

# Survival of Breast Cancer in Southern Iran

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## Abstract

**Background:** Breast cancer is the most frequent cancer in women in the western world. With breast cancer now affecting one in ten women, it is important to know how this disease burden is shared among women.

**Aims:** This study was undertaken to determine the survival rate of breast cancer in southern Iran.

**Methods and Material:** From December 2001 to December 2006, among 8000 hospital-based registered cancer cases in southern Iran, 863 individuals with breast cancer entered our study. One, 5, 10 and 15 year-survival rates were estimated by Kaplan Meier function.

**Results:** Mean age at the time of diagnosis of breast cancer was 46.3 years (SD=11.5). About 25.4% had a previous family history of cancer in their first and 13.8% in their second degree relatives. About 92.5%, 71.3% and 41.4% of breast cancer cases underwent surgery, radiotherapy and chemotherapy, respectively. Nearly 11.7% of patients had a history of exposure to chemical materials. About 32.3% were passive and 19.2% were active smokers. Totally, one, 5, 10 and 15 year-survival rates were 97%, 67%, 45% and 25%, respectively. The survival rate had a significant negative correlation with age at the time of diagnosis.

**Conclusions:** The survival rate of women with breast cancer in southern Iran seems to be identical to other parts of the country and stands between western and eastern European countries.

**Keywords:** breast cancer, survival, southern Iran

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IJCP 2009; 1: 51-54

## Introduction

About Breast cancer is the most common malignancy in women, but incidence varies more than 10-fold worldwide [1]. Due to earlier detection and improved treatment methods, the mortality rate of breast cancer has decreased largely [2]. However, breast cancer is still the most prevalent diagnosed cancer in women with a high mortality. About 40,410 women were reported to die of breast cancer in the United States in 2005 [3]. Western European and North American populations are at highest risk, with a lifetime risk of 8-10% up to the age of 74 years (1 in 12 to 1 in 10 women), while the lowest risks (around 1%) generally exists in Asian populations [4]. In addition to cancer stage at the time of diagnosis and treatment, [5-6] several other factors may explain the variability in breast cancer survival. Wide variations in breast cancer survival exist between countries [7-8].

As there were no data available in relation to breast cancer survival in our area, we sought to determine the survival rate in Fars Province, southern Iran.

## Subjects and Methods

Fars Hospital-based Cancer Registry affiliated to Shiraz University of Medical Sciences was founded in 1971 in Shiraz, collecting medical and demographic information from various medical sources throughout Fars in southern Iran. The records kept in the medical archives were scrutinized and the personnel interviewed the patients face to face for all information. The collected information included age, occupation, date of incidence, primary site, histology, response to therapy, survival status, follow up information, family history and socioeconomic status. The primary site and morphology data were coded using the ICD-O [9,10]. Our materials included all malignancies diagnosed microscopically by biopsy, resection or discovered at necropsy.

A historical prospective study was done, during a period of 5 years, from December 2001 to December 2006, and the cancer registry team actively collected and compiled data for a period of 17 years from 1989 to 2006 from 4 hospitals of Shiraz University of Medical Sciences. To date, over 8000 cases of malignant neoplasm have been

registered, 1028 cases were breast cancer, but 863 cases were enrolled because of the presence of follow-ups in their files while 165 cases were excluded from the study (14 males and 151 cases without any follow-ups) due to the telephone and address changes. The missing data is assumed as random. After at least 6 months, the registered patients were followed and their files were completed. Their follow up was based on patients' telephone and medical files. SPSS (Chicago, IL, version 13) was used for statistical analyses. We used Kaplan Meier for determined survival rate and Log-Rank test for comparison. A P-value less than 0.05 was considered significant.

**Results**

Mean age at the time of diagnosis was 46.5 years (SD=11.7, range=19-86 years) while 78 cases were single, 713 married and 86 divorced. 223 (25.4%) had a previous family history of cancer in their first and 121 cases (13.8%) in their second degree relatives. 811 (92.5%), 625 (71.3%) and 363 (41.4%) individuals had undergone surgery, radiotherapy and chemotherapy for breast cancer. 103 patients (11.7%) had a history of exposure to chemical materials and 283 (32.3%) were passive smokers, while 168 (19.2%) were active cigarette smokers. One, 5, 10 and 15 year-survival rates were 97% (95% confidence interval = 96% to 98%), 67% (95% confidence interval = 63% to 72%), 45% (95% confidence interval = 38% to 51%) and 25% (95% confidence interval = 16% to 34%), respectively (Fig 1). Survival rate was correlated with age at the time of diagnosis and was correlated with breast cancer survival (P value=0.01) (Fig 2). Median and mean survival times were 8.62 (95% confidence interval = 7.13 to 10.11) and 10.36 (95% confidence interval = 9.25 to 11.48) (Table 1).

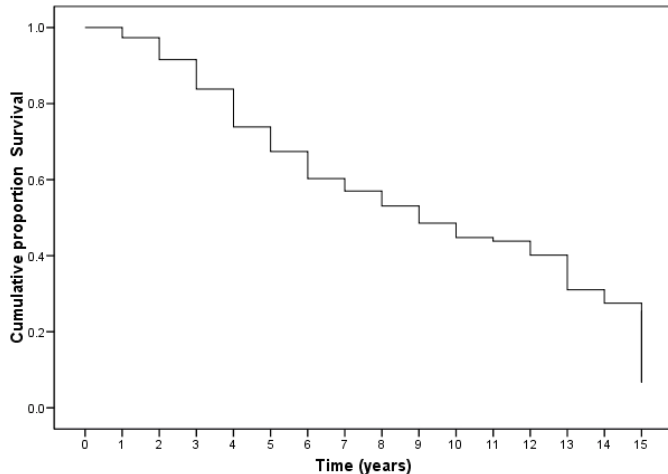
**Discussions**

Breast cancer is considered to be the second most commonly diagnosed cancer worldwide [11]. It ranks the second most common cancer among Iranian women too [12,13]. The median disease-free survival for patients with breast cancer has been reported to be 49.6 months by Gohari et al. [14,15] Our median survival time was 64 months. The overall relative 5-year survival rate was found to be 75%. Vahidian and Montazeri [16] showed a figure of 62% in Iranian breast cancer patients to stand between western and eastern European countries. So, early detection and better management using standard guidelines might contribute considerably to the improvement of survival in women with breast cancer. Mousavi et al. [13] reported a similar 75% five year survival rate in Iran. In Mashhad, North-east of Iran, a 5 year overall survival rate of 47.7% has been reported [17] showing that younger age had a significant adverse effect on survival rate. Ueno et al. [18] showed 5-year survival rates of 80.3% and 67.5% during two periods which was associated with age at the time of diagnosis. Taylor et al. [19] noticed a 76 percent 5-year survival in New South Wales. In Western Australia, Clayforth et al. [20] reported a 79% survival in western Sydney. The age at the time of diagnosis in Western Australia ranged from 22 to 92 years (mean=56.7 years) and 31% of cases were younger than 50 years of age which is at least 10 years older than Iran [20]. Its association with prognostic factors such as age, cancer stage and effectiveness of treatment has been previously shown [21-23] but the effect of age on breast cancer survival is still a matter of controversy. Several studies have shown that survival among young women is worse than that among older women [24,25]. Others have shown that age is not correlated with disease-free or overall survival after adjustment for other prognostic variables [26-28].

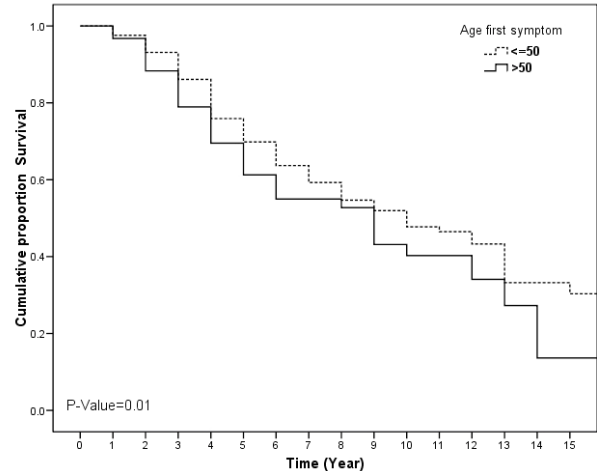
**Table 1:** Mean and median survival time (year) in relation to age at the time of breast cancer diagnosis, southern Iran.

		Mean	95% Confidence Interval		Median	95% Confidence Interval		P value*
			Lower Bound	Upper Bound		Lower Bound	Upper Bound	
Age at time of diagnosis	≤50	11.35	9.91	12.76	9.34	6.96	11.73	0.01
	>50	8.56	7.06	10.05	8.01	4.97	11.06	
Totally		10.36	9.25	11.48	8.62	7.13	10.11	

\*P value is due to mean and median



**Figure 1:** Survival curve of breast cancer in southern Iran.



**Figure 2:** Survival curve of breast cancer in relation to age at the time of diagnosis in southern Iran.

Some have even reported that young patients have a better survival [29]. According to the risk categories of the St. Gallen International Expert Consensus Meeting, age is a risk factor ([www.oncoconferences.ch/2005/home/home.htm](http://www.oncoconferences.ch/2005/home/home.htm)). The mean age of the patients at the time of diagnosis of breast cancer was  $46.5 \pm 11.7$  (19-86 years old in our study. Harirchi et al. [30] have mentioned mean ages of 47.1 and 48.8 years for women with breast cancer which are close to our figures. Mousavi et al. [13] reported a mean age of  $51.3 \pm 12.5$  years. Our findings are consistent with studies showing that being young at the time of diagnosis is a prognostic factor for survival [31,32]. Therefore, age at the time of diagnosis should be considered as an important factor for making decisions on adjuvant therapy, irrespective of nodal status, as breast cancer affects women in Iran at least one decade sooner than their counterparts in developed countries [33,34].

A comprehensive national cancer program including promotion of awareness, early detection, encouraging women for breast self-examination, treatment and palliative cares and participation in screening campaigns are important to decrease the burden of breast cancer in women  $\leq 50$  years of age in our area. This strategy is highly suggested to policy makers and health authorities. The survival rate of women with breast cancer in southern Iran seems to be similar to other parts of the country and stands between western and eastern European countries.

The limitation of this study was that we missed some patients, because their address or telephone had changed since our only source of data was the recode files of the Cancer Registry of Shiraz Medical University.

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