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Original Research Article

Impact of breastfeeding positions on neck pain in postpartum mothers

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ABSTRACT

Background: Breastfeeding mothers often encounters various complaints such as pain and discomfort. It was also seen that a mother has to attain feeding position for a long period of time. Thus, our aim was to find if there is any correlation between musculoskeletal neck pain and breastfeeding position in post-partum mothers.
Methods: It was a cross sectional, observational study in which sampling was done by purposive method. 207 postpartum mothers fulfilling inclusion criteria were included and a self-made questionnaire and neck disability index (NDI) were used as outcome measure. Statistical analysis was done using statistical package for the social sciences (SPSS) version 24.
Results: Almost all those mothers reported neck pain while breastfeeding in different positions especially in side-lying and cross-cradle in terms of NDI with median value of 11.1 and there were 65.7% mothers who had awareness about ideal breastfeeding position. The interpretation of neck pain showed changes with respect to different positions, when analyzed by Kruskal Wallis test.
Conclusions: Though it showed statistical insignificance in correlation due to various reasons such as negligence, habitualisation, lack of awareness, unmet support from family.

Keywords: Breastfeeding position, Neck pain, Postpartum mothers

INTRODUCTION

India accounts for nearly one fifth of the world's annual child births, nearly 25 million children each year.[1] According to The National Family Health Survey conducted in 2016, the crude birth rate in India is 21.8%. Amongst these, 78.9% account for institutional deliveries. 17.2% account for total cesarean deliveries. Only 55% of children are exclusively breastfeed up to 6 months of life.[2]

Breastfeeding is transferring milk from the mother to the baby and is very essential for the growth and development of an infant.[3] World Health Organization (WHO) recommends exclusive breastfeeding the baby for the first six months.[4] Breast milk is recommended to be the best source of nutrition for an infant for the first six months of life.[5] Duration of breastfeeding ranges from 15-20 minutes and is done after every 2-3 hours. Frequency of breastfeeding is approximately 8-12 times in a day. So collectively 5-6 hours in an entire day are spent while feeding the baby.[6]

Breastfeeding mothers encounter various musculoskeletal problems.[6] These problems arise due to the inappropriate positions acquired during breastfeeding the baby. Since these positions are maintained for longer durations, they can lead to long term postural deformities by altering the normal curvature of spine.[7] Many physiological musculoskeletal changes take place during pregnancy because of the weight gained.[8] Resulting postural changes and effects of hormonal changes contribute to joint pain and increase the risk of injury.[9] Hormonal changes may last from 12 weeks postpartum to 6 months postpartum.[10,11] All these changes will have a long-lasting effect while

performing activities of daily living, hampering baby care as well as self-care. Thus, we aimed to study the impact of various sustained breastfeeding position on neck pain in postpartum mothers till 6 months of duration.

METHODS

A cross-sectional study was done by taking approval by the institutional ethical committee. 500 subjects were screened from maternity clinic in an urban area, between the study period of January 2021 to May 2021. Women who were exclusive breastfeeding mothers, aged 18-35 years with immediate to 6 months old infant were included in this study. Exclusion criteria being mothers with preterm babies, with low-birth weight babies, with intrauterine growth restriction (IUGR), with chronic diseases like cancer, human immuno-deficiency virus (HIV), tuberculosis and with postpartum complications like postpartum hemorrhage and eclampsia. A sample size was calculated as 207 using G Power software 3.1 at power of study 0.8 and confidence interval 0.05 and frequency 24%.[6] After a thorough screening the participants who fulfilled the inclusion criteria, were included in the study by using convenience sampling technique. Written consent was obtained from the participants. They were explained about the study and procedure. Confidentiality was ensured. Self-made questionnaire was used to determine the knowledge regarding breastfeeding and assessing different breastfeeding positions acquired by the mothers. The neck pain was assessed by neck disability index (NDI).[12] Both the outcome measures were interviewed to assess which all various breastfeeding positions can be obtained and how does it have a relation with pain. The statistical analysis was done using statistical package for the social sciences (SPSS) software version 24. Normality of the data was confirmed using the Kolmogorov-Smirnov test. As data was not normally distributed, also one set of data was multichotomous and other was ratio type, non-parametric test- Kruskal Wallis test was applied.

Outcome measures

Self-made questionnaire had questions regarding the demographic details, knowledge about exclusive breastfeeding and breastfeeding positions acquired by them.

The questions are as follows: have you heard about exclusive breastfeeding? how are you feeding your baby? are you aware of ideal breastfeeding position? if yes, what is the source of information? in what position you breastfeed your baby? do you experience neck pain during feeding? when does the pain start? have you experienced neck pain during pregnancy? have you consulted someone for the same?

NDI has questions regarding how neck pain affects ability to manage everyday life. The scale consists of 10 sections. For each section the total possible score is 5. First statement marked in the section score=0. Last statement marked=5.

The 10 sections are as follows: section 1: pain intensity, section 2: personal care (washing and dressing), section 3: lifting, section 4: reading, section 5: headaches, section 6: concentration, section 7: work, section 8: driving, section 9: sleeping, and section 10: recreation.

The total possible score is 50. The interpretation is as follows: 0–4=no disability, 5–14=mild disability, 15–24=moderate disability, 25–34=severe disability, and more than 35=complete disability.

If all ten sections are completed, the score is calculated as follows:

$$Score = Total\ score \div total\ possible\ score \times 100$$

The % score describes % physical disability.

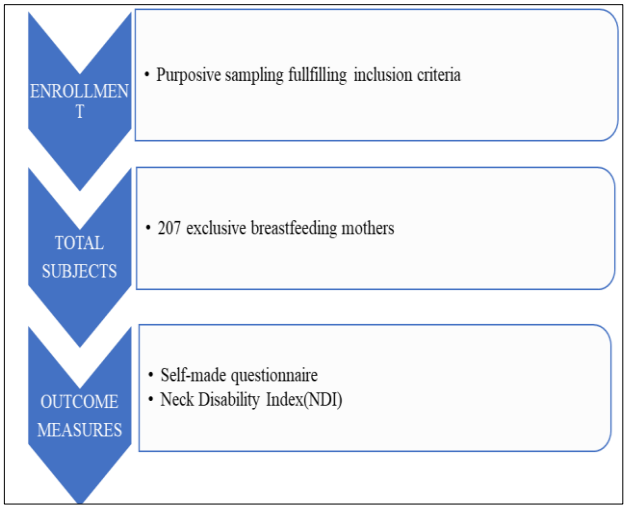

Figure 1: Methodology using Strobe guidelines.

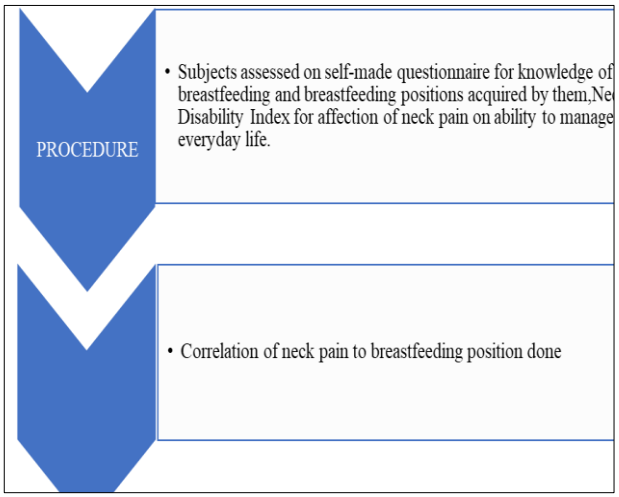

Figure 2: Procedure.

RESULTS

Demographic characteristics were obtained from the participants under the broad headings of age group, parity status, mode of delivery and occupation (Table 1). It was seen that out of a total of 207 participants, the mean age of the participants was 25.37 (±4.08) years. Also, 40.5% of postpartum mothers were within the age group of 24-29 years. The majority of the participants, 50.24% were primiparous mothers. 55.55% had full term normal delivery and 89.37% were housewives.

From the self-made questionnaire it was observed that 98% of participants had an idea about exclusive breastfeeding where a sustained posture is acquired. However, there were 65.7% mothers who had awareness about ideal breastfeeding position. Those who had awareness, they got it from various sources. They also showed variations in breastfeeding position that they had chosen by their own. All the women reported neck pain while breastfeeding. Despite observable changes related to muscle length like tightness, spasm as well as awkward habitual posture, only 10.6% women experienced neck pain during their pregnancy. Only 1.9% of mothers had awareness to consult about the same (Table 2).

Also, we found variations in duration of hold during breastfeeding. There were variations in acquiring support with all the breastfeeding positions. It was correlated with neck pain in terms of NDI with median value of 11.1. The interpretation of neck pain showed changes with respect to different positions, when analyzed by Kruskal Wallis test (Table 3).

Table 1: Demographic data.

Demographic details	Mean	Percentage
Age		25.37
Parity		
P1	104	50.24
P2	77	37.19
P3	19	9.17
P4	7	3.38
Occupation		
Housewife	185	89.37
Teacher	2	0.96
Police officer	2	0.96
Nurse	2	0.96
Labourer	2	0.96
Farmer	2	0.96
Manager	1	0.48
Trainer	1	0.48
IT Professional	1	0.48
Banker	1	0.48
Typist	1	0.48
Quality analyst	1	0.48
Printer	1	0.48
Receptionist	1	0.48
Desk worker	1	0.48
Accountant	1	0.48
Auto driver	1	0.48
Cleaner	1	0.48
Mode of delivery		
FTND	115	55.55
Caesarean	92	44.44

Table 2: Self-made questionnaire.

Questions	A (%)	B (%)	C (%)	D (%)	E (%)
Have you heard about exclusive breastfeeding?	Yes (98)	No (1.93)			
How are you feeding your baby?	Breastfeeding exclusively (100)	Both breastfeeding and breast milk substitutes (0)	Only breast milk substitutes (0)		
Are you aware of ideal breastfeeding position?	Yes (65.7)	No (34.29)			
If yes, what is the source of information?	Doctor (28)	Family (10.62)	Social media (0.48)	Others (26.57)	
In what position you breastfeed your baby?	Side lying (1.93)	Sitting (52.17)	Cradle hold (32.36)	Cross cradle hold (7.24)	Football hold (6.28)
Do you experience neck pain during feeding?	Yes (100)	No (0)			
When does the pain start?	Before breastfeeding (0)	During breastfeeding (99.5)	After breast-feeding (0.48)		
Have you experienced neck pain during pregnancy?	Yes (10.62)	No (89.37)			
Have you consulted someone for the same?	Yes (0)	No (98)	Self-manage-ment (1.93)		
Position	Side-lying	Sitting	Cradle hold	Cross cradle hold	Football hold

Continued.

Questions	A (%)	B (%)	C (%)	D (%)	E (%)
Type of hold					
Supported	50	27.77	74.62	66.66	61.53
Unsupported	50	72.22	25.37	33.33	38.46
Duration (mins)	10	10.92	12.76	11.25	13.21

Table 3: Neck pain with respect to different positions.

Position	N	Mean rank
Side lying	4	141.38
Sitting	108	101.74
Cradle	67	100.79
Cross cradle	15	116.50
Football	13	113.38
Total	207	

DISCUSSION

The study was aimed to assess the correlation between the neck pain and the breastfeeding positions in postpartum mothers. The objective was to find the most common breastfeeding position acquired and also, to establish the relation between these positions and neck pain. The outcome measure used were a self-made questionnaire to find out the breastfeeding position and NDI to assess neck pain.

In our study, we included women between 18-35 years of age who were exclusively breastfeeding mothers, from immediate to 6 months postpartum with complains of neck pain.[13] Most of the participants included in this study were primiparous and majority of them were housewives.[14]

As mentioned in the results above, NDI gave a median value of 11.10. We found that there were various breastfeeding positions acquired by mothers. The statistical analysis was done using SPSS software version 24, after applying Kruskal Wallis test, it was found that neck pain is present with all the breastfeeding positions but it is not statistically significant (Table 3).

The observations from this study could be discussed on the basis of certain other factors. Motherhood can be best described as acceptance, discovery, learning and acceptance of a woman's new role.[15] It is associated with many physical, physiological, emotional and psychological changes and also to prepare the mother for labor which takes a minimum period of 6 months to return to its pre-pregnancy state.[11,16] Many musculoskeletal changes take place because of the weight gained during pregnancy. This alters the normal posture as there is increase in lumbar and cervical lordosis, increase in thoracic kyphosis, forward head and the center of gravity shifts forwards and upwards. The rhomboids and upper back muscles are overstretched and the pectorals shorten leading to rounded shoulders. There is decrease in the tone as well as the strength of the muscle. As a compensatory mechanism, the paraspinal gets muscles shortened.[9] These changes may result in dull aching neck pain. Hormonal changes also lead to musculoskeletal changes. Pregnancy hormones such as relaxin, estrogen and progesterone are responsible for increase in joint laxity as the collagen in the joints is replaced by a modified form.[11] Also, these hormones are responsible for pain during pregnancy as well as post-partum period. All these factors like joint laxity, muscle weakness and altered posture contribute to pain in different areas and increase the risk of injury.[9]

These hormonal changes that have taken place during pregnancy, sustain even during the postpartum period. The effects of relaxin can last for a period of 12 weeks postpartum.[10] Hence joint laxity takes approximately a period of 6 months to return back to its pre-pregnancy state.[11] Also, the postural changes that have taken place during pregnancy continue to stay during postpartum period as well.[9]

The changes which happened during pregnancy could be long lasting and may have a significant impact on one's daily routine which could be seen in terms of pain. Pain is an unpleasant feeling which is influenced by the intensity of the painful stimulus. It can also be influenced by various cognitive and emotional factors.[17] Pain is perceived through a neural gate which is present in the substantia gelatinosa in the dorsal horn of the spinal cord. The impulses are carried from the periphery to the central nervous system (CNS). The gate can open and close, thus increasing or decreasing the flow of nerve impulses and hence modulating an individual's perception of pain. For pain perception, afferent nociceptive fibres like A-delta, A-beta and C fibres are important.[18]

Psychologically, the perception of pain is a process which involves attention, interpretation and coping with pain, which are influenced by cognitive and emotional factors. Attention to the noxious stimulus is the prerequisite for the process. Next step is interpretation of pain, which is influenced by emotions. Coping with pain depends on assumptions, beliefs and the environment. Interpretation and coping strategy also depend on the past experiences of pain.[19] The acceptance of pain is a process. The realization that pain is present and is going to stay for a long period is the first step to acceptance. Cognitively accepting pain is easier than emotionally accepting it. Focusing on how to accomplish tasks, despite pain is an important step. Lack of health care and family support can be a barrier to acceptance. Acceptance of pain does not mean that pain does not exist. It simply means that it can no longer hamper functional, recreational activities.[20] Repeated painful

stimuli over a certain period of time leads to decrease in the amount of pain perceived from the same painful stimuli. Habituation takes place as there is a decrease in responses from the areas like thalamus, anterior insula, secondary somatosensory cortex and putamen, which are involved in the processing of nociceptive stimuli. After a certain period of time, there is a change in the attitude of the person towards pain. The levels of pain are the same but they are habituated to pain.[21]

Thus, the conflict between the observational changes and patient responses could be result of one more factor, which is less likelihood of taking care of the mother post-delivery.[15] As mothers needed to take care of the infant, breastfeed at frequent intervals, staying up at night to feed the baby, nappy changing and so on, they could not pay appropriate attention towards their own health and self-care. All the postural and hormonal changes that cause pain were often being neglected by them. Not maintaining an appropriate posture, proper support while feeding the baby caused them neck pain as well as back pain. In our study, we found that breastfeeding mothers do experience neck pain while feeding the baby, but as they are so habitual to that pain, they failed to report it appropriately. Their belief is that this pain is normal.

Also, support from family plays a very important role in such cases. In our study, many women were primiparous mothers and they were all by themselves with no immediate family member to help them with taking care of the baby. Those who were multiparous mothers, had to take care of both the children all by themselves. Many of them belonged to poor economic strata because of which there is lack of availability of house-help and also, they could not afford taking help from outside to accomplish their daily chores. Most of the participants belonged to rural areas, where there is shortage of availability and accessibility of health care facilities. Due to all these factors, there was discrepancy in observed changes and subjective reporting of discomfort. Thus, there is need to consider certain other factors which would be influencing the self-reported response of the participants. Those need to be investigated at depth such as focusing on postures at different tasks throughout the day.

Although this study had some limitations such as: less compliance from participants, remote acceptance of their condition, lack of awareness about possible health facilities to approach and hesitance to come up with the complaints.

Thus, there is need to create more awareness and provide education regarding maintaining appropriate posture and acquiring healthy habits, prioritizing self-care so that the mother can take care of her baby more efficiently.

CONCLUSION

Thus, the study concluded that neck pain is present with all the breastfeeding positions, but side lying and cross cradle are more painful as compared to other positions, but could not get associated statistically. It may be seen that these positions exert some extra efforts while breastfeeding. Thus, proper education can be provided about breastfeeding posture in third trimester as well as immediately post-delivery. Alternate methods can also be shown, focusing on safety considerations so as to prevent awkward postures.

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REFERENCES

1. UNICEF. Newborn and child health. Available at: https://www.unicef.org/india/what-we-do/newborn-and-child-health. Accessed on 02 July 2022.
2. Health and Family Welfare Statistics in India, Ministry of Health and Family Welfare, Government of India. (2019-20). Available at: https://main.mohfw.gov.in/sites/default/files/HealthandFamilyWelfarestatisticsinIndia201920.pdf. Accessed on 02 July 2022.
3. Mbada CE, Olowookere AE, Faronbi JO, Oyinlola-Aromolaran FC, Faremi FA, Ogundele AO, et al. Knowledge, attitude and techniques of breastfeeding among Nigerian mothers from a semi-urban community. BMC Res Notes. 2013;6(1):1-8.
4. Mbada CE, Oyinlola FC, Olatunbosun TO, Awotidebe TO, Arije OO, Johnson OE, Fashote EO. Is baby-friendly breastfeeding mother-friendly? J Women's Health Physical Therap. 2013;37(1):19-28.
5. Gupta SA, Sharma M, Ekka A, Verma N. Factors affecting breastfeeding techniques among postnatal mothers: an experience in a tertiary care centre. Int J Comm Med Public Health. 2019;6(7):2991.
6. Jothi Prasanna K, Tamizhmani T. Prevalence of Musculoskeletal Discomfort Among Breast feeding Mothers. Int J Curr Adv Res. 2019;8(3):17706-9.
7. Rani S, Habiba UE, Qazi WA, Tassadaq N. Association of breast-feeding positioning with musculoskeletal pain in post-partum mothers of Rawalpindi and Islamabad. J Pak Med Assoc. 2019;69(4):564-6.
8. Thabah M, Ravindran V. Musculoskeletal problems in pregnancy. Rheumatol Int. 2015;35(4):581-7.
9. Fitzgerald CM, Segal N. Musculoskeletal health in pregnancy and postpartum. Switzerland: Springer. 2015.
10. Sapsford R, Bullock-Saxton J, Markwell S. Women's health: a textbook for physiotherapists. WB Saunders. 1998.

11. Mantle J, Haslam J, Barton S. Physiotherapy in obstetrics and gynaecology. Elsevier Health Sciences. 2019.
12. Vernon H, Mior S. The Neck Disability Index: a study of reliability and validity. J Manipulative Physiol Ther. 1991;14(7):409-15.
13. Zielinska MA, Sobczak A, Hamulka J. Breastfeeding knowledge and exclusive breastfeeding of infants in first six months of life. Roczniki Państwowego Zakładu Higieny. 2017;68(1).
14. Kalra S, Bhatnagar B. Prevalence of musculoskeletal disorder among housewives. Int Res J Engineer Technol. 2017;2395-6.
15. Cheng CY, Fowles ER, Walker LO. Postpartum maternal health care in the United States: A critical review. J Perinatal Educ. 2006;15(3):34.
16. Javadifar N, Majlesi F, Nikbakht A, Nedjat S, Montazeri A. Journey to motherhood in the first year after child birth. J Fam Reprod Health. 2016;10(3):146.
17. Zanini S, Voltolini A, Gragnano G, Fumagalli E, Pagnini F. Changes in Pain Perception following Psychotherapy: The Mediating Role of Psychological Components. Pain Res Manag. 2018;8713084.
18. Doody O, Bailey ME. Understanding pain physiology and its application to person with intellectual disability. J Intellectual Disab. 2019;23(1):5-18.
19. Linton SJ, Shaw WS. Impact of psychological factors in the experience of pain. Physical Therap. 2011;91(5):700-11.
20. LaChapelle DL, Lavoie S, Boudreau A. The meaning and process of pain acceptance. Perceptions of women living with arthritis and fibromyalgia. Pain Res Management. 2008;13(3):201-10.
21. Bingel U, Schoell E, Herken W, Büchel C, May A. Habituation to painful stimulation involves the antinociceptive system. Pain. 2007;131(1-2):21-30.

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