

FREQUENCY OF DIFFERENT CAUSES OF MASTALGIA WITHOUT NIPPLE DISCHARGE AMONG WOMEN PRESENTING AT TERTIARY CARE HOSPITAL

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Abstract: Mastalgia, or breast pain, is a common complaint among women, often impacting quality of life and requiring clinical attention. Understanding the underlying causes of mastalgia is essential to guide management and improve patient outcomes. **Objective:** The objective of this study was to determine the frequency and associated causes of mastalgia in women presenting to a tertiary care hospital. **Methods:** This cross-sectional study was conducted at the Department of Surgery, Civil Hospital, Karachi, from March 1, 2023, to August 30, 2023, after obtaining ethical approval from the institutional review board. A total of 176 female patients aged 18–49 years with complaints of mastalgia were included in the study through non-probability consecutive sampling. Both married and unmarried women were enrolled, and data were collected on demographic variables, lifestyle factors, and psychological factors. Statistical analysis was performed to evaluate associations between causes and mastalgia severity. **Results:** The most common causes of mastalgia identified were caffeine consumption (56%), depression (57%), and smoking (49%). Significant associations were found between mastalgia severity and both smoking ($p=0.002$) and caffeine consumption ($p=0.003$). Smokers and caffeine consumers reported higher levels of pain severity. **Conclusion:** Mastalgia is frequently associated with modifiable lifestyle factors such as smoking and caffeine intake, as well as psychological factors like depression. Addressing these factors may help manage and reduce the severity of mastalgia in affected patients.

Keywords: Mastalgia, Breast Pain, Causes, Lifestyle Factors

Introduction

Breast pain or Mastalgia is a common complaint which is experienced by many women at different ages in their life cycle (1). Despite mastalgia being considered to be a frequent complaint encountered in clinical practice, its differential diagnosis is difficult, especially when the lesion is not accompanied by nipple discharge (2). Lack of discharge makes diagnosis more challenging; this is because diagnosis mainly depends on patient history and imaging tests to reveal the source (3). There has been improvement in the knowledge of mastalgia in the recent past concerning non-cyclical mastalgia and its causes (4). Studies show that non-cyclical mastalgia is, a mastalgia condition (5). For example, Muhammad, in his study published in 2019 noted that non-cyclical mastalgia could be associated with such benign breast disorders as fibrocystic changes and periductal mastitis, which were reported in women with breast pain without nipple discharge (6). In a more recent study, Charette et al. (2019) noted the presence of non-breast pathology, including musculoskeletal abnormalities causing referred pain, which poses great diagnostic challenges when there are no associated breast discharges (7). Further, a recent by Ajroud and coworkers (2024) highlighted the relevance of psychosocial factors, such as stress and anxiety, which often contribute to the onset of mastalgia and are often mentioned in tertiary care facilities (8). Additionally, another exhaustive review by Mostary et

al. (2021) reported that in a large population of women, there is a high proportion of primary benign causes of mastalgias not yet solvable due to the diverse aetiology of this condition and lack of discharge (9). This underscores the importance of future studies in identifying accurate diagnostic

Parameters and treatment of mastalgia when there is no nipple discharge. The present study aimed to determine the frequency of different causes of mastalgia in women presenting at tertiary care hospitals.

Methodology

After the ethical approval from the institutional review, this Cross-Sectional Study was conducted at the Department of Surgery, Civil Hospital, Karachi, from 01/march/2023 to 30/august/2023. Through non-probability consecutive sampling, 176 women patients aged 18-49 years, presented with mastalgia, both married and unmarried were included in the present study. Women diagnosed with breast cancer, pregnant women, breastfeeding women, and patients under any medications other than simple analgesics, such as oral contraceptives, psychotropic agents and hormonal therapy were excluded from the present study. After the informed consent patients were interviewed for baseline demographics and clinical history such as such as age, place of residence, marital status, height, weight, BMI, smoking,

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caffeine consumption, duration of mastalgia, side involved, severity of mastalgia and causes. All this information was noted in a predesigned Performa. Data was analyzed using SPSS version 24. Mean and standard deviation were used to report for continuous variables such as age, height, weight, BMI and duration of mastalgia. Qualitative variables such as place of residence, marital status, smoking, caffeine consumption, side involved, severity of mastalgia and causes were reported as frequency and percentage. Post-stratification chi-square/Fischer exact test was used taking p-value ≤ 0.05 as significant.

Results

The study involved 176 participants with a mean age of 35.2±6.13 years. Participants were nearly evenly split between urban (51%) and rural (49%) residences. Regarding marital status, 41% were married, 38% were single, 19% were divorced, and 3% were widows. The average height and weight were 165.5±4.8 cm and 65.3±5.4 kg, respectively, with a mean BMI of 27.7±1.2 kg/m² (Table 1). Clinically, the mean duration of mastalgia was 4.97±1.6 months, with 31% of cases involving the left breast, 32% involving the right, and 37% presenting bilaterally. Mastalgia severity was mild in 36%, moderate in 38%, and severe in 26% of the participants (Table 2). Common causes of mastalgia included caffeine consumption (56%), depression (57%), smoking (49%), costochondritis (48%), anxiety (25%), shingles (19%), and trauma (18%), and rib fractures (7%) (Table 3). Stratification by age revealed a significant association with mastalgia severity (p<0.0001), with older women (>35 years) more likely to experience severe pain. Similarly, BMI showed a significant correlation (p<0.0001), where women with higher BMIs (>25) reported less severe pain. Smoking and caffeine consumption were

also significantly linked to mastalgia severity (p=0.002 and p=0.003, respectively), with smokers and those who consumed caffeine reporting more severe pain (Table 4).

Table 1: Demographic parameters of the study participants

Parameters	Mean and Frequency
Age (years)	35.2±6.13
Residence	
Urban	89 (51%)
Rural	87 (49%)
Marital status	
Single	66 (38%)
Married	72 (41%)
Divorced	33 (19%)
Widow	5 (3%)
Height (cm)	165.5±4.8
Weight (Kg)	65.3±5.4
BMI (kg/m ²)	27.7±1.2

Table 2: Clinical parameters of the study participants

Parameters	Mean and Frequency
Duration of Mastalgia (months)	4.97±1.6
Side Involved	
Left	54
Right	56
Bilateral	66
Severity of Mastalgia	
Mild	64
Moderate	66
Severe	46

Table 3: Frequency of Causes of Mastalgia

Causes of Mastalgia	Frequency (%)
Smoking	86 (49%)
Caffeine Consumption	103 (56%)
Costochondritis	84 (48%)
Rib Fracture	12 (7%)
Shingles	33 (19%)
Anxiety	44 (25%)
Trauma	31 (18%)
Depression	100 (57%)

Table 4: Stratification of severity of mastalgia with age, BMI, smoking and caffeine consumption

Parameters	Severity of Mastalgia			P value
	Mild	Moderate	Severe	
Age Groups				
≤35 years	59	30	7	<0.0001
>35 years	5	36	41	
BMI				<0.0001
<25	22	35	35	
>25	42	31	11	
Smoking				0.002
Yes	11	20	23	

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No	52	46	23	
Caffeine Consumption				0.003
Yes	9	20	20	
No	55	46	26	

Discussion

The current study corroborates and builds on the literature on mastalgia in terms of its aetiology and relationship to demography and clinical characteristics. Mastalgia is a common ailment among women, and the mean age observed in the study was 35 years. This is in agreement with other research works which posit that breast pain is particularly common in reproductive and premenopausal women (10). The fact that both urban and rural participants were nearly in equal numbers further supports the fact that mastalgia is an issue of concern among women of all residency status further confirming that it is prevalent in all societies (11).

The most common causes mentioned throughout the study included caffeine intake, depressive disorders, and smoking, with the prevalence of caffeine intake reported to be 56%. This supports the findings of prior studies by Malik et al., (2020) that found that high caffeine consumption leads to higher levels of breast pain (12). Other symptoms included; depression and anxiety which were reported by 57% of the participants, sleeping disorders, and tension which has also been associated with mastalgia in previous research. However, research conducted in 2020 corroborated this discovery revealing the effect of psychosocial factors which include anxiety and depression in increasing breast pain, it outlined that stress and mental problems increase the extent of pain felt (13).

Hence, the study's identification of multiple negative and positive correlations between mastalgia severity and age, BMI, smoking, and caffeine intake expands on current knowledge of these links. Older women (>35 years) had a higher probability of severe mastalgia, and a growing body of evidence indicates that non-cyclical mastalgia is more frequent and severe in elderly women compared to cyclical mastalgia (14). The relationship between BMI and pain, which indicates that women with lower BMI reported more severe pain contradicts some of the previous studies that established that a BMI of greater than 25 was associated with increased breast pain and this reinforces the need to research the interaction between mastalgia and body weight further (15). Smoking correlates with severe mastalgia ($p = 0.002$), which is consistent with prior research, including that of Sivarajah et al., (2022) showing that smoking increases premenstrual breast pain by impairing oxygenation and inflammation of the tissues (15). Likewise, caffeine was also found to have a positive and significant association with severe pain ($p = 0.003$) thus supporting the role of caffeine in mastalgia as described by Idiz et al. (2018) (16).

Conclusion

In conclusion, the findings of this study support most of the previous research on mastalgia about lifestyle factors such as smoking and caffeine and psychological factors. Nonetheless, some aspects, for instance, the negative correlation between BMI and pain severity, call for

additional studies that may provide a better understanding of these relations.

Declarations

Data Availability statement

All data generated or analyzed during the study are included in the manuscript.

Ethics approval and consent to participate

Approved by the department concerned. (IRBEC-DRKH-021/23)

Consent for publication

Approved

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Conflict of interest

The authors declared the absence of a conflict of interest.

Author Contribution

JAVERIA JAWAD (Post Graduate Resident)

Coordination of collaborative efforts.

Study Design, Review of Literature.

FARHAN ZAHEER (Professor)

Conception of Study, Development of Research Methodology Design, Study Design, Review of manuscript, final approval of manuscript.

Conception of Study, Final approval of manuscript.

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Manuscript revisions, critical input.

Coordination of collaborative efforts.

Data acquisition, and analysis.

Manuscript drafting.

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