Prevalence of Acute Trapezitis in Breastfeeding Postpartum Females in and Around Pune City

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Abstract
Background: The postpartum period is associated with significant musculoskeletal stress, particularly among breastfeeding mothers who frequently maintain prolonged forward-flexed neck postures. This repetitive strain predisposes them to acute trapezitis, characterized by trapezius muscle tenderness, pain, and functional limitation. Despite increasing reports, limited research has examined the specific prevalence of acute trapezitis in breastfeeding postpartum females.
Design: A cross-sectional, survey-based observational study.
Methods: A total of 100 breastfeeding postpartum women aged 18–25 years, were assessed between the 2nd and 10th postpartum day. Pain intensity, functional disability, and muscle tenderness were evaluated using the Visual Analogue Scale (VAS), Neck Disability Index (NDI), and Pressure Pain Threshold (PPT) measurement using a digital algometer. Descriptive statistical analysis was used to determine prevalence and symptom severity.
Results: The overall prevalence of acute trapezitis was 41% among participants, with 27% showing left-sided involvement, 23% right-sided involvement, and 10% bilateral involvement. Most mothers reported mild–moderate pain (mean VAS: 4.86 ± 2.02) and moderate disability (mean NDI: 17.87 ± 6.43). PPT values indicated reduced pain thresholds in the majority, confirming trapezius tenderness.
Conclusion: Acute trapezitis is prevalent among breastfeeding postpartum females, primarily due to sustained neck flexion and inadequate ergonomic support during feeding.

Keywords: Postpartum females, acute trapezitis, breastfeeding.

Introduction

Breastfeeding is an important part of postpartum period. Child nutrition during the first six months after birth should rely solely on breastfeeding for their nutritional needs.[7] One of the most common challenges for nursing women is having to hold their head and neck in an unsupported, bent forward position to watch their baby while breastfeeding, this leads to continuous neck strain.[11] The muscles in the neck and back tend to get strained by such a prolonged uncomfortable stance and excessive repetition result into breastfeeding related neck pain[11].

The neck pain is the second most common musculoskeletal condition worldwide[7]. It is typically caused by bone and joint problems, trauma, bad posture, degenerative diseases, malignancies and muscle strain[7]. Forward head posture is the primary contributor to neck pain, leading to increased cervical lordosis and neck pain [12].
The neck is the most movable portion of the whole spine. It carries the weight of our skull. It is also said that neck pain is disagreeable physical feeling due to disturbance of function, ailment or damage by any suffering[8].
Trapezius is a postural muscle and it is highly susceptible to overuse. Trapezitis is a condition involving inflammation of the trapezius muscle affecting its upper, middle and lower fibers[10]. Patients with neck or shoulder pain often presents with symptoms in the region of upper trapezius[10]. The trapezius muscle plays a crucial role in supporting and stabilizing upper limb movements, particularly during daily activities like cleaning, and eating. The combination of weak middle and lower trapezius muscles and tight upper trapezius muscles disrupts the balance in the shoulder region, contributing to neck pain and headaches[12]. Thus trapezius muscle is involved in many activities related to the high prevalence of neck pain[12]. Many studies have reported on the relationship between the trapezius muscles and the neck pain[17-18].

Materials and Methods

This observational, survey-based study was conducted in the postnatal wards of primary, secondary, and tertiary care hospitals.
Using conventional sampling, 100 postpartum women aged 18–25 years who were breastfeeding and presented with unilateral or bilateral trapezitis between the 2nd and 10th day after delivery were included.
Women with pre-existing musculoskeletal conditions, diagnosed cervical or lumbar pathologies, or skin conditions were excluded.
Visual Analogue Scale, Neck Disability Index, and Pressure Pain Threshold were the outcome measures used in this study.

Procedure

100 postpartum women within age group of 18 to 25 will be assessed from primary/secondary/tertiary care hospitals after taking permission from HOD of the department
Purpose of the study will be explained, and informed consent will be taken from the participants
They will be recruited as per inclusion and exclusion criteria
The data will be calculated after taking VAS, NDI and pressure algometer
The data will then be analyzed to calculate the prevalence of acute trapezitis in breastfeeding postpartum females

Figure 1: A therapist is assessing the patient’s neck function using the NDI.

Figure 2: A therapist is checking the patient pain pressure threshold using a pressure algometer.

Results

Data were analysed descriptively to address the study's prevalence aim and symptom-severity objectives. Continuous variables (Age, VAS, NDI, PPT left/right) are presented as mean ± SD, median, and range. Categorical variables (occupation, hand dominance, parity, delivery type, and PPT categories) are summarised as counts and percentages. The primary outcome was the prevalence of acute trapezitis operationalized through pressure pain threshold (PPT) categorization at the trapezius; side-specific prevalence (left and right) was computed as the proportion of participants classified as "trapezitis" on that side with corresponding 95% confidence intervals using the Wald method (Left: 27%, 95% CI 18.3–35.7%; Right: 23%, 95% CI 14.8–31.3%). Symptom severity was summarised using VAS and functional impact with the Neck Disability Index (NDI). No between-group comparisons were planned a priori. Because the design was a cross-sectional prevalence. An overall (any-side) prevalence was found to be 41%; this cross-tabulation would enable a combined prevalence and exact binomial CI. Interpretation focused on estimation: a meaningful minority exhibited side-specific trapezius tenderness consistent with acute trapezitis, accompanied by mild-to-moderate pain and disability profiles—supporting the clinical relevance of screening and ergonomic/feeding-posture counselling in breastfeeding postpartum females.

Table 1. Participant Characteristics (N = 100)

Variable	**Mean ± SD**	**Median**	**Min–Max**
Age (years)	22.8 ± 1.7	23	19–26

Interpretation: Participants were young postpartum women (mean age ~23 years), providing a relatively homogeneous age profile.

Table 2. Obstetric & Occupational Profile (Categorical)

Variable	**Category**	**n**	**%**
Occupation	Housewife	80	80

	Job	20	20
Hand dominance	Left	43	43
	Right	57	57
No. of previous deliveries	0	29	29
	1	44	44
	2	27	27
Type of delivery	FTND	60	60
	LSCS	40	40

Interpretation: Most were housewives, right-hand dominant, and had one prior delivery; FTND was more common than LSCS.

Table 3. Clinical Outcomes (Continuous Measures)

Outcome	N	Mean ± SD	Median	Min–Max
VAS (0–10)	100	4.86 ± 2.02	4	2–9
NDI score (0–50)	100	17.87 ± 6.43	18	6–36
PPT Left (kg/cm²)	100	2.32 ± 0.695	2.3	1.1–3.9
PPT Right (kg/cm²)	100	2.44 ± 0.767	2.5	1.2–4.0

Interpretation: Average pain was in the mild-to-moderate range, with mean NDI in the mild–moderate disability band. PPT values indicate measurable tenderness over the trapezius, slightly lower (more tender) on the left on average.

Table 4. Prevalence of Acute Trapezitis Among Breastfeeding Postpartum Females (N = 100)

Category	Definition / Calculation	No. of Participants	Percentage (%)	95% CI (Approx.)
Left-side trapezitis	PPT left < normal threshold	27	27	18.3 – 35.7
Right-side trapezitis	PPT right < normal threshold	23	23	14.8 – 31.3
Bilateral trapezitis	Both sides affected (estimated ≈ 40 % of those with any trapezitis)	10	10%	5 – 17
Unilateral trapezitis	Either side affected (but not both)	31	31 %	21 – 38
Total (Overall) trapezitis prevalence	Participants with trapezitis on any side (Left ∪ Right)	41	41 %	31 – 49

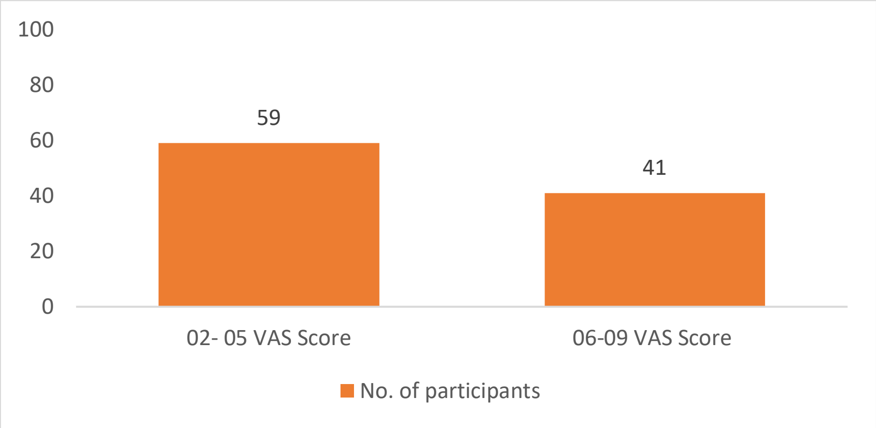
Interpretation: The findings indicate that 27% of participants experienced left-side trapezitis, while 23% were affected on the right side. Additionally, 10% of the women reported bilateral trapezitis, indicating involvement of both sides. The majority of affected individuals, 31%, had unilateral trapezitis, meaning only one side was affected. Overall, the total prevalence of trapezitis (either left or right side) among the participants was found to be 41%, with a 95% confidence interval of 31–49%.

Discussion

Table 1; Distribution of participants based on VAS score.

	Range	No. of participants	
	02- 05 VAS Score	59	

	06-09 VAS Score	41	



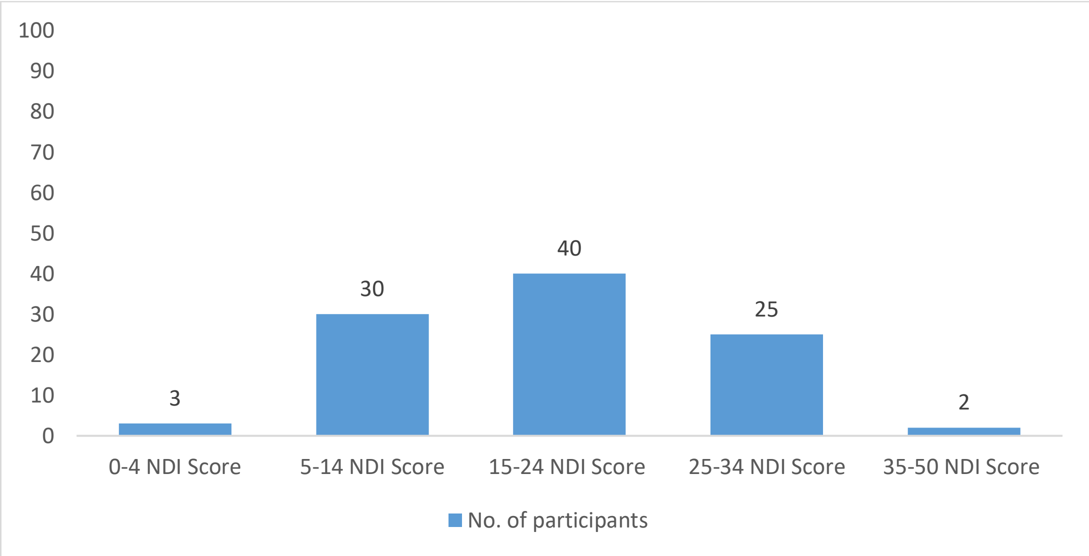
Graph 1: Distribution of participants based on VAS score

Interpretation: Out of the total participants, 59 individuals reported a VAS score between 2–5, while 41 participants had a VAS score between 6–9.

The first bar chart represents the distribution of pain intensity among 100 breastfeeding postpartum women as measured using the Visual Analogue Scale (VAS). The chart shows two pain score ranges: 02–05 VAS score and 06–09 VAS score. Out of the total participants, 59 women (59%) reported pain within the 02–05 VAS range, indicating mild to moderate pain, while 41 women (41%) reported pain in the 06–09 VAS range, reflecting moderate to severe pain levels. The higher frequency of participants in the 02–05 VAS range is similar to the previous study and it indicate that most cases of trapezitis during the immediate postpartum phase are mild but prevalent, possibly due to early onset of musculoskeletal adaptation and strain before chronic conditions develop[15]. However, the 41% of mothers experiencing higher pain intensity (06–09 range) this level of intensity can hinder functional activities such as lifting the infant and maintaining feeding posture. Similar findings were reported in studies of amna et al. where more than half of the females experienced moderate to severe pain, particularly during the first six months after delivery. Our findings align with the earlier findings of Gemma Bivia Roig et al. that ergonomic factors and inadequate posture education are significant determinants of pain severity in lactating mothers.

Table 2: Distribution Of participants based on NDI score.

NDI Score	No. of participants
0-4 NDI Score	3
5-14 NDI Score	30
15-24 NDI Score	40
25-34 NDI Score	25
35-50 NDI Score	2



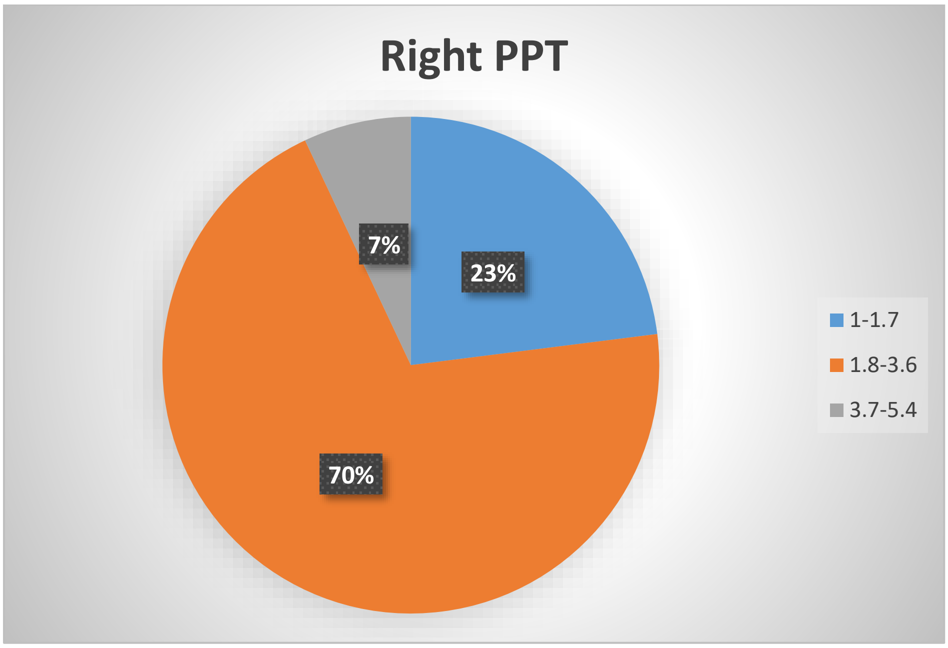
Graph 2: Distribution Of participants based on NDI score.

Interpretation: out of the total participants, only 3% show no disability (0-4), 30% show mild disability (5-14), and 40% show moderate disability (15-24), 25% show severe disability (25-34), and only 2% show total disability (35-50).

The Neck Disability Index (NDI) scores presented in the graph provide valuable insight into the extent of functional disability associated with acute trapezitis among breastfeeding postpartum females. The data indicates that out of 100 participants, the majority (40%) fall within the 15–24 NDI score range, which corresponds to moderate disability. A considerable proportion of participants (30%) reported NDI scores between 5–14, indicating mild disability. Meanwhile, 25% of participants exhibited NDI scores between 25–34, reflecting severe disability. Many postpartum females in our study experienced moderate to severe neck pain and dysfunction, likely due to poor posture while breastfeeding. This supports previous findings that leaning forward and slouching while feeding can strain neck muscles, leading to pain and discomfort[4, 5]. A small percentage of participants (3%) had NDI scores between 0–4, signifying no disability, while only 2% showed scores in the 35–50 range, representing complete disability. Participants with severe to complete disability (scores 25–50) represent individuals with marked difficulty in neck mobility, pain during daily activities, and reduced capacity to perform caregiving tasks. This observation is consistent with the previous findings who reported a significant correlation between poor posture, upper crossed syndrome, and functional neck impairment among lactating women[8]

Table 3: Distribution of participants based on pressure pain threshold score of right trapezius.

score	Right PPT
1-1.7	23
1.8-3.6	70
3.7-5.4	7



Graph 3: Distribution of participants based on the pressure pain threshold score of the right trapezius.

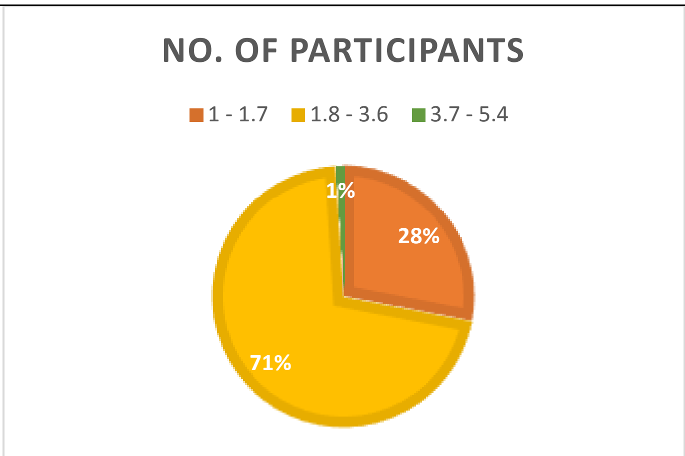
Interpretation: The majority of participants (70%) fall within the score range of 1.8–3.6. Approximately 23% of participants have scores between 1–1.7, while only 7% have scores between 3.7–5.4.
Pressure pain threshold scores of the right side are divided into three categories 1–1.7, 1.8–3.6, and 3.7–5.4. PPT between 3.7 to 5.4 kg/cm^2 is considered as normal for trapezius muscle. PPT of a patient was judged to be abnormal when the pressure pain threshold of a trapezius was at least 2 kg/cm^2 lower than that of the opposite site[14]. Moreover, the right side predominance could be attributed to habitual breastfeeding postures, where many mothers preferentially hold the baby on one side, causing asymmetrical muscle loading and greater strain on the dominant shoulder and neck. This correlates with studies mentioned in the literature review, such as Niharika Chungade et al. (2018–2020), who observed a high incidence of musculoskeletal pain in postpartum women, and Gemma Bivia Roig et al., who highlighted the biomechanical stress associated with improper breastfeeding positions.

Table 4: Distribution of participants based on pressure pain threshold score of right trapezius.

	left PPT
score	No. of participants
1 - 1.7	28
1.8 - 3.6	71
3.7 - 5.4	1

International Journal for Multidisciplinary Research (IJFMR)

E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com



Graph 4: Distribution of participants based on the pressure pain threshold score of the left trapezius.

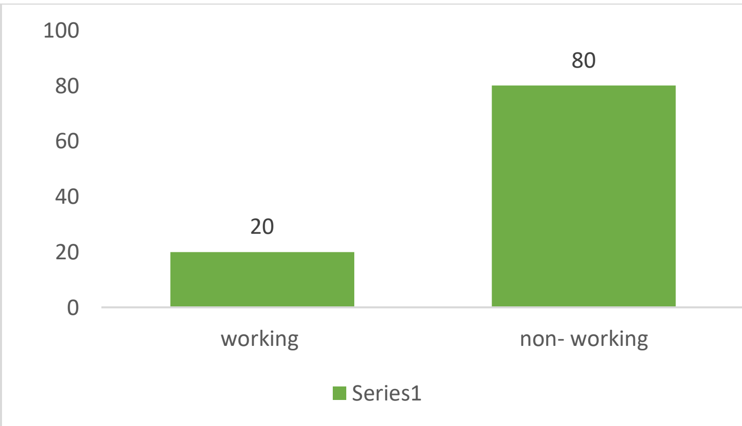
Interpretation: A Large number of participants (71%) fall within the score range of 1.8–3.6. Approximately (28 %) of participants have scores between 1–1.7, while only (1%) have scores between 3.7–5.4.

The pie chart representing the left-side Pressure Pain Threshold (PPT) scores illustrates that the majority of participants (71%) recorded values within the 1.8–3.6 kg/cm² range, while 28% fell between 1–1.7 kg/cm², and only 1% exhibited a normal PPT value of 3.7–5.4 kg/cm². These findings indicate that a substantial proportion of breastfeeding postpartum females demonstrated reduced PPT on the left upper trapezius, signifying increased tenderness and hypersensitivity in the muscle.

The low PPT readings also reinforce the reliability of the digital pressure algometer as a quantitative tool for identifying muscle sensitivity and monitoring pain threshold changes in postpartum populations. Previous studies have validated its high intra-class correlation coefficients (0.9–0.95), establishing it as a dependable measure for assessing trapezius tenderness and differentiating normal from pathologic muscle tone[13].

Table 5: Distribution of participants based on occupation

occupation	working	non- working
100	20	80

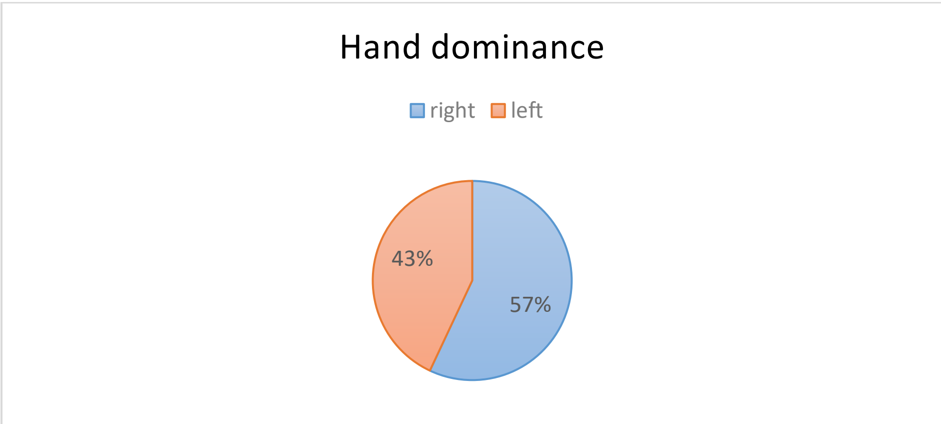


Interpretation: out of the total 100 postpartum females, 20% are working females, while 80% are non-working.

The occupation graph illustrates the occupational distribution of the study participants, showing that out of 100 postpartum females, 20 were working and 80 were non-working. Among the working group, 14 women (70%) were positive for acute trapezitis on their dominant side. The pattern of dominant-side trapezitis corresponds with findings in previous research Niharika et al. and amna et al. indicating that repetitive use of the same side during infant handling and breastfeeding contributes to asymmetric muscular loading[4, 7.] In contrast, the majority of non-working women (80%) might have relatively reduced exposure to occupational stress but are still susceptible to neck pain due to the repetitive nature of childcare and feeding activities this findings are similar to the findings of hiroyasu fujii et al.

Table 6: Distribution of participants based on hand dominance.

Hand dominance	
right	left
57	43



Graph 6: Distribution of participants based on hand dominance.

Interpretation: The pie chart shows that 57% of the participants are right hand dominant, while 43% are left-hand dominant.

The sixth pie chart illustrates the distribution of hand dominance among breastfeeding postpartum females included in the study. Out of 100 participants, 57% were right-hand dominant and 43% were left-hand dominant. This near-balanced distribution indicates a slightly higher prevalence of right-hand dominance, which aligns with general population trends where right-hand preference is typically more common.

Conclusion

This study concludes that the prevalence of acute trapezitis in breastfeeding postpartum females is 41%. The findings suggests that continuous neck flexion, unsupported sitting posture, and poor ergonomics during breastfeeding significantly contribute to trapezius muscle strain and inflammation. Most mothers experienced mild to moderate pain and disability, as reflected through Visual Analogue Scale (VAS) and Neck Disability Index (NDI) scores, emphasizing the functional impact of trapezitis on day-to-day activities.

Limitations

The study relied on self-reported measures such as the VAS and NDI, which may be influenced by individual pain tolerance and emotional state, affecting the accuracy of reported symptoms. Variations in breastfeeding duration, posture, ergonomics, and infant positioning also differed among participants and were difficult to control. Additionally, the cross-sectional design captured information at a single time point, preventing assessment of changes or progression of trapezitis symptoms over time.

Future scope

The present study focuses on the immediate postpartum period. Future studies should follow longitudinal design to track the progression of trapezitis symptoms over several months. Future studies could explore various breastfeeding positions to identify which position minimizes trapezius strain and discomfort

ACKNOWLEDGMENT

I'd like to express my respectful thanks and profound gratitude to my guide Dr. Aishwarya Kanhere (PT) who guided and supported me in the study, as well as all of the participants who helped make to do this study possible.

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