women 96% had Dutch nationality, 1.7% were born in other countries in Europe, 0.6% in the United States, Australia or Japan (0.6%), and less than 1% in the so-called 'non-western' countries (Table 1).

Table 1 Total invitations and attendance rates

Nationality	Period					
	1997–1998 ^a			2007–2008		
	Invited	Examined	%	Invited	Examined	%
Netherlands	937 956	759 378	81	1 224 364	1 031 762	83
Europe	17 359	11 234	65	25 463	16 787	68
'Other western' USA, Australia, Japan	6009	4146	69	8083	5764	69
Unknown	4347	2907	67	2934	1882	62
All 'non-western'	12 290	6217	51	19 138	12 127	63
Turkey	4116	2059	50	5503	3553	62
Morocco	3799	1652	43	5565	3133	54
Suriname	820	480	59	1245	930	68
Netherlands Antilles	400	264	66	858	624	66
Other non-western = Africa, Latin America or Asia (except Japan)	3155	1762	56	5967	3887	63
Total	977 961	783 882	80	1 279 982	1 068 322	83

^aNumbers from SVOKON (east region) excluded because of unreliability.

Data from all eight screening organizations in the Netherlands were obtained for this study. However, from the screening organization SBBZWN, in the southwest of the Netherlands, data for only Dutch, Turkish, Moroccan and Antillean women were available. Data for the years 1997–1998 in the region SVOKON were excluded from analyses as it turned out that not all invited women were registered in the system in these years.

Screening attendance

The overall attendance rate at the breast cancer screening has slightly increased from 80% in 1997–1998 to 83% in 2007–2008. Lower attendance rates are seen in migrant women from European countries, or from the United States, Australia or Japan, but the lowest attendance rates are seen in the group 'non-western' migrant women (from countries in Africa, Latin America or Asia except Japan). Their attendance rate was 51% in 1997–1998 and 63% in 2007–2008. Of the four biggest migrant groups in the Netherlands, Moroccan women had the lowest attendance rates in 1997–1998 (43%) as well as in 2007–2008 (54%).

In Table 2 the number of women who were invited and were examined in the different years is shown by the screening regions. The highest attendance rates for Turkish and Moroccan women can be seen in the northern and eastern regions (BBNN, SVOB and IKL). The western region (IKA), where most migrants live, had the lowest attendance rates of Turkish and Moroccan women in 2007–2008 as well as in 1997–1998. The other regions, with big cities highly populated with migrants in the middle and southwestern regions (Preventicon and SBBZWN), also had low attendance rates in 1997–1998 that only slightly increased over the 10 years of study.

Table 2 Invitations and attendance rates by screening region

	Netherlands		Turkish		Moroccan		Other 'non-western' Africa, Latin America or Asia (except Japan)	
	Invited (% examined)		Invited (% examined)		Invited (% examined)		Invited (% examined)	
	1997–1998	2007–2008	1997–1998	2007–2008	1997–1998	2007–2008	1997–1998	2007–2008
BBNN (north) ^b	210 569 (85)	241 502 (86)	403 (60)	591 (71)	120 (58)	175 (65)	1325 (63)	2772 (76)
BoBWest (west) ^b	151 044 (79)	190 444 (82)	525 (50)	821 (61)	692 (51)	1 073 (63)	478 (50)	964 (55)
IKA (north-west) ^b	248 533 (77)	295 353 (81)	1644 (42)	1864 (55)	1669 (34)	2343 (51)	1569 (51)	1824 (56)
IKL (south-east) ^b	90 362 (84)	105 142 (86)	175 (50)	304 (68)	294 (51)	763 (62)	395 (63)	1128 (69)
Preventicon (middle) ^b	125 467 (81)	153 203 (82)	551 (50)	696 (60)	976 (50)	1030 (51)	138 (57)	283 (64)
SBBZWN (south-west) ^b	9330 (76)	31 194 (76)	258 (62)	1167 (68)	46 (48)	707 (51)	180 (55) ^a	2385 (63) ^a
SVOB (north-east) ^b	111 981 (83)	134 028 (85)	818 (60)	876 (75)	48 (48)	84 (57)	70 (54)	159 (69)
SVOKON (east) ^b	^c	145 712 (84)	^c	653 (67)	^c	184 (70)	^c	35 (66)

^aOnly women from Surinam and the Netherlands Antilles.

^bLocation in the Netherlands; see figure 1.

^cNumbers from SVOKON excluded because of unreliability.

Differences over time

The attendance rate of 'non-western' women increased significantly from 51% in 1997–1998 to 63% in 2007–2008 ($P = 0.000$) (Table 1), whereas the attendance rate of Dutch women stayed almost constant. Despite the significant increase ($P = 0.000$), the attendance rates of Turkish, Moroccan and Surinam women are still lower than that of Dutch women. In particular, the Moroccan women still have a very low participation rate, only 54%.

The increase in attendance rates for migrant women is not the same in all regions (Table 2). The western region IKA, with the highest number of Turkish and Moroccan women, shows a large increase, but has still the lowest attendance rates.

Discussion

The lower attendance rates of migrant women at the breast cancer screening program are in line with the findings of Uiters *et al.* (2006) that migrants make less use of preventive healthcare facilities. This is important because the survival rate for breast cancer detected at a later stage is lower (Louwman *et al.*, 2007).

As expected the attendance rates of 'non-western' migrant women increased during the last 10 years. Although in this study no data were available on the years in between nor about the factors associated with this increase, most likely this increase is permanent, because of the fact that most women involved in the screening have lived for a longer time in the Netherlands. In addition, migrants from the United States more often attended the mammography screening when they stayed longer in the country (Brown *et al.*, 2006). Further prospective study would be recommended to get more insight into the differences over time and on the factors contributing to higher attendance rates.

In the western part of the Netherlands, with a vast migrant population, the attendance rates are lowest. Probably, the lower level of acculturation or the lower

socioeconomic status of migrants in the big cities accounts for this (Bekker and Lhajoui, 2004).

A drawback of this study is that no information is available for the years in between or on women who have Dutch nationality, although they were born abroad, or on the approximately 50 000 illegal migrant women who are not registered with the local authorities (Van der Heijden *et al.*, 2005).

This is the first study that gives national data about the attendance of migrant women at the breast cancer screening, stratified by regions. It gives clear evidence that efforts are needed to increase the attendance of migrant women at breast cancer screening. This study also shows those regions in which interventions to increase screening are needed most.

Acknowledgement

There are no conflicts of interest.

References

- Andreeva VA, Unger JB, Pentz MA (2007). Breast cancer among immigrants: a systematic review and new research directions. *J Immigr Minor Health* 9:307–322.
- Bekker MHJ, Lhajoui M (2004). Health and literacy in first and second-generation Moroccan Berber women in the Netherlands: Ill literacy? *Int J Equity Health* 3:8; doi:10.1186/1475-9276-3-8.
- Brown WM, Consedine NS, Magai C (2006). Time spent in the United States and breast cancer screening behaviors among ethnically diverse immigrant women: evidence for acculturation? *J Immigr Health* 8:347–358.
- CBS, Year report Integration 2008, <http://www.cbs.nl/NR/rdonlyres/37812C9B-39B7-46FC-A893-294F18933E81/0/2008b61pub.pdf> (visited at 02-02-2009). In Dutch.
- Hartman E, Van den Muijsenbergh ME, Haneveld RW (2009). Breast cancer screening participation among Turks and Moroccans in the Netherlands: exploring reasons for non-attendance. *Eur J Cancer Prev* 18:349–353.
- Kiemeny LALM, Lemmers FAMO, Verhoeven RHA, Aben KKH, Honing C, de Nooijer J, *et al.* (2008). The risk of cancer in the Netherlands. *Ned Tijdschr Geneesk* 152:2233–2241. In Dutch.
- Leeuwen AWF, van Nooijer P, de Hop WCJ (2005). Screening for cervical carcinoma, participation and results for ethnic groups and socioeconomic status. *American Cancer Society* 105:270–276.
- Louwman WJ, Pol-Franse LV, Van de Fracheboud J, Roukema JA, Coebergh JWW (2007). Impact of a programme of mass mammography screening for

- breast cancer on socio-economic variation in survival: a population-based study. *Breast Cancer Res Treat* **105**:369–375.
- NIVEL (2005). Ontwikkeling raamwerk monitoren preventie programma's (Development framework monitoring prevention programmes. In Dutch.)
- Otten JD, Broeders MJ, Fracheboud J, Otto SJ, De Koning HJ, Verbeek AL (2008). Impressive time-related influence of the Dutch screening programme on breast cancer incidence and mortality, 1975–2006. *Int J Cancer* **123**:1929–1934.
- Otto SJ, Fracheboud J, Looman C, Broeders M, Boer R, Hendriks J, et al. (2003). Initiation of population-based mammography screening in Dutch municipalities and effect on breast-cancer mortality: a systematic review. *Lancet* **361**:1411–1417.
- Stirbu I, Kunst AE, Vlems FA, Visser O, Bos V, Deville W, et al. (2006). Cancer mortality rates among first and second generation migrants in the Netherlands: convergence toward the rates of the native Dutch population. *Int J Cancer* **119**:2665–2672.
- Uiters E, Deville W, Foets M, Groenewegen PP (2006). Use of health care services by ethnic minorities in the Netherlands: do patterns differ? *Eur J Publ Health* **16**:388–393.
- Van der Heijden PGM, van Gils G, Cruijff M, Hessen D. Een schatting van het aantal in Nederland verblijvende illegale vreemdelingen in 2005. Utrecht: Onderzoekscentrum IOPS. Universiteit Utrecht; 2005. (An estimation of the amount of illegal aliens in the Netherlands in 2005; Utrecht Researchcentre IOPS, Utrecht University. In Dutch.)
- Visser O, van Peppen AM, Öry FG, Van Leeuwen FE (2005). Results of breast cancer screening in first generation migrants in northwest Netherlands. *Eur J Cancer Prev* **14**:251–255.