



# Results of the First Pilot Study on the Feasibility of Applying a Breast Cancer Screening Program in Libya

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## Abstract

**Background:** Breast cancer is the most common female cancer and the second cause of death among women worldwide. Screening attendance is associated with a mortality reduction of at least 30% and a 40% lower risk of advanced disease. We conducted this pilot study to evaluate the feasibility of applying a breast cancer screening program in Libya. **Methods:** Volunteer health care professionals from Sirte Oncology Center have visited the two largest schools in Sirte city and invited all women teachers whose ages are 40 years in these two schools (104 women) to attend an educational lecture about the risk of breast cancer and the importance of screening for breast cancer. Teachers who agreed to participate in this screening program were interviewed by the breast cancer screening team and received their appointments for mammography and subsequently classified according to the mammography result into groups according to Breast Imaging Reporting And Data System (BIRADS). **Results:** Of 104 women invited, 103 were successfully interviewed, giving a response rate of 99.03%. Out of the 103 women who did mammography, 59 women were referred for breast ultrasound (US) examination. Out of these 59 women, 15 women declined the US examination. Breast US revealed a suspicious lesion in only one woman who also declined further assessment. **Conclusions:** There is an excellent response rate to invitation probably because all invited women are educated (teachers). More number of radiologists and other screening staff is needed so that breast US and further assessment by biopsy can be done immediately.

**Keywords:** Breast Cancer, Screening, Libya, Pilot Study.

## Introduction

Breast cancer is the commonest cancer affecting females and is the second cause of death from cancer among women worldwide. The global cancer statistics (GLOBOCAN) reported that new cases of breast cancer would increase by more than 46% in 2040. Mortality from breast cancer in the United States increased annually by 0.4% till 1990, then it steadily decreased by up to 3.4% annually [1-3]. This significant improvement in survival was attributed to the early diagnosis achieved by screening programs and the improvement in different modalities of treatment. The early diagnosis of breast cancer through screening before the age of 50 results in significant mortality reduction with a lower risk of presentation at an advanced stage either locally or with systemic dissemination. In the contrary continuing annual breast cancer screening past the age of 75 years did not result in substantial reductions in 8-year breast cancer mortality compared with stopping screening [4,5]. Ultrasound is incorporated in a comprehensive screening mammography examination, either separately without the knowledge of the mammography assessment findings or simultaneously with mammography, which results in a sustained mortality reduction as a result of achieving a breast cancer clinical diagnosis at an early stage [6-9]. In Libya, breast cancer is the most common cancer among Libyan women. Unfortunately, most of the patients present with an advanced disease, due to delay in seeking medical advice due to lack of awareness and lack of a national breast cancer screening program in Libya. The aim of this pilot study is to determine the feasibility of implementing breast cancer screening program in Libya.

## Methods

Trained volunteer health care professionals from Sirte Oncology Center including two radiologists, one radiology technician, one medical oncologist, and two nurses have visited the two largest schools in Sirte city (Shohada Tagreft primary school and Aljeel Aljadede primary school) where they invited all women teachers whose ages are  $\geq 40$  years in these two schools (104 women) to attend an educational lecture about the risk of breast cancer in addition to the importance of breast cancer screening (group education).

After finishing this educational lecture, teachers who agreed to be included in the screening program were interviewed by the breast cancer screening team. Detailed information including name, date of birth, ID, marital status, address, telephone number, and past history were collected. Each woman received her appointment for mammography (in a mobile unit brought to the schools) either in the same day or within few days, free of charge, and subsequently classified according to the mammography result into one of the following groups according to Breast Imaging Reporting And Data System (BIRADS); BIRADS 0, BIRADS 1, BIRADS 2, BIRADS 3, BIRADS 4, BIRADS 5, or BIRADS 6. Women who were classified as BIRADS 0 and those with dense breasts were further assessed by breast ultrasound (US) examination.

## Results

All women in the two schools have attended the educational lecture (104). Of 104 women invited, 103 were successfully interviewed and did mammography, giving a response rate of 99.03%. Out of the 103 women who did mammography, 59 women (57.28%) were referred for breast US examination. Out of these 59 women, 15 women (25.42%) declined US examination. Breast US revealed a suspicious lesion in only one woman who also declined further assessment. Screening mammography in both schools was finished in 6 days. Results of the study were stored in files (paper-based screening registry).

## Discussion

There is an excellent response rate to invitation probably because all invited women are educated (teachers). More number of radiologists and other screening staff is needed in Sirte for two reasons, the first reason is that 15 women declined US examination because they received appointments for US examination and it was impossible for the staff to do this examination in the same day (the simultaneous mammography/US method). The second reason is that the number of the expected target population based on the demographic features of Sirte and the United Nations world population prospects (2019), cannot be covered in one year if 6 days are needed to screen only around 100 women [9,10].

The population of Sirte as reported in The National Population Survey conducted in 2012 was 117473 and females constitute 49%. The number of women in the target age for screening (40-69 years) is 10907. If we interpolate this data based on the 2020 Demographic estimations by region published by the Bureau of Statistics and Census Libya, an estimated 15864 women will be at the screening target age for breast cancer in Sirte. Because there was also one woman who declined further assessment by biopsy, we suggest doing biopsy also in the same day and place in the future.

Further discussion with decision makers in the country is needed to find a proper personal invitation method for the target population at risk (especially housewives) and to support the screening project financially [11].

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