

An Investigation Into The Clinical And Epidemiological Characteristics Of Non-Cancerous Breast Conditions: Prevalence And Associated Risk Factors Among Female Patients At Al Hussein Teaching Hospital In Al-Samawa City”

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Abstract

Background: Benign breast diseases, such as fibroadenomas, fibroadenosis, fibrocystic disease, and mastitis, are common in women and often mimic early-stage breast cancer. These conditions are typically diagnosed during the reproductive years. While most breast cancer cases are sporadic, risk factors include age, radiation, genetics, alcohol, smoking, and hormonal influences. Early detection through clinical evaluation, mammography, and ultrasonography is crucial. In Iraq, a national early detection program launched in 2000 aims to reduce breast cancer mortality through timely diagnosis and treatment.

Aim of the study: To assess the frequency of benign breast disease, most common type of breast benign disease and risk factors associated with breast benign diseases.

Material and method: This cross-sectional study included 98 women at Al Hussein Teaching Hospital, Al-Samawa City, from September 2019 to March 2020. Data were collected using a self-administered questionnaire covering sociodemographic, clinical, and management details. Statistical analysis was performed using descriptive statistics and chisquare tests to assess associations between risk factors and benign breast disease, with a pvalue <0.05 considered significant. Data were analyzed using IBM SPSS version 29.

Results: The mean age of the 98 participants was 38 ± 12 years, with the majority (31.6%) aged 25-35. Most were married (81.6%), unemployed (67.3%), overweight (55.1%), and had a low educational level (60.2%). A significant proportion (56.1%) had menarche before age 12.

The type of benign breast condition that was most common was fibroadenoma (41%) followed by mastitis (24%). There was a significant association with benign breast pathology and family history of breast disease ($P=0.007$); however, age, weight, age at menarche and use of oral contraceptives did not show significant relationships.

Regarding symptoms, 74 participants reported breast pain, and 68.4% had symptoms lasting less than 1 month. Diagnostic tests included ultrasound (43.9%) and both mammogram and ultrasound (36.7%). Treatment was received by 26.5% of participants, with 30.6% expressing satisfaction with the treatment. Most (86.7%) felt their condition affected their quality of life, and 94.9% attended regular follow-ups.

Conclusion: Prevalence of Benign breast disease was 60.2%. Fibroadenoma was the most common type of benign breast disease, followed by mastitis. Most of women were middle aged. A family history of breast disease was significantly associated with benign breast disease. Age, weight, and early menarche showed trends but did not significantly correlate with the presence of benign breast disease. Breast pain and lumps were the most common symptoms reported. Most women felt their condition impacted their quality of life and regularly attended follow-up visits for breast health.

Introduction:

Most of the breast conditions known for a female are benign in nature [1]. Breast conditions are usually diagnosed among females, and benign lesions are much more common than breast cancer worldwide [2]. Since they are benign, some of these lesions are clinically unremarkable and need follow-up. However, some may give rise to symptoms that can be valuable clinically and may mimic breast cancer, especially in its early stages while it is curable [3]. Benign breast conditions are mainly diagnosed or detected during the reproductive period, specifically in the second decade of a woman's life [4]. These benign lesions include fibroadenomas, fibroadenosis, fibrocystic disease, and mastitis being the most commonly diagnosed benign breast conditions [5]. Most breast cancer cases are sporadic, and some cases have genetic predisposition. Factors involved in the development of breast cancer include age, occupation/radiation exposure, genetic predisposition, body habitus, alcohol intake, smoking, hormonal influence

such as early menarche, late menopause, nulliparity, late first live birth, and hormonal therapy [6]. Evaluation of clinically detected breast conditions should follow the steps of the triple assessment, which includes clinical evaluation (breast and axillary examination), radiographic evaluation (mammograms), and Ultrasonography [7]. The Initiative for the Early Detection and Down-Staging of Breast Cancer, was launched in 2000 by the Iraqi Ministry of Health, in cooperation with the World Health Organization, the Ministry of Higher Education and Scientific Research, and other relevant organizations, to help identify breast cancer earlier, and at a lower stage; therefore, reduce the mortality rates, and improve the success of treatment. The Ministry of Health established breast clinics and referral centers at all major hospitals across all provinces of Iraq to increase the ability of health care providers to detect breast cancer early before patients had late stage disease when they would likely not receive treatment successfully. The Early Detection and Down-Staging Initiative, will help reduce breast cancer deaths through the delivery of high quality primary and secondary health care services; provide screening services for women 15 years of age and older; and shift breast cancer diagnosis from late to early stage when the treatment results are most favorable. In conclusion, the Early Detection and Down-Staging Initiative will reduce the overall cost of treatment and the likelihood of successfully recovering from breast cancer. The goal of this study is to examine the frequency and patterns of breast disease in female patients receiving care at the breast clinic located at Al-Hussein Teaching Hospital in Al-Samawa City, Iraq in 2025.

Methods:

Study Design

The study explored the prevalence as well as factors that increase the likelihood of developing non-malignant breast conditions in females who attended Al Hussein Teaching Hospital in Al-Samawa City through a cross sectional study method. The sample size was 98 women and data were collected from subjects between September 20th 2019 and March 1st 2020.

Ethical Approval

The study was approved by the relevant ethical committee. To ensure confidentiality, no personal identifiers were recorded, and each participant was assigned a unique identification number.

Data Collection

Data were collected using a self-administered questionnaire. The questionnaire covered the following aspects:

- **Sociodemographic characteristics:** Age, marital status, occupation, weight, educational level and age at menarche.
- **Clinical characteristics:** Type of benign disease, duration, history of hormonal disorders, family history of breast diseases and symptoms and its duration.
- **Management lines:** Diagnostic tests, treatment received and satisfied with treatment.

The questionnaire was completed in paper format, and all collected data were subsequently entered into Microsoft Excel 2021 for analysis.

Statistical Analysis

Descriptive statistics were used to summarise baseline characteristics of participants, such as absolute frequencies, mean values, and standard deviation. Chi-square analyses evaluated potential associations between benign breast disease and factors such as: age, body mass index, family history of breast-related disorders, age at menarche, and oral contraceptive use. Statistical significance was defined as a p-value < 0.05. All analyses were conducted using IBM SPSS software version 29.

Results

Table 3.1 summarizes the baseline characteristics of the 98 studied women. The mean age was 38 ± 12 years, with the largest proportion (31.6%) in the 25-35 age group. The majority were married (81.6%) and unemployed (67.3%). Most participants had a low educational level (60.2%) and were overweight (55.1%). Additionally, 56.1% experienced menarche before the age of 12, which may be relevant to the study's findings on benign breast disease.

Table 3. 1: Baseline characteristics of studied participants (n=98)

| | Mean ± SD / N (%) |
|--------------------------|-------------------|
| Age | 38 ± 12 |
| Age group | |
| ≤24 | 14 (14.3) |
| 25-35 | 31 (31.6) |
| 36-45 | 29 (29.6) |
| ≥45 | 24 (24.5) |
| Marital status | |
| Married | 80 (81.6) |
| Single | 11 (11.2) |
| Widow /Divorced | 7 (7.1) |
| Occupation | |
| Employee | 26 (26.5) |
| Student | 6 (6.1) |
| Unemployed | 66 (67.3) |
| Educational level | |
| Low education | 79 (60.2) |
| High education | 19 (19.4) |
| Weight | |
| Normal | 29 (29.6) |
| Obese | 15 (15.3) |
| Overweight | 54 (55.1) |
| Age of menarche | |
| 12 to 14 | 43 (43.9) |
| Under 12 | 55 (56.1) |

Table 3.2 outlines the clinical and social characteristics of the study participants. 60.2% of the women had a history of benign breast disease, with 20.4% reporting a duration of the disease lasting over 3 years. 21.4% had a family history of breast disease, while 17.3% had a history of hormonal disorders. Most participants (90.8%) had never undergone breast surgery. The study also found very low prevalence of smoking (1%), alcohol consumption (0%), and regular physical exercise (1%), with all participants following a mixed diet (100%).

Table 3. 2: Clinical and social characteristics

| | | | |
|------------------------------------|----|-------|--|
| Benign disease | | | |
| Yes | 59 | 60.2% | |
| No | 39 | 39.8% | |
| Duration of Benign diseases | | | |
| Less 1 month | 18 | 18.4% | |
| Less than 6 months | 13 | 13.3% | |
| 6 months to 1 year | 12 | 12.2% | |
| 1 to 3 years | 8 | 8.1% | |

| | | |
|-----------------------------------------------|----|--------|
| Over 3 years | 20 | 20.4% |
| No | 27 | 27.6% |
| Family history of breast disease | | |
| Yes | 21 | 21.4% |
| No | 77 | 78.6% |
| History of hormonal disorder | | |
| Yes | 17 | 17.3% |
| No | 81 | 82.7% |
| Have you ever undergone breast surgery | | |
| No | 89 | 90.8% |
| Yes | 9 | 9.2% |
| Smoking | | |
| Yes | 1 | 1.0% |
| No | 97 | 99.0% |
| Alcohol | | |
| Yes | 0 | 0 |
| No | 98 | 100.0% |
| Physical exercise | | |
| 3-4 times week | 1 | 1.0% |
| Never | 97 | 99.0% |
| Diet | | |
| Mixed | 98 | 100.0% |

Fibroadenoma was the most prevalent benign disease among studied participants (41%) followed by Mastitis (24%) as shown in Figure 3.1.

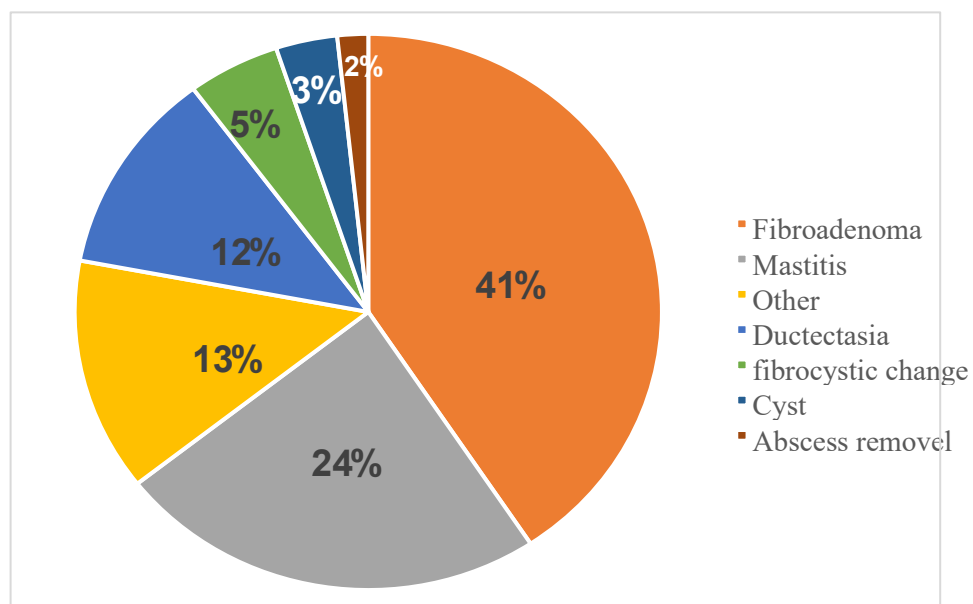


Figure 3: Frequency of benign disease

Table 3.3 examines the association between benign breast disease and various risk factors. Among different age groups, the prevalence of benign disease was highest in the 25-35 age group (32.2%), but no significant association was found ($P=0.153$). Regarding weight, the majority of both groups (benign disease and no benign disease) were overweight, with no significant difference between them ($P=0.496$). The age of menarche showed a slight trend, with a higher proportion of women with benign disease experiencing menarche under 12 years (62.7%), but this was not statistically significant ($P=0.106$).

A significant association was observed with family history of breast disease, as 30.5% of women with benign disease had a family history, compared to only 7.7% in those without benign disease ($P=0.007$). Finally, oral contraceptive use showed no significant difference between the groups, with a slightly higher proportion of women without benign disease using oral contraceptives ($P=0.615$).

Discussion:

In this study, we analysed data from 98 women, 60.2% of the women reported a benign breast disease (BBD) and this higher than findings by Zeinomar et al. (2019) [11] found that among 17,154 women, 27.4% had BBD.

In this study women were aged with 38 ± 12 years. The largest proportion of participants fell within the 25-35 age group. In comparison, it is close to a study conducted in Mecca, Saudi Arabia (2022) [10], which included 222 patients with a mean age of 36.71 ± 12.48 years, reported that 42.3% of the participants were aged between 31 and 45 years but lower than Zeinomar et al. (2019) [11] that report mean age was 49.80 ± 12.80 years.

A substantial portion of the sample had low educational attainment (60.2%), Zeinomar et al. (2019) [11] reports that 31.4% of participants had a high school education or less, while 38.7% attended some college or vocational school, and 29.6% had a bachelor's or graduate degree. In this study more than half of women were classified as overweight this is similar to Zeinomar et al. [10] and Mecca study [11].

Additionally, above than half of the participants experienced menarche before the age of 12 this close to findings of Zeinomar et al. [10] that found mean age at menarche 12.80 ± 1.60 years.

The present study revealed a statistically significant association between benign breast diseases and having a positive family history of breast disease. This association is consistent with previous studies that have suggested an association between family history of breast cancer and non-cancerous breast pathologies. However, several case-control studies failed to find a statistically significant association, which highlights the need for more thorough prospective research to clarify this relationship [12].

Additionally, low proportion of participants had a history of hormonal disorders, and the majority had never undergone breast surgery.

In this study, Fibroadenoma was the most commonly diagnosed benign breast disease, followed by mastitis These findings are consistent with those from the Mecca study [10] and a study conducted in Tanzania [13], which also reported that fibroadenoma was the most prevalent condition, followed by fibrocystic changes. A more recent study (2024) also identified fibroadenoma as the most frequently reported benign breast disease among African women [14].

In terms of symptoms, the majority of participants presented with breast pain, followed by a palpable breast lump. This contrasts with the findings from the Tanzania study [13], where breast lump was the most frequent presentation. Furthermore, most of the women in our study reported experiencing symptoms for less than one month, while low proportion had symptoms lasting more than six months. In Tanzania [13] the overall study results showed that the average duration of symptoms varied widely: at least 3 days and up to 48 months; total median duration was 4 months (range from 2 to 6 month). When looking at certain symptoms the median delay between the identification of the symptom and the time the patient presents to an outpatient clinic for surgical care were 2 week for breast pain, 3 month and 1 week breast lump, and 1 week for nipple discharge.

Regarding diagnostic testing, 43.9% of participants underwent ultrasound, and 36.7% had both mammograms and ultrasound. A smaller proportion (19.4%) had a mammogram alone.

Finally, the majority of the participants reported that their condition impacted their quality of life, and 94.9% attended regular follow-up visits for breast health, highlighting the importance of ongoing care and monitoring for women with benign breast disease.

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