Prevalence of Mechanical Neck Pain in Postpartum Multipara Women Undergone Lower Segment Caesarean Section in Kolhapur City

Tanvi Balasaheb Bhujbal[1], Dr.Umiya Pathan[2], Dr.Amruta Doijad[3]
[1]B.P.Th, D.Y.Patil College of Physiotherapy, *D.Y.Patil Education Society(Deemed to be University),Kolhapur*
[2]*Professor and HOD (Department Musculoskeletal Sciences), D.Y.Patil College of Physiotherapy D.Y.Patil Education Society(Deemed to be University),Kolhapur*
3 Professor and HOD (Department Neurosciences Physiotherapy), D.Y.Patil College of Physiotherapy D.Y.Patil Education Society(Deemed to be University),Kolhapur

Abstract -Background- Breastfeeding is among of the most ideal and effective mean to ensure child health and survival. Breast milk is an ideal food for neonates. To accrue the maximum benefits, the breastfeeding must be exclusive initiated within half an hour of birth and continued through first six months after birth. Along with the maternal and infant benefits of breastfeeding, a few harmful implications like musculoskeletal pain, breast engorgement, breast soreness and other maternal discomfort may occur. One of the major factors of musculoskeletal pain due to breastfeeding is the adaptation of poor body posture or in appropriate position during breastfeeding. Neck pain related to posture is usually due to inappropriate postures, awkward postures and repetition of task which leads to stress on musculoskeletal tissues and the underlying muscles. Prolong inappropriate postures can result into muscle stress and deformity of normal soft tissues. Method- In this observational study, 73 participants (age- 28.03 ± 2.03) suffering from mechanical neck discomfort were included. Their neck discomfort was evaluated using the Numerical pain rating Scale (5.96±1.56). To gauge the intensity of neck pain complaints, participants were given the Northwick Park Neck Pain Questionnaire. Result- Our research revealed that the prevalence of mechanical neck pain in postpartum women was 58.90% (43 participants) had moderate pain, 30.13% (22 participants) had severe pain and remaining 10.95% had mild pain on assessing through NPRS. The Questionnaire states that maximal pain is indicated by scores greater than 50% and minor pain is indicated by scores less than 50%. Of the 73 participants, 49 had scores above 50%, while 24 received scores below 50%. Conclusion- This study conducted among postpartum multipara women undergone lower segment caesarean section of age between 25 to 45 years in and around Kolhapur region reveals, that there is moderate prevalence of mechanical neck pain in postpartum women. BFRNP leaves major impact on maternal health and also jeopardizes the health of children, so in order to address this issue, it's important to raise awareness of appropriate and proper breastfeeding positions for effective breastfeeding.

Keywords- Breastfeeding, musculoskeletal discomfort, neck pain, posture.

INTRODUCTION

After 38 weeks of pregnancy, the fetus is delivered via lower segmental caesarean section (LSCS), which involves cutting the uterine and abdominal walls[1].Primary caesarean section is the term used to describe the first procedure done on a patient. The procedure is known as a repeat caesarean section when it is carried out for future pregnancies[1].The number of caesarean sections performed is gradually increasing. The incidence increased two to three times in the last ten years compared to the starting rate of roughly 10%.[1] The rising number of caesarean sections performed globally worries obstetricians and public health experts since they have a higher financial cost and pose a greater risk to the mother's health than vaginal deliveries[1].

The ideal rate of LSCS has been regarded by the global healthcare community which is about 10% to 15% since 1985[2].Since then, the introduction of electronic foetal monitoring, improved surgical procedures, and

the accessibility of neonatal tertiary care institutions have all contributed to an increase in caesarean section trends[2].Similar to any surgical procedure, caesarean sections carry both short- and long-term dangers.[2]Abdominal discomfort, hysterectomy, urethral tract along with vesicle damage, neonates respiratory morbidity, foetal death, implanted placenta, and ruptured uterine walls in subsequent pregnancies are among the risks linked to CS.[2]High rates of caesarean sections are a global public health concern[2].

For newborns, breast milk is the perfect meal. It has every nutrient a baby needs for proper development and growth from birth to the initial six months of life.[3] The under-5 mortality rate can be lowered by 13% by ensuring six months of exclusive breastfeeding. Initiated within 30 minutes of birth and continued throughout the initial six months following delivery, exclusive breastfeeding (only breast milk; nothing but breast milk with vitamin drops, if necessary) is required to reap the full benefits.[3] According to the 2009 Coverage Evaluation Survey, only 33.5% of newborns were initiating breastfeeding within an hour after their birth. Just 36.8% of infants between the ages of 6 and 9 months were exclusively breastfed until they were 6 months old.[3]

The World Health Organization (WHO) advises nursing an infant throughout the initial six months.[4] Every two to three hours, breastfeeding takes place for a duration of 15 to 20 minutes. Eight to twelve times a day is the estimated frequency of breastfeeding. Thus, feeding the infant takes up five to six hours of the day. Due to the fact that such tasks are kept for longer periods of time, they can alter the natural curvature of the spine and result in long-term postural problems.[4] Pregnancy causes numerous physiological musculoskeletal changes due to the increase in weight.[4] All of these adjustments will have a long-term impact on day-to-day functioning, making it more difficult to take care of oneself and one's infant.[4]

Antibodies and immune-stimulating substances with antibacterial qualities are components of breastmilk.[5] The antibodies in milk strengthen the baby's immune system and shield it from illnesses and infections. As a result, breastfeeding enhances a child's general health and wellbeing.[5] While breastfeeding has beneficial effects on the overall health status of a child it takes a toll on the maternal health.[5] Breastfeeding is a healthy practice for moms and kids physical and emotional wellbeing.[5] While nursing, mothers assume a supporting posture to facilitate the baby's latch on and to better regulate the breasts, allowing milk to flow freely.[5] The long hours of breastfeeding in a particular position puts the mothers at risk of developing musculoskeletal disorders.[5] Pain that affects the muscles, bones, ligaments, tendons, and blood vessels is referred to as musculoskeletal discomfort.[5] When the muscles and joints make repeated actions in an incorrect posture or placement, discomfort results.[5] It is intimately linked to inactivity and a lack of physical mobility. Posture, force, and frequency together create a trinity that increases an individual's risk of MSD.[5]

Awkward postures during feeding sessions have been linked to musculoskeletal issues related to BF, according to prior research.[6] According to anecdotal evidence, among the most prevalent challenging positions used by nursing mothers is unsupported head/neck posture, which results in prolonged neck flexion in an attempt to monitor the infant during feeding.[6] The muscles in the cervical region and back are typically strained by prolonged uncomfortable positions and excessive repetition. Nursing moms have been known to experience BF-related neck pain (BFRNP), especially when they assume improper BF positions.[6]

Musculoskeletal disorders usually appear in the neck, shoulders, and low back.[7]Musculoskeletal pain is common among lactating mothers.[8] Inadequate breastfeeding posture, stress and strain, pregnancy-related physiological changes that influence ligaments, weak core muscles, and lack of sleep are common causes of musculoskeletal pain in nursing moms.[8]

The characteristics of BF practices can differ throughout nursing moms or even within them. These attributes could be amount of children breastfed, the duration and the regularity of

breastfeeding, the adopted BF position(s), the practice of exclusive breastfeeding, and so forth. The MSP has been linked to a number of maternal and sociodemographic traits.[9] The physical strain of breastfeeding on a nursing mother's body may be lessened by being aware of the prevalence of MSP in a particular population and the preferred position linked to the location and intensity of MSP.[9]

Additionally, this information can be used to inform maternal education to prevent or reduce MSP.[9]

In addition to playing numerous vital responsibilities all the time, postpartum women are under a lot of physical and mental stress, which may be connected to the frequency or intensity of neck pain.[10]Following childbirth, women frequently encounter postpartum depression, changes in postural habits after childbirth, and hormonal and physiological changes that take place throughout pregnancy might all contribute to this[11]. One of the difficulties that nursing moms have as a result of extended sitting and non-ergonomic breastfeeding settings is this.[11]

Neck is the region between the skull base and clavicle. Although it is a very tiny region, it has some significant anatomical traits. Serving as a nerve and vascular conduit between the head and trunk is one of the neck's many jobs. To support the high metabolic requirements of the brain, large volumes of blood are transported across the region by the carotid and vertebral arteries. Big jugular veins carry this blood back to the trunk.[17]

METHODOLOGY

Materials: Northwick Park Neck Pain Questionnaire, consent form, data collection sheet, and numerical pain rating scale. There are 73 participants in the current study. This particular study is an observational study. Following their selection based on the inclusion and exclusion criteria, all participants who satisfied the inclusion criteria were assessed using the Northwick Park Neck Pain Questionnaire as well as the Numeric Pain Rating Scale. Individuals who fulfilled the inclusion criteria were selected with the study, but those who couldn't were excluded.

Duration of this study was 3 months. The study was conducted in postpartum multipara women undergone lower segment caesarean section in Dr D. Y. Patil Hospital and Research Centre kadamwadi, Kolhapur. After approved the study protocol by Research Ethics committee of D. Y. Patil Education society Kolhapur. The participants were given an explanation of the entire study and its protocol. After receiving their written and verbal consent participants were part of the research. Inclusion criteria included of patients who were on 7th post-operative day. Consent forms were provided in both English and Marathi language along with maintained patient's confidentiality. The pain was evaluated using the Numerical Pain Rating Scale (NPRS)The Patients were told to rate their pain on the scale of 10. The pain was rated on rest and on activity as well. The amount of pain patient experiences when on rest and while doing activities. A thorough history of pain was obtained, and only a few questions were asked to the patient regarding her pain. Questions such as- i) Onset of pain ii) Precipitating factor iii) Quality of pain iv) Relieving factor v) Site of pain vi) Temporal variation. Inclusion Criteria: Age group 25- 45 years, Postpartum women, Lower segment cesarean section, Multigravida Women (More than one delivery), History of previous LSCS. Exclusion criteria: Participants in critical conditions after delivery, History of cervical fractures, History of cervical trauma, Participants having psychological problems. Ethical approval for the study was obtained from D.Y. Patil educational society and research institute kasbabawda, Kolhapur. Statistical analysis will be done using INSTAT application. Analysis will be done using paired test.

RESULT

Table 1 Demographic profile of the participants.

Demographic profile	Details
Age	28.03 ± 2.03
BMI	20.53± 1.75
Occupation	Housewives
Type of delivery	Lower segment cesarean section.
Parity status	Multigravida
No. of delivery	2

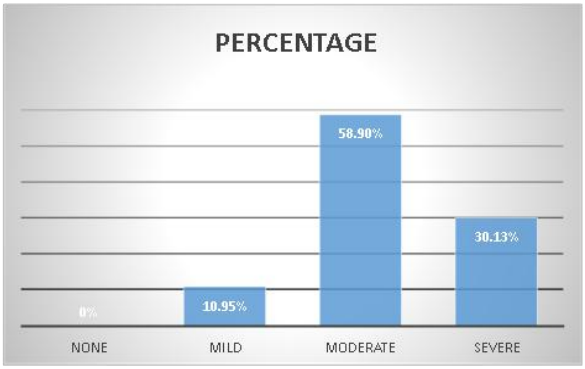
Table 1 shows the general maternal characteristics of the participants. Which includes age, BMI, occupation, type of deliveries parity status and no.of deliveries.

According to the data, the mean value of age criteria of the 73 participants was 28.03 ± 2.03. Additionally, 10.95% of postpartum moms were older than 30, and 89.05 percent were between the ages of 25 and 30. Every participant underwent a lower segment caesarean section and was a mother with multiple gravidas.

Study showed that 98% of participants had an idea about exclusive breastfeeding where a sustain posture is acquired. However, only few had awareness about ideal breastfeeding positioning. The mean of the BMI was 20.53± 1.75 the mean of NPRS was 5.69± 1.56. Majority of the mothers were housewives while very few were working women.

Table 2 Presents the intensity of neck pain through Numeric pain rating scale

Ranges	Interpretation	No. of subject	Percentage
0	None	0	0%
1 to 3	Mild	8	10.95%
4 to 6	Moderate	43	58.90%
7 to 10	Severe	22	30.13%



Graph 1

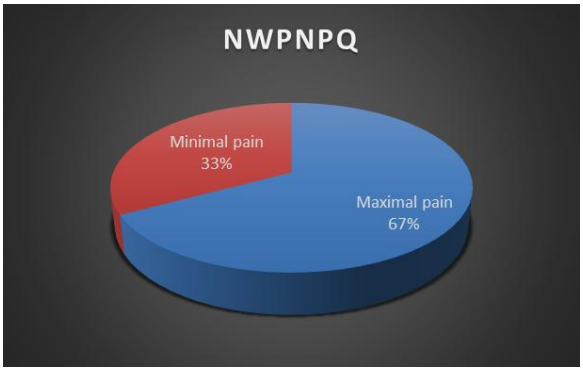
Table 2 and graph 1 shows the result of numeric pain rating scale, in which 8 subjects have mild pain with 10.95%,43 subjects have moderate pain with 58.90% and 22 subjects have severe pain with 30.13%.

The Northwick Park Neck Pain Questionnaire was another tool employed. The questions focus on ADL that impacted by neck pain. The patient is asked to tick the box that best describes their current circumstances out of five possibilities in each segment, which increase in difficulty. Every question is summarised and given a score between 0 and 4.9th question was excluded which was regarding driving, so in total only 9 questions were answered by the participants. The interpretation was done through the formula below,

N/32 ×100 N is the score obtained from adding the score of 9 questions.

Table 3 Result of neck pain of NWPNP Questionnaire

NWPNPQ Score	Maximal pain (Above 50%)	Minimal pain (Below 50%)
No.of participants	49	24



Graph 2

Table 3 and Graph 2 above shows the result of Northwickpark neck pain questionnaire. In total of 73 participants, 49 participants scored above 50% whereas, 24 participants scored below 50%. The Northwick Park Neck Pain Questionnaire states that maximal pain is indicated by scores above 50% and mild pain is indicated by scores below 50%.

DISCUSSION

Nursing mothers are more likely to suffer from musculoskeletal pain when they visualise the act of breastfeeding.[1]The study's objective was to ascertain frequency of mechanical neck pain among multipara postpartum woman that undergone lower segment caesarean sections in Kolhapur city. One surgical technique for delivering a foetus through the abdomen is a caesarean section.

Obstetricians and other healthcare are concerned about the increasing frequency of caesarean sections performed worldwide as they have great costing and pose a greater risk to the health of mothers than vaginal deliveries[6]. Similar to any surgical procedure, caesarean sections carry both short- and long-term risks. Risks may continue for a number of years following the initial birth and impact the woman's health, that of her child, and subsequent pregnancies.[2]

In infant's life initial six months, breast milk is considered to be the finest source of nourishment.[4] Breastfeeding should be done every two to three hours and takes 15 to 20 minutes.[4]Therefore, feeding the infant takes up around 5 to 6 hours of the day[9]. Thus, moms continue to hold these incorrect postures for extended periods of time. Specifically, the amount of time needed each day for nursing is linked to the exacerbation of postpartum cervical pain[10].

Primary aim was to determining the prevalence of mechanical neck discomfort in LSCS patients. Mothers who are lactating may have various physical issues. All of these issues are the result of incorrect postures picked up when nursing the infant.[4]

According to this study, breastfeeding related neck pain is more prevalent in nursing mothers.[1] The most frequent issue that raised is neck discomfort brought on by the patient's adopted flexed neck position when nursing.[4] It has been determined that neck pain is a prevalent musculoskeletal condition among breastfeeding moms which has been linked to a few things.

Kyphotic posture during Breastfeeding is one of them. These kyphotic postures are typically caused by physiologic alterations that shift the centre of gravity, which lead to overstretched abdominal and paraspinal muscles along with tense neck and shoulder muscles.[1]

Body alignment and posture are essential components of BF; yet, adopting an incorrect posture can lead to several musculoskeletal problems, including BFRNP.[3]

Breastfeeding can be classified as an extended task because of the time and frequency required, especially for exclusive BF.[1]

Mbada et al. stated that adopting an improper posture when engaging in prolonged period of time can cause end-range loading of muscles and distortion of normal bodily tissue, which can result in musculoskeletal problems, including neck discomfort in the case of breastfeedig.[1]The most frequent daily activity that exacerbated mechanical neck pain was breastfeeding[10].

The superior trapezius muscle and the posterior neck region were the most often affected locations for mechanical neck discomfort in our sample of postpartum women[10] According to this research the postpartum women had a significant prevalence of mechanical neck pain that started after giving delivery. Therefore, it was proposed that neck pain during birth onset could be exacerbated by breastfeeding[10]

Furthermore, a mother's extended neck flexion and increased cervical kyphosis are caused by her efforts to keep her gaze on the nursing child.[1]The physical strain resulting from adopting this position is main risk factors for BFRNP. Mothers tend to lean forward towards their infant when breastfeeding, especially when the baby is small or younger, to facilitate and improve latching. This posture results in elongated shoulders, shortened anterior neck and shoulder muscles, and greater tension on the posterior neck and upper back muscles.[1]

The muscles surrounding the neck and shoulder girdle bear the weight of the head and arms, which collectively exceed four kilograms. Consequently, the muscles surrounding the shoulder girdle are always under tension from the neck[10]. Postpartum moms often have imbalanced postures as a result of holding their newborns' heads unsupported and adopting an anteflexion position when feeding. Considering the position used for breastfeeding and the amount of time it takes, it might be likely that the postpartum discomfort of neck pain is related to muscle stress[10]. Pregnancy-related weight increase causes numerous musculoskeletal alterations. As a result, the head tilts forward, the centre of gravity moves forward and upward, and thoracic kyphosis, cervical lordosis, and forward head posture all rise.

Round shoulders result from overstretched rhomboids and upper back muscles as well as shortened pectorals.[4] Both the muscle's strength and tone have decreased. Shorter muscles are produced in the paraspinal as a compensatory mechanism. A dull, throbbing neck discomfort could be the result of these changes.[4] Changes occurs through this period may have the potential to be long-lasting and to significantly affect a person's daily routine, which may manifest as pain. Pain is an unpleasant sensation that is impacted by how strong the painful stimuli is.[4]It is therefore discouraged for nursing moms to bend forward and bring the breast to the infant; instead, the infant should be brought to the breast.[4]

It is essential to carry out clinical trials and comparative studies to evaluate how breastfeeding postures impact the health of mothers and their children[5].In public and private hospitals, women health physiotherapists and lactation specialists must to be on hand to educate women on the importance, protocol, and significance of nursing[5].Raising awareness and providing guidance on maintaining good posture and forming healthy habits are essential if a woman is to provide her child with better care. Self-care must be prioritised.[4]

The best time to teach them would be during the antenatal period itself, since the majority of women may experience these issues connected to inappropriate tactics in the immediate postpartum period. However, this element is most often overlooked in India's hectic prenatal clinics.[15] The immediate postpartum period would be the next most logical time to evaluate them and help them practise proper procedures.[15] During this time, they will be supervised by medical personnel who are responsible for helping the moms adopt and use the proper breastfeeding procedures.[15]

This study was meant to investigate postpartum mothers' knowledge, attitudes, and practices (KAP) on breastfeeding procedures during the immediate postpartum period, taking into account the aforementioned facts.[15]Positioning (how the infant is held) and latch (how the child latches to the breast) are factors considered significant in breastfeeding.[16]Numerical Pain Rating Scale and Northwick Park Neck Pain Questionnaire were utilized as end measures in this study to gauge neck pain.

CONCLUSION

This study shows, prevalence of mechanical neck pain in postpartum multipara women with LSCS surgery has 58.90% of moderate pain on NPRS. As per our study the prevalence of moderate pain is high on NPRS in postpartum mothers.

ABBREVATIONS

LSCS: Lower Segmental Caesarean Section
BF: Breast Feeding
NPRS: Numerical Pain Rating Scale
BFRNP: Breast Feeding Related Neck Pain

REFERENCE

[1] Hiralal Konar; DC DUTTA’s TEXTBOOK OF GYNECOLOGY:6th edition.Pg no.669
[2] Jawa A, Garg S, Tater A, Sharma U. Indications and rates of lower segment caesarean section at tertiary care hospital-an analytical study.

[3] Vinod K Paul, Arvind Bagga OP Ghai: Essential Pediatrics 8th edition. Pg no.150
[4] Simin A. Dandekar , Mayuri Khatavkar. Impact of breastfeeding positions on neck pain in postpartum mothers. International Journal of Community Medicine and Public Health. 2022 Oct;9(10):3791-3796
[5] Ahmad MT. Frequency of Musculoskeletal Discomforts and its Association with Various Breastfeeding Positions among Nursing Mothers. Journal of CMH LMC and IOD. 2023;5(2):74-81.
[6] Ojukwu CP, Okpoko CG, Okemuo AJ, Ede SS, Ilo IJ. Breastfeeding-related neck pain: prevalence and correlates among Nigerian lactating mothers. International Health. 2022 Jul 23.
[7] Asif A, Amjad F, Dastgir H, Asif W, Adil A, Afzal M. Prevalence of Neck and Low Back Pain in Women During Post-Partum Period: Neck and Back Pain During Post-Partum. The Healer Journal of Physiotherapy and Rehabilitation Sciences. 2022;2(4):2718.
[8] Yuan TP, Purushothaman VK, Muniandy Y, Pillai SG. PREVALENCE AND FACTORS ASSOCIATED WITH NECK AND LOW BACK PAIN AMONG BREASTFEEDING MOTHERS IN THE KLANG VALLEY: Received 2021-08-19; Accepted 2022-03-23; Published 2022-10-11. Journal of Health and Translational Medicine (JUMMEC). 2022 Oct 11;25(2):129-34.
[9] Alazmi AA, Algabbani MF. Musculoskeletal Pain Prevalence and Association with Breastfeeding Position in Lactating Mothers in Riyadh, Saudi Arabia: A Cross-Sectional Study. Clinical and Experimental Obstetrics & Gynecology. 2023 Nov 28;50(11):250
[10] K. Koyasu, M. Kinkawa, N. Ueyama. The prevalence of primary neck and shoulder pain, and its related factors in Japanese postpartum women. Clinical and Experimental Obstetrics & Gynecology. 2013: 0390-6663
[11] Rani S, Habiba UE, Qazi WA, Tassadaq N. Association of breastfeeding positioning with musculoskeletal pain in postpartum mothers of Rawalpindi and Islamabad. JPMA. 2019 Apr;69:5646.
[12] Maskey S, Bajracharya M, Bhandari S. Prevalence of cesarean section and its indications in a tertiary care hospital. JNMA: Journal of the Nepal Medical Association. 2019 Apr;57(216):70.
[13] Ojukwu CP, Okpoko CG, Ikele IT, Ilo IJ, Ede SS, Anekwu NE, Okemuo AJ, Anekwu EM, Ugwu SU, Ikele CN. Neck Muscles' Responses to Cradle, Cross-cradle and Football Breastfeeding Hold Positions in Nursing Mothers: A Preliminary Study. Nigerian Journal of Clinical Practice. 2022 May 1;25(5):563-8.
[14] Aburub A, Darabseh MZ, Alsharman A, Hegazy MM, Hunter SM. Nursing Mothers' Experiences of Musculoskeletal Pain Attributed to Poor Posture During Breastfeeding: A Mixed Methods Study. Breastfeeding Medicine. 2022 Nov 1;17(11):926-31.
[15] Tella K, Guruvare S, Hebbar S, Adiga P, Rai L. Knowledge, attitude, and practice of techniques of breast-feeding among postnatal mothers in a coastal district of Karnataka. International Journal of Medical Science and Public Health. 2016 Jan 1;5(1):28.
[16] Aoki M, Suzuki S, Takao H, Ikarashi F. Pain related to breastfeeding in seated and side lying positions: assessment and recommendations for improved guidance. J Ergon Technol. 2017;17(1):43-59.
[17] Chaurasia BD, Garg K. BD Chaurasia's Human Anatomy 9th ed. Vol-3 Regional and Applied Dissection & Clinical: Head- Neck Brain (PB 2023). Paperback – Coloring Book. India: CBS Publishers & Distributors Pvt Ltd; 27 September 2022.