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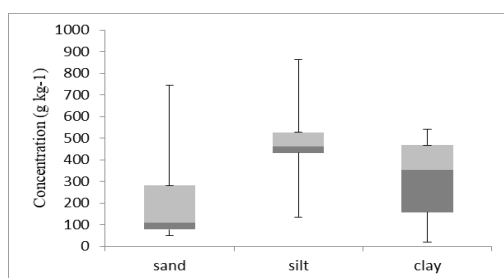
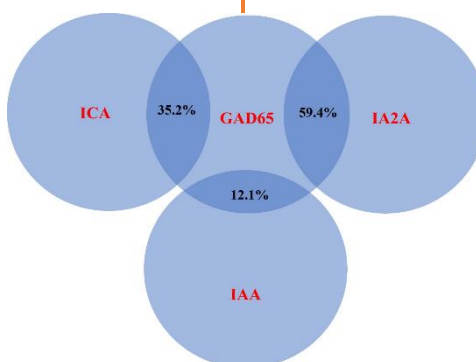
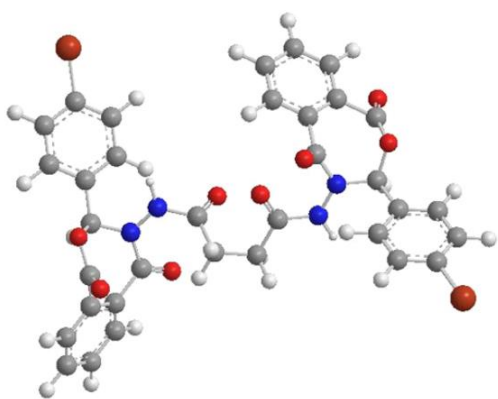
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Non-Cyclical Mastalgia and its Effects on Daily Life among Women Visiting the Breast Disease Treatment Center at Shar Hospital in Sulaymaniyah City, Iraq

Kwestan Mohammed Rahim^{1*}, Heshw Othman Hamasur², Khalat Kamal Rahim², Darya Abdullah Rostam²

1 Department of adult health nursing, College of Nursing, University of Sulaimani, Sulaimani, Kurdistan Region, Iraq.

2 Researcher, Sulaimani, Kurdistan region, Iraq

*Corresponding email: Kwestan.rahim@univsul.edu.iq

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Abstract

Background: Breast discomfort or pain, known as mastalgia, is a frequent symptom among female patients throughout their lifespan. Identification of the underlying causes through evaluation and target imaging is required for the patients' comfort. **Aim:** To assess the primary variables that cause non-cyclical mastalgia and how it affects women's lives. **Methods:** A quantitative-descriptive prospective study on a randomized, selected sample group of 100 patients with non-cyclical mastalgia in Breast Disease Treatment Center at Sulaimaniyah was done. A prepared questionnaire was used to interview the participants from January 15 to January 22, 2023. **Results:** Out of the 354 women who presented to the Breast Treatment Clinic during the study period, 100 (28.23%) were diagnosed with non-cyclical mastalgia. The common breast disorders among participants were simple, complex cyst and fat tissue necrosis on ultrasound. Mastalgia effects on daily life, interferes with usual sleep patterns of women ($P=0.003$), causes anxiety ($P=0.001$), had negative effect on exercise ($P=0.002$) and daily work ($P=0.01$) of women. **Conclusions:** Women over 40 years old who experience fear, tension, and anxiety due to the consequences of mastalgia, which interfere with regular sleep patterns and have an adverse effect on exercise and regular job duties, and most of them have breast problems on imagining, are more likely to suffer from non-cyclical mastalgia.

Introduction

Mastalgia, a medical term for breast pain or discomfort, constitutes one of the most common complaints among women [1], and it is a common breast complaint that patients find worrying [2]. The number of women seeking medical counsel about their breast pain complaints from hospitals has increased along with the population's increased awareness of breast cancer [3]. According to ElSherif and Valente [4] 70% of women who are of childbearing age have experienced. The pain is often described as a vague aching discomfort, although it can also be on either side of the breast and occasionally feel heavy or burning. The three main types of breast pain are structure/extra-mammary discomfort (produced by the chest wall), cyclical mastalgia (linked to the menstrual cycle), and noncyclical mastalgia (unrelated to the menstrual cycle) [4].

Non-cyclical breast pain (NCBP), which is most frequently experienced by elderly patients, has no known connection to the menstrual cycle. In most cases, patient describe their pain as being acute, searing, ongoing, and radiating to the ipsilateral shoulder. The causative association between NCBP and breast size, smoking,

cysts, periductal mastitis, stretching of Cooper's ligaments, traumatic fat necrosis, and diabetic mastopathy has also been researched; however, the majority of patients do not present with any of these signs [5].

People who have bigger breasts may be at increased risk for noncyclic breast pain because of their breast size. Along with breast pain brought on by huge breasts, neck, shoulder, and back pain may also be present [6]. Oral contraceptives, hormone therapy, psychosomatic variables, mental discomfort, and some medicines (cardiovascular agents, psychiatric drugs, etc.) are all thought to be connected to NCBP, although only in a tiny percentage of affected women [7]. An increase in estrogen, or prolactin, and a decrease in progesterone are other main reasons for breast pain [8].

To identify the underlying reason, a history, physical exam, and targeted imaging should be performed on patients who have new, persistent localized breast pain [4]. Breast pain is often benign but may occasionally be linked to malignancy. It's crucial to soothe patients who frequently worry about breast pain. Based on the results of the physical exam, whether the discomfort is unilateral or bilateral, shallow or deep, spreads to the chest, or is accompanied by symptoms like fever, a palpable mass, abnormalities of the skin, or nipple retractions, if there are symptoms, especially a palpable tumor, a breast and axillary ultrasound should be done at the very least to check for radiological abnormalities. Mammography should be added if the clinical examination raises any red flags [9].

Imaging may be necessary for focused, noncyclic pain, mostly to provide comfort and determine treatable causes. Women under 30 with focused NCBP may undergo an ultrasound as the initial examination; diagnostic mammography, digital breast tomosynthesis, or ultrasound as the initial examination may be beneficial for women over the age of 30 years [10].

Regardless of the sensory or affective qualities and pain trajectory, many women with breast pain state that it has a negative influence on their lives and that they are constantly concerned about it. Significant sleep problems are a common cause of visits to the primary care clinic, especially when these problems interfere with sexual, physical, occupational, and social activities [11-13].

One of the most frequent complaints among women is breast pain, which makes them uncomfortable, raises their risk of developing breast cancer, and makes it difficult for them to go about their everyday lives regularly [14]. The study of NCBP was crucial for determining the causes and prevalence of mastalgia, its effects on women's lives, and how common and effective it is in regular daily life. It was also crucial to compare it to earlier studies to determine whether there has been a change in the number of mastalgia cases.

Materials and methods

Study setting

A quantitative-descriptive study was conducted at Shar Hospital's Breast Disease Treatment Center in Sulaymaniyah City, from January 15 to January 22, 2023. During this period, 100 patients with non-cyclical mastalgia (breast pain) were selected randomly among 354 patients who visited the Breast Disease Treatment Center for diagnosis and management over a period of 8 days. Data was collected from interviews with each woman who has NCBP and from the patients' records.

A questionnaire was constructed, and the following data were recorded: sociodemographic characteristics of the patients, which include age, height, weight, body mass index (BMI), marital status, occupation, level of education, residential area, and economic status. The patient's characteristics of pain, including duration of pain, pattern of pain, quadrant of pain, and character of the pain. The patient's history consists of menstrual history, history of parity, history of breastfeeding, history of breast surgery, history of gynecological disease, history of breast disease, drug history, history of endocrine conditions, personal habits and lifestyle factors,

and the patient's breast size (according to cup size, A, B, C, and D). Investigations: This part includes the results of mammography and breast ultrasound. Management of the pain: in this section of the sheet, we asked the patients and also searched the file to determine the prescribed medication that the patient is receiving to relieve mastalgia, such as evening primrose oil, NSAIDs, and paracetamol. Effect on daily life: In this section, we discussed with the patients how mastalgia affects their quality of life, such as decreased appetite, causing fear, and change in sleep pattern (insomnia), causing stress (feelings of mental tension), causing anxiety (distress), having a negative effect on exercise and sexual activity, and having negative effects on daily work. In Sulaymaniyah Breast Treatment Centers, for women who were over 40 years old, had a file, and were found to have breast problems on imaging, they were required to schedule follow-up appointments every year.

Inclusion criteria

Included women with non-cyclical breast pain (mastalgia),

Adult's ≥ 18 years of age.

Exclusion criteria

Include women with cyclical mastalgia and women with extra-mammary pain.

Ethics approval and consent to participate

The study was supported by the University of Sulaimani/College of nursing ethical committee. Before the start of the trial, permission was obtained from the director of the Breast Disease Treatment Center. Also, all of the study participants provided informed consent.

Statistical analysis

SPSS, version 23.0, was used to conduct the statistical analysis (IBM SPSS Statistical Package for the Social Sciences, Chicago, USA). A chi-square, odds ratio, and confidence interval test of affiliation were utilized to determine the conceivable affiliation between a few variables. The criteria for determining the noteworthiness of the test are: High significance ($p \leq 0.001$). Significant ($p \leq 0.05$) not significant ($p > 0.05$).

Result

A total of 100 women with NCBP participated, ages ranging from 20 to > 59 years; 6 were 20 to 29 years 6%; women between 40 and 49 years 45%; and 17 women were 30 to 39 years 17%. Regarding women's level of education, 21% were illiterate, and 79% were between a primary school degree and an institution or college degree. Relating to women's BMI, only one was underweight, 14% were normal weight, 34% were overweight, 16% were obese, and 9% were extremely obese. Referring to women's residential areas, 74% lived in Sulaymaniyah city, 23% lived in towns around Sulaymaniyah city, and 2% lived in villages. In terms of economic status, 82% of women had moderate or good economic status, 4% had bad or poor economic status, and 14% had wealthy status. Concerning women's occupation, 75% were housewives, 23% were employed, and 2% were neither employees nor housewives. The majority of women were married 89%, 1% was widows, and 10% were single (Table 1).

Non-cyclical mastalgia and education level are highly significantly correlated, also a significant association between age and non-cyclical mastalgia as shown in (Table 2).

Table 1: Distribution of the study sample according to the socio demographic characteristic.

| Socio demographic data | Variable | F (Frequency) | % |
|-------------------------------|-------------------------|--------------------------|----------|
| Age (Year) | 20-29 | 6 | 6 |
| | 30-39 | 17 | 17 |
| | 40-49 | 45 | 45 |
| | 50-59 | 21 | 21 |
| | >59 | 11 | 11 |
| | Total | 100 | 100 |
| | Level of education | Illiterate | 21 |
| | institute or university | 22 | 22 |
| | Primary | 31 | 31 |
| | Secondary | 26 | 26 |
| | Total | 100 | 100 |
| Residential area | City | 74 | 74 |
| | Town | 23 | 23 |
| | Village | 3 | 3 |
| | Total | 100 | 100 |
| Economic State | Moderate | 82 | 82 |
| | Poor | 4 | 4 |
| | Wealthy | 14 | 14 |
| | Total | 100 | 100 |
| Occupation | Employee | 23 | 23 |
| | Housewife | 75 | 75 |
| | Other | 2 | 2 |
| | Total | 100 | 100 |
| | Marital status | Widow | 1 |
| | Married | 89 | 89 |
| | Single | 10 | 10 |
| | Total | 100 | 100 |
| BMI | Underweight | 1 | 1 |
| | Normal | 14 | 14 |
| | Overweight | 34 | 34 |
| | Obese | 16 | 16 |
| | Extreme obese | 9 | 9 |
| | Total | 100 | 100 |

Table 2: Relationship between women's occupations, educational attainment, ages, and non-cyclical mastalgia.

| Characteristics | | Sum of Squares | df | Mean Square | F | Sig. |
|--------------------|----------------|----------------|----|-------------|-------|-------|
| Occupation | Between Groups | 0.176 | 1 | 0.176 | 0.456 | 0.501 |
| | Within Groups | 37.934 | 98 | .387 | | |
| | Total | 38.110 | 99 | | | |
| Level of education | Between Groups | 0.039 | 1 | 0.039 | .016 | 0.001 |
| | Within Groups | 237.351 | 98 | 2.422 | | |
| | Total | 237.390 | 99 | | | |
| Ages | Between Groups | 0.252 | 1 | 0.252 | 0.238 | 0.03 |
| | Within Groups | 103.788 | 98 | 1.059 | | |
| | Total | 104.040 | 99 | | | |

Regarding assessments of breast characteristics and pain, in the sense of duration of pain, 38% had pain for less than one month, 9% for 3 to 5 months, 17% for 6 months to 2 years, 12% for 2 to 5 years, and 24% for 5 years or more. While, 58% had intermittent pain, 26% had constant pain, 12% had temporary pain, and 4% had occasional pain. In terms of pain severity, 49% of the patients had moderate pain, 29% had severe pain, and 22% had mild pain. Regarding location of pain, in most of the patients 42% was in the left breast, 30% was in both breasts, and 28% was in the right breast. About pain radiation, most of the patients 58% in the arms, 48% in shoulders, 42% in axillae, and 30% in back. About 51% of patients had normal breast size, 25% had large breast size, and 24% had small breast size (Table3).

Table 3: Evaluations of pain and breast characters.

| Questions | Variable | F | % |
|--|------------------|-----|-----|
| Duration of pain | <1 month | 38 | 38 |
| | 3-5 months | 9 | 9 |
| | 6 month- 2 years | 17 | 17 |
| | 2 - 5 years | 12 | 12 |
| | 5 years and more | 24 | 24 |
| | Total | 100 | 100 |
| Pattern of pain | Constant | 26 | 26 |
| | Intermittent | 58 | 58 |
| | Occasional | 4 | 4 |
| | Temporal | 12 | 12 |
| | Total | 100 | 100 |
| Severity of pain (pain scales use numbers from 0 to 10) | Mild | 22 | 22 |
| | Moderate | 49 | 49 |

| | | | |
|---|--------------|-----|-----|
| | Severe | 29 | 29 |
| | Total | 100 | 100 |
| Location of pain | Both | 30 | 30 |
| | left breast | 42 | 42 |
| | right breast | 28 | 28 |
| | Total | 100 | 100 |
| Pain radiation | Back | | |
| | NO | 70 | 70 |
| | YES | 30 | 30 |
| | Total | 100 | 100 |
| | Axilla | | |
| | NO | 57 | 57 |
| | YES | 42 | 42 |
| | Total | 100 | 100 |
| | Arm | | |
| | NO | 42 | 42 |
| | YES | 58 | 58 |
| | Total | 100 | 100 |
| | Shoulder | | |
| | NO | 52 | 52 |
| | YES | 48 | 48 |
| | Total | 100 | 100 |
| Breast size (according to the bra cup-size measurement) | Large | 25 | 25 |
| | Normal | 51 | 51 |
| | Small | 24 | 24 |
| | Total | 100 | 100 |

Ultrasound was used by 86% of the women who took part in the study. Ultrasound findings showed breast abnormalities (1% fibrocystic, 2% malignancy mass, 3% fibroadenoma, 15% complex cyst, 20% fat tissue necrosis, and 20% simple cyst), and 25% of women's ultrasounds showed normal. 65% of the 100 participating women had mammography. One patient 1% had BI-RADS 0, 25% of patients had BI-RADS 1, 34% of patients had BI-RADS 2, and five patients had BI-RADS 3 (Table 4).

Table 4: Results from breast imaging, including mammography and ultrasound

| Breast imaging | Variable | F | % |
|----------------|---------------------|-----|-----|
| Mammography | Yes | 65 | 65 |
| | No | 35 | 35 |
| | Total | 100 | 100 |
| | | | |
| | Yes | 65 | 65 |
| | BI-RADS 0 | 1 | 1 |
| | BI-RADS 1 | 25 | 25 |
| | BI-RADS 2 | 34 | 34 |
| | BI-RADS 3 | 5 | 5 |
| | Total | 100 | 100 |
| Ultrasound | Yes | 86 | 86 |
| | NO | 14 | 14 |
| | Total | 100 | 100 |
| | Yes | 86 | 86 |
| | Complex cyst | 15 | 15 |
| | Fat tissue necroses | 20 | 20 |
| | Fibrocystic change | 1 | 1 |
| | Fibroadenoma | 3 | 3 |
| | Malignancy mass | 2 | 2 |
| | Simple cyst | 20 | 20 |
| | Normal | 25 | 25 |
| | Total | 100 | 100 |

Non-cyclical mastalgia causes fear in 69% of women, stress in 75%, and anxiety in 68%, as well as a change in women's sleep patterns and insomnia in 59%. It has also an effect on diet in 27% of women, exercise in 13% of women, sexual activity in 6% of women, and daily work in 36% of women Table 5.

There is a very strong link between non-cyclical mastalgia and the anxiety it causes in women ($p = 0.001$), there is also a significant association between NCBP and change in a sleep pattern, a negative effect on exercise, and daily works, but there is no significant association between non-cyclical mastalgia and the change in a diet, causing fear, stress, and a negative effect on sexual activity Table 6.

Table 5: Effects of non-cyclical mastalgia on women's everyday lifestyle and quality of life.

| Characteristics | Variable | F | % |
|--|----------|-----|-----|
| Decrease appetite | No | 73 | 73 |
| | Yes | 27 | 27 |
| | Total | 100 | 100 |
| Causing fear | No | 31 | 31 |
| | Yes | 69 | 69 |
| | Total | 100 | 100 |
| Change in sleep pattern (Insomnia) | No | 41 | 41 |
| | Yes | 59 | 59 |
| | Total | 100 | 100 |
| Causing stress | No | 25 | 25 |
| | Yes | 75 | 75 |
| | Total | 100 | 100 |
| Causing anxiety | No | 32 | 32 |
| | Yes | 68 | 68 |
| | Total | 100 | 100 |
| Negative effect on physical activities | No | 87 | 87 |
| | Yes | 13 | 13 |
| | Total | 100 | 100 |
| Negative effect on Sexual activity | No | 94 | 94 |
| | Yes | 6 | 6 |
| | Total | 100 | 100 |
| Negative effect on daily work | No | 64 | 64 |
| | yes | 36 | 36 |
| | Total | 100 | 100 |

Table 6: Association between lifestyle and non-cyclical mastalgia.

| Characteristics | Odds ratio (CI) | P value |
|------------------------------------|-----------------|---------|
| Change diet (decrease appetite) | 2.8 (0.7-10.4) | 0.8 |
| Causing fear | 1.05 (0.3-2.9) | 1 |
| Change in sleep pattern (Insomnia) | 0.2 (0.08-0.6) | 0.003 |
| Causing stress | 0.4 (0.1-1.3) | 0.1 |

| | | |
|------------------------------------|-----------------|-------|
| Causing anxiety | 0.17 (0.06-0.4) | 0.001 |
| Negative effect on exercise | 0.8 (0.2-0.89) | 0.002 |
| Negative effect on Sexual activity | 1.3 (1.1-1.4) | 0.3 |
| Negative effect on daily work | 4.6 (1.2-17) | 0.01 |

Discussions

Currently, more people are going to the clinic for breast issues (breast pain) as is the fear of having cancer. In order to reduce their concern, patients needed comfort and reassurance, and to identify the causes of their breast pain. In the present study, we assess the pain characteristic and examine the primary cause of noncyclical breast pain using ultrasound and mammography results, as well as its impact on quality of life.

The current study revealed that non-cyclical mastalgia affected one-third of the visitors to the clinic 28.23%. Likewise, the study included 415 women, among whom 20.7% were determined to have mastalgia [15].

Also, when it comes to issues with chronic pain, psychological, and sleep issues are two of the most prevalent signs that have been connected to a reduction in the health and quality of life of these people [16, 17]. The majority of the current study's non-cyclical breast discomfort patients were older than 40-year-old women. The association between age and breast complaints was significant $P = 0.03$. Were consistent with the study done by Suhad [18], who found that the mean age of the sample study with mastalgia was 44.23 years-old. Also, the current study found that the majority of participants were housewives and married with intermediate socioeconomic status who were educated, and lived in cities. Characteristics that are thought to contribute to women's understanding of the importance of taking care of their health, and visiting breast treatment clinics.

The association between the education level, and the breast complaints was highly significant $P = 0.001$. Unfortunately, most of the participants were overweight, obese, or extremely obese. In terms of education, economic status, and BMI, the current study findings were comparable to those reported by Mirghafour [19] which found that education levels of 37.0% was primary schools, and 19.9%, was secondary schools, and the BMI of women participants mostly above normal in 67.4%, with sufficient economic status 71.4%. Also, the current study agrees with a prospective study on mastalgia in Sulaymaniyah, Iraq, done by Hamawandi [20], which revealed that the highest percentage of mastalgia occurred among adult women who were housewives.

Participants in the current study identified with mild, moderate, or severe breast pain in a pattern of constant and intermittent pain with a duration ranging from less than one month to more than five years. Some of them had occasional or transient breast soreness, however the majority of participants suffered localized pain in one or both breasts, which spread to their axilla, shoulders, and arms, although the pain radiation to back is revealed in only 30%. In an approximately of them, this pain interfered with their ability to perform their everyday jobs. A quadrant of participants had large breasts.

According to a scientific review, one out of every four mastalgia sufferer's reports having moderate to severe breast pain and tenderness that lasts longer than five days [21]. Moreover, in the studies conducted by Kataria [22], intermittent moderate pain was the most common type of pain to discover, while evaluating the severity of breast discomfort. Similar to the study presented by Rosolowich [23], which found that non-cyclical mastalgia affects one-third of patients referred to breast clinics, it is more common in older women, those with larger breast sizes, and those who are less fit.

According to the imaging (ultrasound and mammography) findings of the current study, the majority of patients with non-cyclical mastalgia have BI-RADs [1- 3], which are problems in their breasts, and exhibit fat necrosis and simple or complicated cysts, while just 2% of them have malignant changes. In consistent with this, the study conducted by Yıldırım [24] found that 48.1% of patients had BIRADS 1 mass lesions, 39.4% had BIRADS 2, and 9.6% had BIRADS 3 mass lesions. The study came to the conclusion that physical examination and radiological imaging were utilized as necessary for the mastalgia complaint to confirm cancer. Only 20 (0.7%) of the 2820 individuals with breast pain who had breast imaging were later determined to have breast cancer [2]. Moreover, according to the study of Malherbe [25], the most prevalent benign breast condition, known as fibrocystic breast disease, affects millions of women globally.

The outcomes of the presented study demonstrated that breast pain has a bearing on patients' lives and increases stress, worry, anxiety, and insomnia in study participants. Additionally, the present study revealed that breast pain had unfavorable consequences on patient's appetite, sexual activity, their daily works, and exercise. It was discovered that women with mastalgia had unfavorable effects on daily life [15]. Likewise, a study done by Kanat [3] detected a stronger connection between anxiety and mastalgia that has a major detrimental impact on a person's quality of life. Sleep, work, and intimacy are all disrupted by mastalgia for the patient [4].

Conclusions

It's crucial to provide information about the characteristics of noncyclical breast pain and identify its underlying causes through assessment and imaging in order to reassure mastalgia patients and lessen their worry and anxiety.

Limitations of the study

The study timeline was critical for final-year nursing students at the institution, who also served as co-authors and collected data for this project. Due to the shortage of time, the study was conducted only on 100 cases in a period of 8 days in a Breast Disease Treatment Center in Sulaimani City.

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Conflict of interest

The authors confirm that they are not affiliated with or involved in any organization or entity with financial interests.

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