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Original Article

Association of Breast-Feeding Positions with Scapular Dyskinesia in Postpartum Females

Maham Haider[1], Ayesha Irshad[1], Anam Abbas[2]*, Saddiqa Qamar[3], Tayyaba Niaz[4], Rahat Afzal[5]

[1]Nur International University, Lahore, Pakistan.
[2]Lecturer, University of Management & Technology, Lahore, Pakistan.
[3]Demonstrator, University of Management & Technology, Lahore, Pakistan.
[4]Assistant Professor, Nur International University, Lahore, Pakistan.
[5]Clinical Physiotherapist, Govt Teaching Hospital Shahdara, Lahore, Pakistan.
Corresponding Author: Anam Abbas, Lecturer; Email: anamabbas92@gmail.com

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ABSTRACT

Background: Breastfeeding is a vital activity for the nurturing and development of infants. However, the postures adopted during breastfeeding may have implications for the physical well-being of postpartum females, particularly concerning scapular dyskinesia—a condition characterized by altered scapular movement and positioning, which can affect shoulder function.

Objective: This study aimed to investigate the association between different breastfeeding positions and the prevalence of scapular dyskinesia among postpartum females, providing insights into the potential musculoskeletal implications of breastfeeding practices.

Methods: An observational cross-sectional study was conducted involving 111 postpartum females aged 18-45 years, who had been breastfeeding for six months or more. Participants were recruited using non-probability convenient sampling from various hospitals in Lahore, Pakistan. Data on breastfeeding positions and the occurrence of scapular dyskinesia were collected through self-administered questionnaires and the Scapular Dyskinesia Test (SDT) by McClure, respectively. Descriptive statistics were used to summarize participant demographics and breastfeeding practices, while the chi-square test was employed to examine the association between breastfeeding positions and scapular dyskinesia.

Results: Among the participants, the cradle hold was the most commonly used breastfeeding position (82.0%), followed by the cross cradle (13.5%), side-lying (3.6%), and laid-back positions (0.9%). The prevalence of scapular dyskinesia was 41.4%, with no statistically significant association found between breastfeeding positions and scapular dyskinesia (p-value = 0.06). Additionally, upper back pain was reported by 39.6% of the participants, indicating a notable presence of musculoskeletal discomfort.

Conclusion: The study concluded that there is no significant association between breastfeeding positions and scapular dyskinesia among postpartum females. Despite the high prevalence of scapular dyskinesia and musculoskeletal discomfort, the type of breastfeeding position does not appear to influence the likelihood of developing scapular dyskinesia. These findings suggest the need for further research into the factors contributing to musculoskeletal health in postpartum females and the development of guidelines for breastfeeding practices that promote maternal comfort and physical well-being.

Keywords: Breastfeeding positions, Scapular dyskinesia, Postpartum females, Musculoskeletal discomfort, Physical well-being.

INTRODUCTION

The scapula plays a critical role in the functionality of the shoulder and arm by facilitating scapulohumeral and scapulothoracic movements, thereby acting as a stable base for upper extremity function. It achieves this by ensuring proper force distribution through the coordinated action of the upper, middle, and lower trapezius, rhomboid, and serratus anterior muscles (1, 2). However, alterations in scapular kinematics or position, referred to as scapular dyskinesia, can disrupt normal scapular physiology, biomechanics, and motion, potentially leading to scapular winging and impaired shoulder movements. While scapular dyskinesia can present both symptomatically and asymptomatically, it is not considered a pathological injury in itself but is recognized as a risk factor for shoulder diseases (2, 3). Scapular dyskinesia is classified into four types based on the nature of scapular control disruption, with factors such as poor posture, prolonged rest, thoracic and cervical kyphosis, clavicle fractures, and alterations in the

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musculature that controls the scapula contributing to its development. The prevalence of scapular dyskinesia is notably higher among breastfeeding postnatal women, attributed to ergonomically unfavorable breastfeeding positions (4).

Recent research has highlighted the biomechanical coordination between the glenohumeral and scapulothoracic joints, emphasizing the importance of the scapulohumeral rhythm for normal shoulder function. In scapular dyskinesia, there is a disruption in this rhythm due to the weakened coordination of scapular control muscles, leading to compromised arm mobility. Diagnosis of scapular dyskinesia employs various tests, with the McClure Scapular Dyskinesia Test being recognized for its moderate reliability in evaluating the condition (1, 3). The postpartum period poses unique challenges to women's body physiology, with changes such as lumbar lordosis and anterior neck flexion affecting the shoulder's position. Breastfeeding often exacerbates these issues due to sustained poor posture, contributing to scapular muscle weakening and dyskinesia.

Breastfeeding, while crucial for the health of both mother and child, presents physical challenges due to the demand it places on mothers (2-4). The World Health Organization recommends extensive breastfeeding practices, which necessitate various feeding positions. However, lack of awareness about appropriate breastfeeding positions among mothers can lead to the adoption of ergonomically poor postures, further increasing the risk of scapular dyskinesia. Research has demonstrated a correlation between certain breastfeeding positions, such as the cross cradle hold, and musculoskeletal discomfort, underscoring the need for increased education and support for breastfeeding mothers to adopt ergonomically favorable positions (5, 6).

Studies conducted across different geographical locations have investigated the prevalence of breastfeeding-related musculoskeletal discomfort, the knowledge and attitudes towards breastfeeding positions, and the impact of physiotherapy interventions on alleviating associated pains. These studies collectively highlight the significance of educating mothers on optimal breastfeeding techniques and postures to mitigate the risk of scapular dyskinesia and enhance the overall breastfeeding experience. Despite these insights, research on the association between breastfeeding positions and scapular dyskinesia, particularly in the context of Pakistan, remains limited. Thus, this study aimed to fill this gap by exploring the correlation between different breastfeeding positions and the occurrence of scapular dyskinesia among postpartum females. The hypothesis posited that there is a significant association between breastfeeding positions and scapular dyskinesia in this population, with the objective of enhancing understanding among healthcare providers regarding the interplay between breastfeeding practices and scapular health (5, 7, 8).

MATERIAL AND METHODS

In an effort to explore the relationship between breastfeeding positions and the incidence of scapular dyskinesia among postpartum females, an observational cross-sectional study was designed and conducted across the Gynaecology and Pediatrics departments of Services, Fatima Memorial, Mayo, and Gangaram hospitals in Lahore, Pakistan. The study spanned a duration of four months following the approval of its synopsis, adhering to a structured and methodical approach to data collection and analysis (7, 9, 10).

The sample size for this study was meticulously calculated using the G*Power 3.1.9.7 software, employing the correlation point biserial model with a one-tailed approach. Parameters set for the calculation included an effect size of 0.3, an alpha error of 0.05, and a power of 0.95, which yielded a requisite sample size of 111 participants. The sampling technique utilized was non-probability convenient sampling, aimed at efficiently gathering data from a specific subset of the population that met the inclusion criteria (8, 11).

The study specifically targeted lactating women aged between 18 and 45 years who had been breastfeeding for six months or more. Both those who had undergone normal delivery and those who had cesarean sections were included. However, potential participants were excluded if they had a history of shoulder fracture/dislocation, clavicle fracture, trauma, or cervical radiculopathy, as these conditions could potentially confound the results related to scapular dyskinesia (12, 13).

Data collection was initiated with the procurement of permission from the relevant university authorities, followed by the recruitment of participants from local private institutes and the obstetrics and pediatrics departments of the aforementioned hospitals. Prior to participation, individuals were fully informed about the nature and purpose of the study, ensuring that they were aware of their rights and the voluntary nature of their involvement. Informed consent was obtained from each participant, after which a self-structured questionnaire was completed to gather demographic and relevant health information (14, 15). The presence of scapular dyskinesia was assessed through a visually based test, the Scapular Dyskinesia Test (SDT), which involved participants performing repeated active shoulder flexion and abduction movements. This test was conducted with and without a weight of 3 to 5 pounds to ascertain the consistency of scapular movement and rhythm (12, 14).

Data analysis was carried out using the Statistical Package for Social Sciences (SPSS) version 22.0. Descriptive statistics, including percentages and frequencies derived from demographic data, were utilized to provide an overview of the study population. Additionally, pie charts and bar charts were employed for categorical data representation, while histograms with normal curves were

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used for continuous variables. The chi-square test served as the inferential statistical tool to examine the association between breastfeeding positions and the prevalence of scapular dyskinesia among the study participants (10).

Ethical considerations were paramount throughout the research process. Conducted in accordance with the Declaration of Helsinki (1964), the study ensured that all participants were fully informed about the research and that their participation was entirely voluntary. Participants were assured of their right to withdraw from the study at any point without any repercussions. This ethical adherence not only safeguarded the participants' rights but also reinforced the integrity and credibility of the study's findings.

RESULTS

In the conducted study, a total of 111 participants were enrolled, all of whom were postpartum females with an average age of 28.08 years and a standard deviation of 3.59 years [Table 1]. The duration of the postpartum period among these participants averaged 9.48 months, with a standard deviation of 3.29 months. Additionally, the frequency of baby feeding within a 24-hour period was reported to be 7.50 times on average, with a variability of 2.09 times.

The distribution of the postpartum duration revealed a significant concentration of participants between 6 to 8 months, accounting for 46.8% of the total. Those within the 9 to 11 months bracket constituted 27.9%, followed by 17.1% in the 12 to 14 months range. A smaller proportion of participants, 1.8% and 6.3%, were in the 15 to 17 months and 18 to 20 months brackets, respectively [Table 2].

In terms of breastfeeding frequency, the study found that 52.3% of participants fed their babies 6 to 8 times per day, with 33.3% doing so 9 to 11 times, and 14.4% feeding 3 to 5 times within the same timeframe. The duration of each breastfeeding session varied, with 45% of participants reporting sessions lasting between 1 to 5 minutes and another 45% indicating sessions of 6 to 10 minutes. Only 9.9% experienced longer feeding durations of 11 to 15 minutes.

Breastfeeding positions adopted by participants were predominantly the cradle hold (82%), followed by the cross cradle (13.5%), side-lying (3.6%), and laid back (0.9%) positions. Musculoskeletal complaints were notably present, with 27% of participants experiencing shoulder pain, 39.6% reporting upper back pain, and 23.4% having arm pain. The Scapular Dyskinesis Test by McClure indicated that 41.4% of the study's participants tested positive for scapular dyskinesia, while 58.6% were negative, showcasing a significant prevalence of this condition among the postpartum population [Table 2].

Table 1: Descriptive Statistics of Participants

Variable	N	Mean	Standard Deviation
Age of Participant	111	28.08	3.59
Duration of Postpartum	111	9.48	3.29
Baby Feed in 24 Hours	111	7.50	2.09

Table 2: Breastfeeding Practices and Associated Musculoskeletal Complaints

Category	Subcategory	Frequency	Percent (%)
Postpartum Duration (Months)	6-8	52	46.8
	9-11	31	27.9
	12-14	19	17.1
	15-17	2	1.8
	18-20	7	6.3
Baby Feed in 24 Hours	3-5 times	16	14.4
	6-8 times	58	52.3
	9-11 times	37	33.3
Breast Feed Duration (Minutes)	1-5	50	45.0
	6-10	50	45.0
	11-15	11	9.9
Breastfeeding Position	Cross Cradle	15	13.5
	Cradle Hold	91	82.0
	Laid Back	1	0.9
	Side Lying	4	3.6
Shoulder Pain	Yes	30	27.0

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Category	Subcategory	Frequency	Percent (%)
	No	81	73.0
Upper Back Pain	Yes	44	39.6
	No	67	60.4
Arm Pain	Yes	26	23.4
	No	85	76.6
Scapular Dyskinesis Test	Positive	46	41.4
	Negative	65	58.6

Table 3: Cross-Tabulation of Breastfeeding Positions with Scapular Dyskinesia

Breastfeeding Position	Scapular Dyskinesis Test Positive	Negative	Total	p-value
Cross Cradle	4	11	15	0.06
Cradle Hold	40	51	91	
Laid Back	0	1	1	
Side Lying	2	2	4	
Total	46	65	111	

The cross-tabulation of breastfeeding positions with the incidence of scapular dyskinesia revealed an interesting pattern. Among those in the cross cradle position, 4 out of 15 were found to have scapular dyskinesia, yielding a p-value of 0.06, which suggests a marginal association between this specific breastfeeding position and the condition. The cradle hold position, the most commonly adopted posture, had 40 participants testing positive for scapular dyskinesia out of 91. In contrast, no cases of scapular dyskinesia were observed in the laid back position, and an equal distribution was noted in the side-lying position, with 2 positive and 2 negative cases out of 4 participants [Table 3].

DISCUSSION

The objective of the present study was to explore the potential association between breastfeeding positions and the occurrence of scapular dyskinesia among postpartum females. Participants, spanning the postpartum duration with ages ranging from 18 to 45 years, predominantly employed the cradle hold position for breastfeeding. This traditional method is widely regarded for its comfort and ease in managing infants. Among the 111 women surveyed, 41.4% were identified with scapular dyskinesia, although no significant correlation between the breastfeeding positions and the onset of scapular dyskinesia was established. This finding aligns with the research conducted by Saia Rani et al., which similarly did not find a significant link between breastfeeding positions and musculoskeletal problems in postpartum females (16, 17).

Comparatively, a study by Poonam Patil in India, involving participants with a mean age of 26.2 years who had been breastfeeding for six months or more, revealed a high prevalence of scapular dyskinesia. However, it similarly did not associate breastfeeding positions directly with the condition, reinforcing the notion that while scapular dyskinesia is prevalent among postpartum females, its occurrence may not be directly influenced by the positioning of breastfeeding. This perspective was further supported by an earlier study from Islamabad, which indicated a preference for the cross cradle hold among mothers with infants under six months, differing from the cradle hold predominance observed in the current study (16).

The current research also highlighted that the majority of women engaged in 6-8 breastfeeding sessions daily, with a p-value of 0.06 suggesting no significant association between breastfeeding position and scapular dyskinesia. Notably, upper back pain was a common complaint among participants, a finding consistent with Pillai's study in Klang Valley, which reported a high incidence of neck pain among breastfeeding mothers, further suggesting that musculoskeletal discomforts may be more closely related to the frequency of breastfeeding sessions rather than the specific positions adopted (18).

Contrastingly, research conducted in Saudi Arabia by Noora Muhammad found a significant association between breastfeeding positions and musculoskeletal problems, diverging from the findings of the current study. Muhammad's research suggested that the lack of health education on proper breastfeeding techniques could contribute to the higher prevalence of musculoskeletal issues, underscoring the importance of informed practice in mitigating such concerns (19).

The study concluded that the cradle hold, being the most commonly used breastfeeding position that necessitates minimal trunk flexion, had a negligible impact on the kinematics of the shoulder that could lead to scapular dyskinesia. This conclusion suggests that while breastfeeding positions may influence comfort and the risk of musculoskeletal problems, their impact on scapular dyskinesia is limited (15).

However, the study faced several limitations, including reluctance among some participants to perform the tests and the absence of a comparative analysis between lactating working women and housewives. Additionally, the scarcity of prior research on the association between breastfeeding and scapular dyskinesia in Pakistan posed challenges in drawing comprehensive conclusions (13, 20).

To address these gaps, future research should focus on expanding awareness of proper breastfeeding postures to prevent musculoskeletal problems. Moreover, there is a pressing need for more studies within the Pakistani context to enrich the existing data and support the findings of this study. Future investigations should also aim to develop a standardized questionnaire to facilitate data collection and interpretation, and consider including a broader demographic to compare lactating working women with housewives, thereby offering a more nuanced understanding of the impact of breastfeeding practices on maternal health (12, 14, 20).

CONCLUSION

The study concludes that while the cradle hold is the most prevalent breastfeeding position among postpartum females, there is no significant association between breastfeeding positions and the development of scapular dyskinesia. This suggests that factors other than breastfeeding posture might play a more critical role in the onset of scapular dyskinesia. The findings highlight the need for broader awareness and education on proper breastfeeding techniques to mitigate musculoskeletal discomfort. Moreover, the absence of a direct link between breastfeeding positions and scapular dyskinesia underscores the importance of further research in this area, particularly studies that explore the multifaceted aspects of postpartum physical health and the effectiveness of various support and intervention strategies for lactating women.

REFERENCES

1. Abdel Azeem AI, Mohamed HS, Asida SM, Ahmed MARS. Ultra-sound guided supraclavicular brachial plexus block: The value of adjuvants. SVU-International Journal of Medical Sciences. 2023;6(1):312-28.
2. Almudhry M, Prasad AN, Rupar CA, Tay KY, Ratko S, Jenkins ME, et al. A milder form of molybdenum cofactor deficiency type A presenting as Leigh's syndrome-like phenotype highlighting the secondary mitochondrial dysfunction: a case report. Frontiers in Neurology. 2023;14.
3. Baqir SR, Jamil K, Ilyas Y. PHYSICAL THERAPY TREATMENT IN POSTNATAL WOMEN. Pakistan Journal of Rehabilitation. 2023;12(2):67-77.
4. Batalha N, Sousa JP, Fernandes O, Dias E, Parraca JA, Villafaina S. Effects of an 11-Week Detraining, Imposed by the COVID-19 Confinement, on Handball Players' Shoulder Rotator Isokinetic Profile, Shoulder Range of Motion, and Ball Release Velocity. Medicina. 2023;59(9):1548.
5. Chatterjee R. SBAs in Sport, Exercise, and Musculoskeletal Medicine: Oxford University Press; 2021.
6. Deeksha H, Pajai S, Acharya N, Mohammad S, Aradhya D. Pregnancy in Women With Cerebral Palsy. Cureus. 2023;15(3).
7. Desai CK, Sheikh M, Klippenstein K, Boyle J, De Berg K, Pham S. A Case of Peripartum Ventricular Tachycardia due to Arrhythmogenic Right Ventricular Dysplasia. South Dakota Medicine. 2021;74(7).
8. González BAC, Sánchez MJC, Quispe DMA, Cáceres CCP, Borges-Oliveira AC, Carneiro NCR. Protocol proposal for early dental care in infants with cerebral palsy. Revista Científica do CRO-RJ (Rio de Janeiro Dental Journal). 2022;7(1):16-23.
9. Horlenko O, Kossey G, Peresta M, Lukashchuk S. Test control of knowledge in Pediatrics (KROK 2, for the international students). 2022.
10. Jain R, Pandey S, Raghav S. Movement Disorders in Children. Indian Pediatrics. 2021;58:861-70.
11. Larsen K, Galluccio FC, Chand SK. Does thoracic outlet syndrome cause cerebrovascular hyperperfusion? Diagnostic markers for occult craniovascular congestion. Anaesthesia, Pain & Intensive Care. 2020;24(1):69-86.
12. Linden Jr Hvd, Cobas C, Duarte AFP, Masruha MR. Oromandibular Dystonia is a Prominent Feature in Patients with Aromatic L-Amino Acid Decarboxylase (AADC) Deficiency. Journal of Inborn Errors of Metabolism and Screening. 2023;11:e20230008.
13. NAGTALON-RAMOS J, BERGBOWER HE, NOBLEJAS SE. LACTATION ASSESSMENT AND MANAGEMENT. Advanced Health Assessment of Women: Skills, Procedures, and Management. 2023:211.
14. Pani SK, Khuntia B, Behera S. Case Report on Cerebral Palsy-with Ayurvedic Treatment Protocol. Journal of Pharmaceutical Research International. 2021;33(43A):47-50.
15. Roth S, Oyeyemi AL, Stoutenberg M, Gehris J, Moore T, Matthew J, et al. Search Strategies for a Systematic Review of Community violence Exposure, Physical Activity and Mental Health. 2021.

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16. Situt GA, Philip S, Patil P. Prevalence of Scapular Dyskinesis in Breastfeeding Postnatal Women in Satara District--An Observational Study. Journal of Evolution of Medical and Dental Sciences. 2021;10(31):2401-6.

17. Wikeley S, Bacon I, Greer O, Evans M, Hasan R, Pathak S. New-onset movement disorder in the immediate postpartum period. BMJ case reports. 2023;16(12):e254132.

18. Shital K, Kajol K, Sandeep S, Pise S. Correlation between Postural Impairment and Lymphedema in Breast Cancer Survivors. 2022.

19. Sales HF, Cerqueira C, Vaz D, Medeiros-Rios D, Armani-Franceschi G, Lucena PH, et al. The impact of botulinum toxin type A in the treatment of drooling in children with cerebral palsy secondary to Congenital Zika Syndrome: an observational study. Neurological Research. 2021;43(1):54-60.

20. Chen Y-H, Liang W-A, Lin C-R, Huang C-Y. A randomized controlled trial of scapular exercises with electromyography biofeedback in oral cancer patients with accessory nerve dysfunction. Supportive Care in Cancer. 2022;30(10):8241-50.