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Prevalence of Sick Scapular Syndrome in Lactating Mothers

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ABSTRACT

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Background: Due to prolonged slouching and biomechanical overload from feeding, this becomes common among breastfeeding moms. This posture can bring about scapular dyskinesis like the SICK scapular syndrome. **Objective:** To determine the prevalence and patterns of shoulder pain and functional disability associated with scapular dyskinesis among lactating mothers. **Methods:** A cross sectional observational study of 100 lactating mothers in the age group of 20-40 years was conducted to assess shoulder pain and disability by pain scoring using visual analogue scale (VAS), disability scoring by shoulder pain and disability index (SPADI), and to screen for scapular dyskinesis using lateral scapular slide test (LSST). Statistical analysis was done using SPSS software 25.0. **Result:** Most participants reported Bilateral (68%) symptoms compared to the unilateral scapular Involvement (32%) mainly involving dominant side. According to SPADI 37% had moderate pain, 5% had light pain, and 58% had severe pain. The most problematic functional limitations were those which involve pushing the affected limb (47% moderate, 21% severe), to reach for something (48% moderate, 24% severe) and to carry anything (67% had considerable problems). Only those concerning the wearing of shirts and pants where more than 75% of mothers had only few problems. A statistically significant positive association was found between the duration of lactation and the age of the mothers ($r=0.567$; $p<0.01$) with greater pain to the shoulders. **Conclusion:** Early ergonomic support and physiotherapy might have a key role in symptoms management and to reduce further long-term problems of musculoskeletal nature. The results indicate a significant presence of SICK scapular Syndrome and Shoulder pain in lactating Mothers particularly among those having prolonged periods of Breast feeding.

Introduction

The scapula is a critical link in upper extremity movement and function and is known as one of the key parts of the kinetic chain, which is defined as segments of the body linked through transmission of forces and motion. Since the scapula acts as the connecting piece between the torso and the upper extremities it allows for controlled and agile movements of the shoulder. The slightest deviation or loss of integrity in this chain due to muscle weakness or faulty activation can result in injury. The importance of the link between the glenohumeral and the scapulothoracic joint during shoulder elevation can be understood as normal ratio movement can be found as roughly 7.3:1 between 90° and 150° of elevation after 30° of initial movement.

The altered movement or position of the scapula during elevation of the shoulder joint in abnormal patterns is defined as scapular dyskinesis and is subdivided into three categories. Type I- The posterior prominence of the inferomedial aspect of the

scapula. Type II- The prominence of the entire medial border of the scapula. Type III- premature elevation and overuse of the entire scapula. Scapular dyskinesia often occurs with many types of shoulder disorders, e.g., labral disorders type I and type II scapular dyskinesia occur with and rotator cuff pathologies type III occurs with impingement. Possible underlying mechanisms are insufficient phase-lagging force coupling between the deltoid and rotator cuff and poor coordination of the rotator cuff muscles.

While “scapular winging” and scapular dyskinesia are often synonymous, they’re technically different. Scapular dyskinesia is defined as a neurologically induced faulty scapular movement, whereas scapular winging is a catch-all term encompassing various dysfunctions with disturbed movement, position, and mobility. Poor ergonomic practice when breastfeeding appears to be a leading contributor to scapular dysfunction for new mothers, particularly breastfeeding women, because rounding shoulders and flexing the spine creates sustained strain on scapular stabilizing musculature (serratus anterior, upper, middle, and lower trapezius).

Muscle imbalance or weakness around the muscles surrounding the scapula increases the chance of this syndrome, also referred to as SICK scapula, the clinical syndrome characterised by the inferior medial border prominence, scapular malposition and subcoracoid pain and malposition and scapular dyskinesia. Most studies demonstrate a link between shoulder injury and scapular dyskinesia, however, others suggest the it should be thought of as a biomechanical impairment rather than an independent diagnosis. Causes contributing to this may include a short headed biceps, pectoralis minor tightening, acromioclavicular joint and glenohumeral instability and periscapular lesions and poor posture including thoracic kyphosis.

Scapular dyskinesia is more common in populations that perform repetitive overhead movements, such as athletes and postpartum mothers, according to epidemiological data, with rates gradually increasing from 5.45% at 0° shoulder abduction to 18.18% at 90°. Up to 61% of overhead athletes have the condition, and studies indicate that shoulder pain is 43% more common in those with dyskinesia than in those without. However, some asymptomatic individuals may also have scapular asymmetry, indicating that dyskinesia by itself does not always translate into pain.

Scapular Dyskinesia Test (SDT) is another clinical test of scapular dyskinesia and it’s a clinical test of the movement of the scapula through visualization of motion in loading and unloading scenarios as the arm is elevated. Typically, a positive test is marked by premature scapular elevation, rapid downward rotation, and/or medial border bulging. A scapular retraction test and scapular assistance test have been employed to assess the influence of assisted or stabilized motion on pain and range of motion, thus assist clinicians in evaluating the contribution of the functional relevance of scapular instability.

The most important aspects of conservative therapy of scapular dyskinesia are strengthening exercises, stretching, postural correction, kinetic chain rehabilitation, as well as exercises that promote appropriate strengthening of the rhomboid and trapezius muscles as well as the serratus anterior. Measuring tape, SPADI and functional indices may be used to monitor progress and effectiveness of therapy. Therefore, poor posture, muscle imbalance, and overuse during breastfeeding are among the most common etiologic factors in nursing women with this biomechanical dysfunction. In order to lower long-term disability and enhance quality of life in this susceptible group, early detection through clinical testing and ergonomic interventions is essential.

Materials & Methods

Participants

158 women between the ages of 20 and 40 who were nursing for up to 24 months were included in this observational study. They were recruited from Service Hospital in Lahore. OpenEpi (version 3.0) was used to determine the sample size at an 80% confidence level. The method employed was non-probability purposive sampling. Women who had any kind of scapular dyskinesia and a positive Lateral Scapular Slide Test (LSST) result were eligible to participate. A history of neck or shoulder trauma, pathological shoulder conditions, falls, heavy lifting, cancer, systemic diseases, previous surgeries, and shoulder fractures or dislocations were among the exclusion criteria.

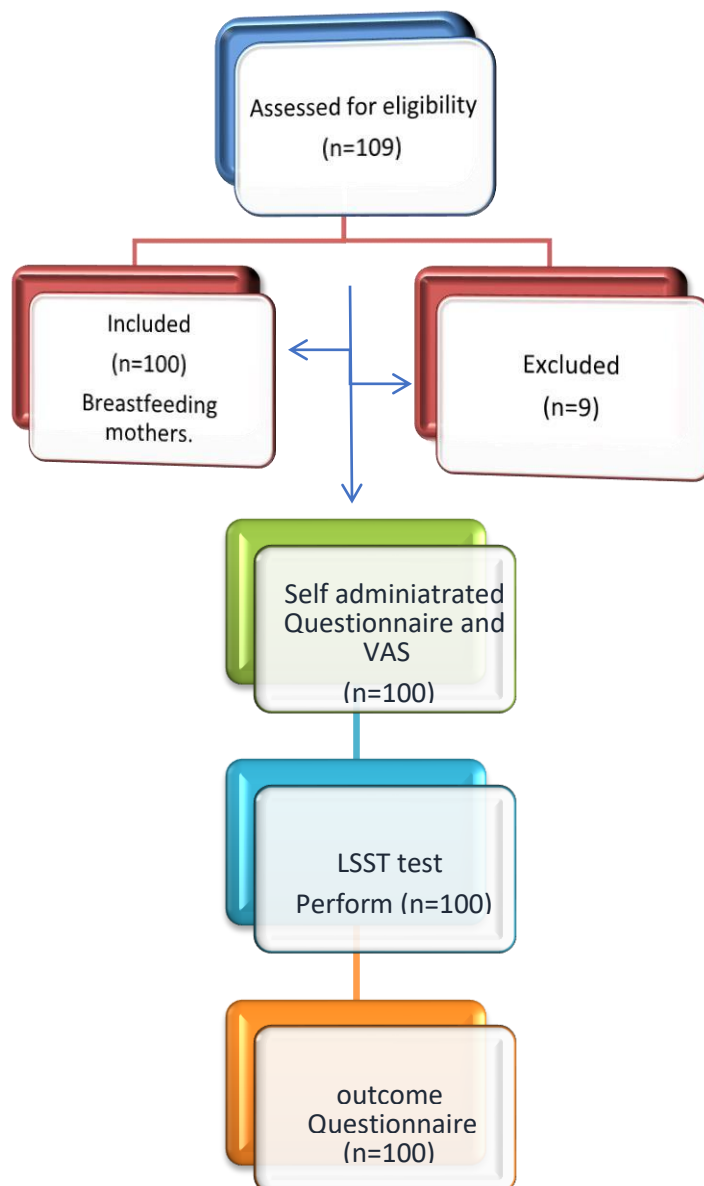
Procedure/Test protocol/Skill test trial/Measure/Instruments

The study measured posture, muscle length, and shoulder alignment using a flexible measuring tape. The Shoulder Pain and Disability Index (SPADI) questionnaire, which has subscales for pain and disability, was used to assess shoulder pain and disability. Prior to data collection, all participants provided written informed consent.

Data collection and analysis / Statistical analysis

Following ethical approval, data was gathered over a six-month period. Anonymity and confidentiality were protected, and participation was entirely voluntary with the option to discontinue at any time. Although the specifics of the statistical analysis were not given, it was assumed that the data management followed the guidelines for observational studies.

Consort Diagram:



Results

Data were analyzed using SPSS version 25 with descriptive statistics including frequencies, percentages, and correlations. Tables, pie charts, and graphs presented results..

Key Findings

- Shoulder discomfort grew in prevalence with increasing age and longer lactating duration.
- The incidence of shoulder pain (unilateral scapular syndrome, including unilateral or dominant-side symptoms) nursing mother with 32% was involved on both sides; the other 68% presented unilateral symptoms
- The intensity of pain (SPADI 58% reported that their worse pain were “severe”, 37% moderate pain and 5% mild pain..

- Nursing women with moderate pain complained when reaching for high shelf (58%) and touching behind neck 50%.
- Moderate to severe pain was common when pushing with the affected arm (68% combined).
- Functional limitation was mild to moderate for hair washing (71% mild), washing back (46% mild, 39% moderate), wearing clothes (mostly mild).
- Carrying a heavy weight, which induced heavy physical dependence had a 67% impairment.
- There was a moderate positive correlation between the age of the mother and lactation duration ($r=0.567$, $p<0.01$).

Discussion

In our study, a large prevalence of the SICK scapular syndrome was found in the nursing mothers; we emphasized the relation between scapular dysfunction, the maternal age and the duration of lactation. Similar conclusions have been reported in studies describing musculoskeletal adaptation processes and the occupational illnesses due to the permanent overstrain of work related to longer activities (Yuan et al., 2022; Situt et al., 2021). Due to increased mechanical stress and repetitive upper extremity motions, women of advanced age and long lactation period, more susceptible to the occurrence of scapular abnormalities.

The asymmetric loading that is imposed upon the shoulder girdle is primarily because of the frequent use of the preferred side to carry the infants thus is the cause why 68% of the subjects exhibited a predominance of right side scapular syndrome (Kibler & Sciascia, 2019). Muscular imbalance, changes in scapular motion occurs as a consequence of this uniaxial loading thus it causes a dysfunctional motion. This finding corroborates with that of Kibler et al. (2017) who emphasized that the common pattern seen during activities with repeated unilateral action causes an alteration in the scapular function thus resulting in muscle fatigue and dyskinesia.

The results for pain and functional disability from the SPADI questionnaire indicated that most of the nursing mothers had a moderate to high degree of pain that affects their ability to push, lift, and reach above head. This result was in agreement with Rajpurohit & Anap (2021) where they identified that scapular dyskinesia greatly affect shoulder functioning and increases pain in shoulder dysfunction population. Most of all, 67% participants had high level disability for lifting and carrying heavy weight so it clearly demonstrated that scapular stability is clinically important in carrying heavy weight as well as in caring the babies.

As known, the poor occupational ergonomic standards applied by nurses contribute to the weak muscles of the scapular region (Aburub et al., 2022). Bad positioning of the shoulders, forward head posture, and forward head position in breastfeeding postures lead to imbalance of the scapular stabilizers such as trapezius, rhomboids, and serratus anterior muscles (Giuseppe et al., 2020). These muscles have a role in coordination and maintain alignment of scapular position (Kibler et al., 2013). Therefore, inhibition and weak of the muscles result in dyskinesia and painful due to alternation of the scapulohumeral rhythm (Kibler & Ludewig, 2017).

Evidence has shown that training in ergonomic skills and providing interventions, including posture adjustments and assistive devices, such as pillows, nursing pillows, has been reported to alleviate symptoms related to shoulder dysfunction. It can be stated that nursing mother symptoms in those experiencing SICK scapular syndrome were found to be lower in those who had increased awareness of posture and demonstrated better ergonomics, a notion that supports existing research on comparable intervention strategies in overhead athletes and those suffering from other types of shoulder issues (Moghadam and Rahnama, 2020).

Moreover, the current evidence suggests that it is critical to include ergonomic counseling and musculoskeletal screening in antenatal and postnatal visits by healthcare professionals. The information regarding optimal breastfeeding posture seems lacking among nursing mothers, thus increasing the likelihood of developing musculoskeletal pathologies as discussed by Yuan et al. (2022) and Aburub et al. (2022). An accurate clinical screening using valid clinical tests such as LSST and patient-based questionnaires such as SPADI may allow to identify early those who require intervention thus lead to better outcomes (Kibler et al., 2002; McClure et al., 2009).

It is also important to recognize the functional and psychosocial implications of scapular dyskinesia. Scapular dyskinesia has been previously identified as a kinetic chain abnormality of the cervical and thoracic spine (Ojukwu et al., 2022). The neck pain the participants experienced provides evidence of the relationship between the two spinal segments and further justifies that the physical rehabilitation programme should aim to address the entire upper quadrant not only the scapula (Hannah et al., 2017). It is necessary to have multifaceted management strategies including physical rehabilitation, ergonomic training and education to effectively manage the issues of shoulder girdle dysfunction.

There were a number of limitations associated with this research; the employment of non-probability purposive sampling, therefore limiting the generalisability of results, and the cross-sectional design which precludes definitive causal claims. Further long-term longitudinal research with large, diverse sample sizes would be required to establish causation and demonstrate the lasting effect of ergonomics interventions on the study population.

In conclusion, the study points out the high incidence of SICK scapular syndrome among nursing mothers, particularly in conjunction with factors such as age, duration of breast-feeding and working ergonomics. The study also emphasizes the need for targeted education and therapy strategies in order to prevent scapular dysfunction and to improve the musculoskeletal condition of the mothers.

Conclusion:

In conclusion SICK scapular syndrome, an extremely common, undetected problem in nursing mothers, is implicated as an etiology of shoulder pain. Nursing practices may also predispose mothers to greater likelihood of symptoms in their preferred arm (often the right hand). Severity of symptoms and impact on function of upper extremity have been reported to be worse in the highest infant birth weight (> 4.5 kg) and duration of breastfeeding, and as a cause of scapular dyskinesia as documented by the SPADI scoring.

The paper proposes to utilize some support measures to prevent or treat these issues, such as lactation pillow, and to achieve favorable breastfeeding postures. Moreover, changing positions periodically, sufficient sleep, and strengthening exercises for arm, shoulders, and neck muscles could potentially reduce the possibility of developing these symptoms. However, an accurate clinical examination is crucial to identify a treatment method. It is possible to treat the symptoms using conservative approaches such as physical therapy.

It is suggested to use goniometers for spine position measurement, expand research to another group working repetitively using upper limbs and examine the range of motion of the neck due to its involvement in scapular dysfunction.

The study's limitations include its exclusive focus on nursing mothers, its limitation to Lahore, and the absence of a more comprehensive biomechanical analysis of different nursing postures.

Conflict of Interest

No conflict of interest declared by the authors.

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