

# Trends in mammography utilization for breast cancer screening in a Middle-Eastern country: Lebanon 2005–2013



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## ABSTRACT

**Introduction:** In Lebanon, annual national breast awareness campaigns were started in 2002 during the international breast month of October to promote the utilization of mammography for women aged  $\geq 40$ . The impact of the campaigns has been assessed periodically since 2003. Results of 2003–2005 campaigns have been published previously.

**Objectives:** To measure the prevalence of two behavioral outcomes of interest: ever-use of mammography, and repeat mammography in the previous 12 months among ever-users. The prevalence was described by region and age group. The aim was to document the effectiveness of the program towards reaching a nationally defined goal of 80% screening coverage.

**Methods:** The survey's sampling frame was developed incrementally, and since 2005 it has included women aged  $\geq 40$  from all areas of Lebanon. The sample size has also increased incrementally from 1200 in 2005 to 2400 in 2013. Results have been tabulated biannually and presented as historical trends with regional and demographic variations covering a 9-year period.

**Results:** In all six consecutive surveys presented here, the mean age of participating women was about 50 years. Year-by-year increases in utilization indicators were detected, with consistent differences in favor of the more urban areas in and around the capital city Beirut and its suburbs (Greater Beirut or GB). By 2013, ever-utilization had reached 43% (41–45) and recent mammography 20% (18–22) nationwide. Utilization was significantly more important in the age group 50–59 compared with the age group 40–49 or  $\geq 60$ . While recent rates have increased nationwide, they have reached a plateau of about 25% in GB and are tending to the same level in other areas.

**Discussion and conclusions:** While initial progress was slow, it has been accelerating in the last 4–5 years, indicating that the message is being accepted by a larger audience of targeted women at each iteration. However, concern remains that women between 40 and 50 and those  $>60$  are not responding as well as desired to the screening message, for reasons currently under investigation.

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## 1. Introduction

Breast cancer is the most frequently diagnosed cancer among Lebanese women, as well as in the entire world [1–2]. With the aging of the population and the increasingly available screening programs, the incidence of breast cancer in Lebanon has been increasing from 78.3 new cases per 100,000 in 2003 to 86.9 in 2007 (the last year for which national figures are available) [1] and has been projected to reach 137 in 2018 [3]. Across the Middle-Eastern region, few activities have been conducted to address the emerging issue of breast cancer. A survey of Saudi women in 2013 found that only 20.5% had ever received a breast screening [4]. In Qatar, a 5-

month study in 2011 showed a similar situation with “fewer than one third” practicing breast cancer screening according to national recommendations “despite rising breast cancer incidence and mortality rates” [5]. However, in most Arab nations – United Arab Emirates (UAE), Jordan, Egypt, etc. – increased efforts are being registered to address the early detection of breast cancer [6].

In order to raise awareness concerning this major health problem, the Ministry of Public Health (MOPH) in Lebanon started organizing annual breast cancer awareness campaigns in 2002, with the participation of the private sector which dominates the healthcare system in the country. During those fall campaigns, eligible women are invited to undergo a mammography in participating centers at a major discount. Participating centers agree to offer mammography for 40,000 LL ( $\approx 27$  USD) in private centers and for free in public centers. If suspicious results are obtained, women are usually referred back to their physicians who

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require additional confirmatory tests. These tests, now dubbed “diagnostic”, are more likely to be covered by various insurance schemes, which would normally not cover prevention or detection. Should a cancer be confirmed, women may select to undergo treatment in the largely subsidized but heavily used public hospitals, or to profit from a subsidized coverage for admission to private hospitals under contract with the MOPH, or under other third-party payer schemes, with about 30% having to actually pay out-of-pocket costs for hospitalization. Cancer drugs are available free of charge to all citizens, as are radiotherapy sessions, although the latter are subject to certain conditions.

Since 2008, the official recommendation for breast cancer screening in Lebanon has required women from the age of 40 to obtain an annual mammography for as long as they remain in good health. These guidelines may be revised once an 80% annual utilization rate has been reached [7]. The breast cancer annual campaigns are a great opportunity to push towards the realization of the national target, as cost barriers are lowered for most women who do not have an insurance coverage for preventive services. Following each campaign, a national survey is conducted across the country to evaluate the potential impact. An earlier paper analyzed survey data obtained in the early years (2002–2005), but the period was too short to show clear trends [8]. This paper covers the period from 2005 to 2013, using data accumulated from all intervening serial surveys during that period.

## 2. Aims and objectives

The main objectives of this work were to measure trends in mammography utilization among women in Lebanon, and to

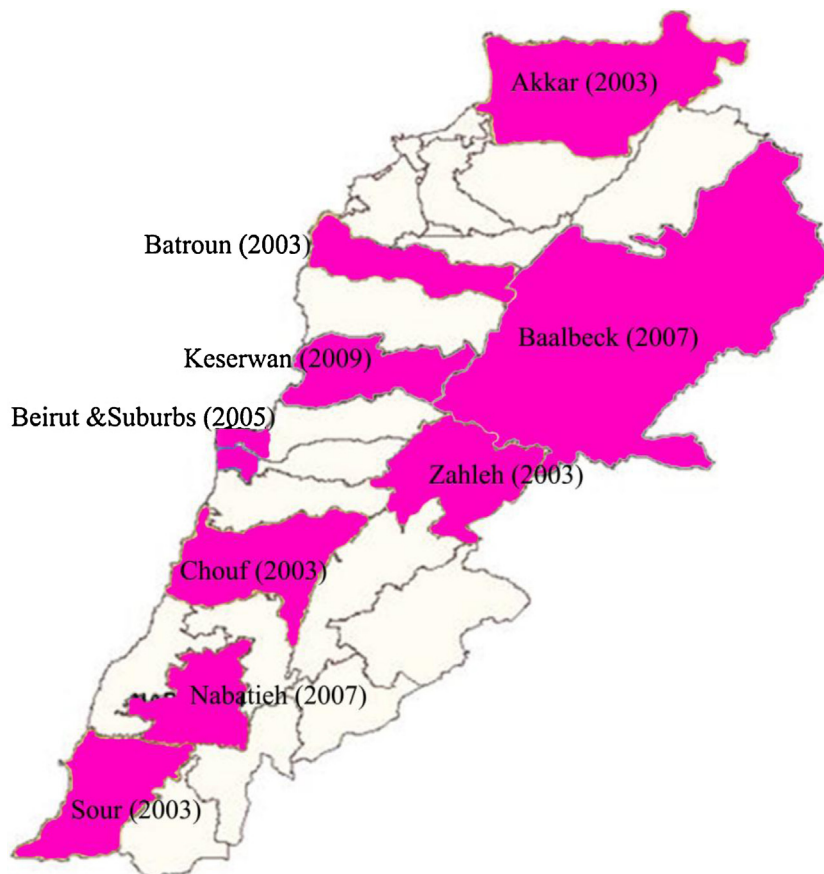
describe regional and demographic differences requiring specific approaches in future campaigns. The overall aim was to optimize the impact of the campaigns for earlier detection, and hence to improve the prognosis of breast cancer in Lebanon.

This work is a typical example of research in action, with all the twists and difficulties that such research can carry. The main initial goal of the MOPH was to deliver a service. The issue of post-hoc impact evaluation was raised by the scientific team collaborating on the project. Reaching a consensus for the implementation of those surveys had to be negotiated at every step. It was not until 2008 that the ideal design requested by the scientific team was finally approved and fully funded. Originally dubious stakeholders were incrementally won over to the full design as results from each wave started being disseminated and were put to use in the media to improve participation and highlight positive progress.

## 3. Methods

### 3.1. Design and target population

Following a pilot survey in 2003 [8], sample surveys were regularly conducted between 2005 and 2013, targeting adult women in the Greater Beirut area (administrative Beirut city and its suburbs) and in districts (cazas) across Lebanon. These cazas were selected for their particular sociocultural and economic characteristics to ensure the largest sociological representation of all Lebanese women. Areas covered by the surveys now include more than 60% of the total Lebanese population (Fig. 1). Data collection usually starts about 2 months after the end of the annual campaign.



**Fig. 1.** Areas of Lebanon ultimately covered by the periodic breast cancer awareness assessment surveys (2003–2013). Dates in brackets are years when this area was first included in the survey.

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