

## A study to assess the level of fatigue and musculoskeletal pain among lactating mothers using cradle versus side-lying position at Sadar Hospital, Sasaram, Rohtas, Bihar

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### Abstract

**Background:** Breastfeeding is an important component of maternal and infant health. However, prolonged or improper breastfeeding positions may contribute to maternal fatigue and musculoskeletal discomfort. The side-lying position may provide greater comfort and reduce physical strain compared with the conventional cradle position.

**Objectives:** The study aimed to assess and compare the level of fatigue and musculoskeletal pain among lactating mothers using the side-lying and cradle breastfeeding positions and to determine the association between fatigue, musculoskeletal pain, and selected demographic and obstetrical variables.

**Methods:** A comparative study was conducted among 60 lactating mothers, comprising 30 mothers using the cradle position and 30 mothers using the side-lying position. Data were collected using a structured demographic and obstetrical questionnaire, a fatigue assessment scale, and the Nordic Musculoskeletal Questionnaire for assessment of musculoskeletal pain. Descriptive statistics and an unpaired *t*-test were used to compare the two groups, while the chi-square test was used to determine associations with selected variables.

**Results:** The mean fatigue score was  $24.60 \pm 7.10$  in the side-lying group compared with  $30.00 \pm 6.20$  in the cradle group. The mean difference was 5.40, with an unpaired *t*-value of 3.12 (*df* = 58, *p* < 0.05). The mean musculoskeletal pain score was  $22.90 \pm 6.50$  in the side-lying group and  $27.70 \pm 6.60$  in the cradle group, with a mean difference of 4.80 and an unpaired *t*-value of 2.84 (*df* = 58, *p* < 0.05). Thus, mothers using the side-lying position demonstrated significantly lower fatigue and musculoskeletal pain than those using the cradle position. Associations between fatigue/musculoskeletal pain and the selected demographic and obstetrical variables were generally not statistically significant.

**Conclusion:** The findings indicate that the side-lying breastfeeding position may be more comfortable and may reduce maternal fatigue and musculoskeletal pain compared with the cradle position. Appropriate breastfeeding-position education may therefore help improve maternal comfort during breastfeeding.

**Keywords:** Lactating mothers, breastfeeding position, side-lying position, cradle position, fatigue, musculoskeletal pain, Nordic Musculoskeletal Questionnaire

### Introduction

Breastfeeding position plays an important role in maternal comfort, breastfeeding effectiveness, and the overall well-being of lactating mothers. Improper breastfeeding posture may contribute to fatigue and musculoskeletal pain, particularly in the neck, shoulders, and back. The cradle position is commonly used but may require prolonged upper-body support, whereas the side-lying position provides greater body support and relaxation and may reduce physical strain. The present study was undertaken to compare fatigue and musculoskeletal pain among lactating mothers using cradle and side-lying breastfeeding positions.

### Problem Statement

A study to assess the level of fatigue and musculoskeletal pain among lactating mothers using cradle versus side-lying position at sadar hospital, sasaram, rohtas, bihar.

### Objective of the Study

1. To assess the level of Fatigue and Musculoskeletal pain among the lactating mothers with using cradle position and side lying position.
2. To compare the level of fatigue and musculoskeletal pain between the lactating mother using cradle position and Side lying position.

3. To associate the level of fatigue and musculoskeletal pain with the demographic and obstetric variables among the lactating mothers using cradle position and side lying position.

### Operational Definition

**Assess:** It refers to the determination of the impact of worth by systematic investigation and structured interpretation of different breastfeeding position which has influenced the musculoskeletal pain and the fatigue during breastfeeding.

**Fatigue:** It refers to is a state of subjective feelings of physical, mental or emotional exhaustion tiredness experienced by lactating mothers during frequent feeding, which will be measured by Postnatal Accumulated Fatigue Scale.

**Musculoskeletal Pain:** It refers to discomfort or strain in the muscles (neck, upper back and lower back) and skeleton, often caused by Breastfeeding positions, which is measured by Nordic Musculoskeletal questionnaire Scale

**Lactating Mother:** A lactating mother refers to a woman who has given birth and is actively producing and feeding breast milk to her infant, typically within the postpartum

period. In this study, it specifically includes mothers who have delivered a live baby within the last six months and are currently breastfeeding their infant at the selected settings in Rohtas, Bihar.

**Cradle hold Position:** Cradle hold position refers to the breastfeeding position in which the mother holds the baby across her resting in the crook of her arms while sitting upright.

**Side-Lying Position:** It refers to breastfeeding position where the mothers lie on her side with the baby positioned beside her, facing her body.

### Research Hypothesis

**RH1:** There is a significant difference in the level of fatigue and musculoskeletal pain between the lactating mothers using cradle verses side lying position.

**RH2:** There is a significant association of the level of fatigue and musculoskeletal pain with the demographic variables and obstetrics variables among the lactating mothers using cradle and side lying position.

### Assumptions

The study assumes that:

1. Lactating mothers may experience varying levels of fatigue and musculoskeletal pain during breastfeeding.
2. Breastfeeding position influences maternal comfort and physical strain.
3. Demographic and obstetrical factors may have an impact on fatigue and musculoskeletal pain.
4. Mothers will provide honest and accurate responses during data collection.

### Delimitations

The study is delimited to:

1. The study is limited to lactating mothers admitted to Sadar Hospital Rohtas.
2. The study sample size is limited to 60 lactating mothers.
3. The study focuses only on cradle and side-lying breastfeeding positions.
4. The study is limited to selected demographic and obstetrical variables.

### Conceptual Frame Work

The General System Theory provides a logical and structured framework to understand how breastfeeding position (independent variable) interacts with demographic and obstetrical factors (inputs) to influence fatigue and musculoskeletal pain (outputs). The findings of the present study support the theory, showing that changes in input (breastfeeding position) significantly affect output (fatigue and pain levels), thereby guiding nursing practice. The present study is based on the General System Theory proposed by Ludwig von Bertalanffy (1968). According to this theory, a system consists of input, throughput, output, and feedback. In this study, demographic and obstetrical variables along with breastfeeding position act as inputs. The process (throughput) includes the adoption of cradle or side-lying position and the resulting body mechanics and energy expenditure. The output is measured in terms of fatigue and musculoskeletal pain levels. Feedback from the

results helps in recommending the most comfortable breastfeeding position and improving nursing practice.

### Research Approach

A quantitative research approach was used in the present study. This approach was selected because it enables the collection of objectives, measurable, and numerical data related to maternal fatigue and musculoskeletal pain among lactating mothers.

### Research Design

A comparative descriptive research design was used to compare the effectiveness of cradle position and side-lying position in reducing fatigue and musculoskeletal pain among lactating mothers. This design enabled the investigator to assess and compare the outcome variables between two groups.

|                           |                                           |                                  |
|---------------------------|-------------------------------------------|----------------------------------|
| Cradle position group     | Assess level of fatigue and pain (O1)     | Fatigue and musculoskeletal pain |
| Side lying position group | Assess the level of fatigue and pain (O1) | Fatigue and musculoskeletal pain |

### Variables Setting of the Study

#### Independent variable

The Breastfeeding Position in Cradle position and Side lying positions are the independent variables in the current study.

#### Dependent variable

The Fatigue and Musculoskeletal Pain of the all Lactating mothers serve as the dependent's variables.

### Demographic Variables

Age of the mother, education of the mother, occupation of the mother, occupation of the husband, family income, type of work, socio- economic status, number of pregnancies, food pattern, past and present medical history, ward, family condition, duration of marriage, general condition of baby, number of children.

### Obstetrics Variables

Gravida, Parity, Gestational Age at Delivery, Mode of Delivery, Knowledge about Breastfeeding Position, Apgar Score is used to assess, Pain onset after Breastfeeding, Nature of Pain during Breastfeeding, Breastfeeding Sessions per day.

### Population

The population refers to the entire group of individuals who possess the characteristics relevant to the study. In the present study, the population was categorized into target population and accessible population.

#### Target Population

The target population of the present study comprised all lactating mothers in Bihar.

#### Accessible Population

The accessible population consisted of all lactating mothers admitted to the Postnatal Ward, Special Newborn Care Unit (SNCU), and Immunization Ward of Sadar Hospital, Rohtas, Bihar, during the period of data collection

These mothers were accessible to the researcher and constituted the population from which the study sample was selected.

### Sample

The Accessible Population in the current study are all the lactating mothers admitted to the Postnatal Ward, Special Newborn Care Unit (SNCU), and Immunization Ward of Sadar Hospital, Rohtas, Bihar, who fulfils the selection criteria.

### Sampling Technique

The sample consisted of 60 lactating mothers who fulfilled the inclusion criteria. The participants were divided into two groups: 30 mothers in the cradle position group and 30 mothers in the side-lying position group. Purposive sampling technique was used to select the samples based on the breastfeeding position practiced by the mothers.

### Sample Size

The sample size consists of 60 Lactating mothers 30 in side lying group and 30 in cradle group in postnatal ward, SNCU, Immunization ward at Sadar hospital Sasaram and who fulfil the inclusion criteria.

### Sampling Ceiteria

In sampling criteria, the researcher specifies the characteristics of the population under the study by detailing the inclusion and exclusion criteria. Inclusion criteria are characteristics that each sample elements must possess to be included in the sample. Exclusion criteria are characteristics that confound or contaminate the result of the study; therefore, such participants are excluded from the study.

### Inclusion Criteria

- Lactating mothers willing to participate in the study
- Mothers admitted in postnatal ward and actively breastfeeding
- Mothers with normal vaginal delivery with episiotomy
- Postnatal mothers breastfeeding for more than 4 hours/day and at or beyond 6 weeks postpartum

### Exclusion Criteria

- Uncooperative mothers
- Mothers with postpartum complications such as postpartum haemorrhage, psychosis, breast engorgement, breast abscess, cracked nipple, inverted nipple, flat nipple, or nipple discharge
- Mothers with orthopaedic conditions such as low back pain, pelvic girdle pain, kyphoscoliosis, or scoliosis
- Mothers with postpartum depression, anxiety, HIV infection, or other emotional/physical disorders
- Severe musculoskeletal pain or severe postpartum complications
- Infants with congenital anomalies such as anencephaly
- Mothers with neurological, cardiovascular, respiratory disorders, multiple pregnancies, or preterm infants.

### Instrument of data Collection

**Section-A:** Description of the demographic and obstetric variables of the lactating mother.

**Section-B:** Modified Nordic Musculoskeletal Questionnaire for lactating mothers to assess the pain level while using

cradle position and side lying position at nine anatomical regions. (Neck, shoulder, upper back, lower back, Elbows, Wrist/hands, Hips/thighs, Knees, Ankles/feet's).

### Tool of Scoring

| S. No. | Level  | Category      |
|--------|--------|---------------|
| 1.     | 0      | No pain       |
| 2.     | 1 – 3  | Mild pain     |
| 3.     | 4 – 6  | Moderate pain |
| 4.     | 7 – 10 | Severe pain   |

**Section-C:** Modified the Postnatal Accumulated Fatigue Scale to assess the severity of fatigue in lactating mothers across three dimensions (Physical fatigue, Emotional Fatigue, Cognitive Fatigue) while using cradle position and side lying position.

### Tool of Scoring: Total Score = 39

| S. No. | Score   | Category         |
|--------|---------|------------------|
| 1.     | 0 – 9   | No fatigue       |
| 2.     | 10 – 19 | Mild fatigue     |
| 3.     | 20 – 29 | Moderate fatigue |
| 4.     | 30 – 39 | Severe fatigue   |

### Content Validity

Content validity is the degree to which the items in the instrument adequately represent the content for the concept being measured. Content validity of the instruments was obtained term the panel of experts comprising of Senior Obstetrician, Obstetrics and Gynaecology Nursing experts, Hindi and English translator and Statisticians.

### Reability of the Tool

The reliability of the research tools was established to ensure their consistency and stability in measuring the study variables. Reliability was assessed using the test–retest method, in which the tools were administered to a group of lactating mothers on two different occasions under similar conditions.

### Pilot Study

The pilot study for the present research was conducted at Narayan Medical College and Hospital, Jamuhar, Rohtas, Bihar, after obtaining formal administrative permission from the Medical Superintendent of the institution. The dates you provided appear inconsistent with "one month." If the study lasted one month, the likely period is 22.12.2025 to 30.12.2025. The pilot study was carried out to determine the feasibility of the study, assess the clarity and applicability of the research tools, estimate the time required for data collection, evaluate the data collection procedure, and identify any practical difficulties that might arise during the main study.

### Data Collection Procedure

After obtaining ethical clearance from the Institutional Ethics Committee of Narayan Nursing College (Letter No. Dean-PO/25/1548) and formal administrative permission from the Civil Surgeon, Sadar Hospital, Rohtas, the researcher initiated the data collection process. Data were collected over a period of one month, from 03.01.2026 to 30.01.2026, in the Postnatal Ward, Special Newborn Care Unit (SNCU), and Immunization Ward of Sadar Hospital, Rohtas, Bihar.

**Phase1:** Demographic and obstetrical data were collected using a structured questionnaire. Subsequently, the mothers were observed while breastfeeding in their respective positions.

**Phase2:** Breastfeeding, maternal fatigue was assessed using the Fatigue Assessment Scale, and musculoskeletal pain was assessed using the Musculoskeletal Pain Assessment Scale. Each participant required approximately 20–30 minutes to complete the interview and assessments.

#### Plan for Data Analysis

The data was collected, coded and analysed using descriptive i.e., mean & inferential statistics. The data was

analysed using the SPSS version 29.0 software and the findings of the data was presented in descriptive, tabular and in the forms of figure.

#### Ethical Consideration

The present study was conducted after obtaining ethical clearance from the Institutional Ethics Committee of Narayan Nursing College, Letter No. Dean-PO/25/1548. Formal administrative permission was also obtained from the concerned authorities before commencing data collection.

#### Result

##### Section-A

**Table 1:** Frequency and percentage distribution of the demographic variables of the lactating mothers using cradle vs side lying position. N = 60 (30+30)

| Description of the variables      | Study group (n=30) |                | Control group (n=30) |                |
|-----------------------------------|--------------------|----------------|----------------------|----------------|
|                                   | Frequency (f)      | Percentage (%) | Frequency (f)        | Percentage (%) |
| <b>Age of the mother</b>          |                    |                |                      |                |
| 18-24 years                       | 20                 | 66.6           | 10                   | 33.3           |
| 25-29 years                       | 7                  | 23.3           | 10                   | 33.3           |
| 30-34 years                       | 3                  | 10             | 8                    | 26.6           |
| 40 years & above                  | 0                  | 0              | 2                    | 6.67           |
| <b>Educational Status</b>         |                    |                |                      |                |
| Profession                        | 1                  | 3.33           | 2                    | 6.67           |
| Graduate                          | 3                  | 10             | 6                    | 20             |
| Intermediate, diploma             | 5                  | 16.6           | 2                    | 6.67           |
| High School                       | 6                  | 20             | 4                    | 13.33          |
| Middle School                     | 9                  | 30             | 5                    | 16.7           |
| Primary School                    | 4                  | 13.3           | 3                    | 10             |
| Illiterate                        | 2                  | 6.66           | 7                    | 23.3           |
| <b>Breastfeeding Duration/day</b> |                    |                |                      |                |
| 4-6 hours                         | 15                 | 50             | 2                    | 6.67           |
| 7-8 hours                         | 10                 | 33.33          | 15                   | 50             |
| More than 8 hours                 | 5                  | 16.6           | 13                   | 43.33          |
| <b>Age of Infant</b>              |                    |                |                      |                |
| <1 month                          | 18                 | 60             | 20                   | 66.67          |
| 1-3 months                        | 10                 | 33.33          | 10                   | 33.3           |
| 4-6 months                        | 2                  | 6.66           | 0                    | 0              |
| <b>Occupation</b>                 |                    |                |                      |                |
| Profession                        | 2                  | 6.66           | 4                    | 13.3           |
| Semi-Profession                   | 2                  | 6.66           | 6                    | 20             |
| Clerical/Shop owner/Farmer        | 6                  | 20             | 6                    | 20             |
| Skilled Worker                    | 4                  | 13.3           | 4                    | 13.3           |
| Semi-Skilled Worker               | 6                  | 20             | 2                    | 6.67           |
| Unskilled worker                  | 6                  | 20             | 6                    | 20             |
| Unemployed                        | 4                  | 13.3           | 2                    | 6.67           |
| <b>Residence</b>                  |                    |                |                      |                |
| Urban                             | 10                 | 33.3           | 10                   | 33.3           |
| Semi-urban                        | 10                 | 33.3           | 10                   | 33.3           |
| Rural                             | 10                 | 33.3           | 10                   | 33.3           |
| <b>Types of Family</b>            |                    |                |                      |                |
| Nuclear family                    | 15                 | 50             | 15                   | 50             |
| Joint family                      | 15                 | 50             | 15                   | 50             |
| <b>Religion</b>                   |                    |                |                      |                |
| Hindu                             | 25                 | 83.33          | 25                   | 83.33          |
| Muslim                            | 5                  | 16.6           | 5                    | 16.7           |
| Sikh                              | 0                  | 0              | 0                    | 0              |
| Christian                         | 0                  | 0              | 0                    | 0              |
| <b>Family Income</b>              |                    |                |                      |                |
| ₹39,750–52,999                    | 5                  | 16.6           | 2                    | 6.67           |
| ₹53,000–1,05,999                  | 3                  | 10             | 3                    | 10             |
| 39,750-52,999                     | 5                  | 16.6           | 5                    | 16.7           |
| 31,800-39,749                     | 10                 | 33.3           | 12                   | 40             |
| 21,200-31,799                     | 7                  | 23.33          | 8                    | 26.6           |

|                             |    |      |    |      |
|-----------------------------|----|------|----|------|
| 10,600-2199                 | 0  | 0    | 0  | 0    |
| Less than 10,599            | 0  | 0    | 0  | 0    |
| <b>Food Pattern</b>         |    |      |    |      |
| Vegetarian                  | 15 | 50   | 13 | 43.3 |
| Non-Vegetarian              | 15 | 50   | 10 | 33.3 |
| Vegan                       | 0  | 0    | 5  | 16.6 |
| Omnivore                    | 0  | 0    | 2  | 6.67 |
| <b>Duration of marriage</b> |    |      |    |      |
| 1 years                     | 10 | 33.3 | 5  | 16.6 |
| 2 years                     | 5  | 16.6 | 10 | 33.3 |
| More than 3 years           | 15 | 50   | 15 | 50   |

\*p<0.05 Significant, \*\*p<0.01 Highly Significance, \*\*\*p<0.001 Very Highly Significance

## Section-B

**Table 2:** Frequency and percentage distribution of the demographic variables of the lactating mothers using cradle vs side lying position. N = 60(30+30)

| Description of the variables               | Cradle Group (n=30) |                | Side lying group (n=30) |                |
|--------------------------------------------|---------------------|----------------|-------------------------|----------------|
|                                            | Frequency (f)       | Percentage (%) | Frequency (f)           | Percentage (%) |
| <b>Gravida</b>                             |                     |                |                         |                |
| 1                                          | 20                  | 66.6%          | 20                      | 66.6%          |
| 2                                          | 5                   | 16.6%          | 3                       | 10%            |
| More than 3                                | 5                   | 16.6%          | 7                       | 23.3%          |
| <b>Parity</b>                              |                     |                |                         |                |
| 1                                          | 20                  | 66.6%          | 5                       | 16.6%          |
| 2                                          | 10                  | 33.3%          | 10                      | 33.3%          |
| More than 3                                | 0                   | 0              | 20                      | 66.6%          |
| <b>Gestational Age at Delivery</b>         |                     |                |                         |                |
| Less than 37 weeks                         | 10                  | 33.3%          | 15                      | 50%            |
| 38–42 weeks                                | 9                   | 30%            | 11                      | 66.6%          |
| 40 weeks                                   | 11                  | 36.6%          | 4                       | 13.3%          |
| <b>Mode of Delivery</b>                    |                     |                |                         |                |
| Normal vaginal delivery with episiotomy    | 18                  | 60%            | 5                       | 16.6%          |
| Instrumental delivery                      | 2                   | 6.66%          | 0                       | 0              |
| Normal vaginal delivery without episiotomy | 4                   | 13.33%         | 8                       | 26.6%          |
| Caesarean section                          | 6                   | 20%            | 17                      | 56.6%          |
| <b>Knowledge about Breastfeeding</b>       |                     |                |                         |                |
| Yes                                        | 15                  | 50%            | 15                      | 50%            |
| No                                         | 15                  | 50%            | 15                      | 50%            |
| <b>Apgar Score is Used to Assess</b>       |                     |                |                         |                |
| Overall health of the mothers              | 8                   | 26.6%          | 2                       | 6.6%           |
| Gestational age of the Infant              | 12                  | 40%            | 10                      | 33.3%          |
| Physical condition of Newborn              | 10                  | 33.3%          | 10                      | 33.3%          |
| Risk of respiratory distress               | 0                   | 0              | 8                       | 26.6%          |
| <b>Pain Onset after Breastfeeding</b>      |                     |                |                         |                |
| 1–3 months                                 | 10                  | 33.3%          | 10                      | 33.3%          |
| 4–6 months                                 | 8                   | 26.6%          | 18                      | 60%            |
| After 6 months                             | 10                  | 33.3%          | 2                       | 2.6%           |
| <b>Nature of Pain during Breastfeeding</b> |                     |                |                         |                |
| No pain                                    | 2                   | 6.6%           | 0                       | 0              |
| Intermittent pain                          | 17                  | 56.6%          | 12                      | 40%            |
| Continuous pain                            | 10                  | 33.3%          | 18                      | 60%            |
| Not sure                                   | 3                   | 10%            | 0                       | 0              |
| <b>Breastfeeding Sessions per Day</b>      |                     |                |                         |                |
| 4–6 times                                  | 10                  | 33.3%          | 10                      | 33.3%          |
| 7–9 times                                  | 15                  | 50%            | 20                      | 26.6%          |
| 10–12 times                                | 5                   | 16.6%          | 0                       | 0              |

\*p<0.05 Significant, \*\*p<0.01 Highly Significance, \*\*\*p<0.001 Very Highly Significance

## Section-C

**Table 3:** Mean, SD, Unpaired-t test, df value, p-value of fatigue and musculoskeletal pain between the lactating mother using side lying position and cradle position

| Variables | Group               | Mean±SD    | Mean difference | Unpaired t-test value | Df | p-value |
|-----------|---------------------|------------|-----------------|-----------------------|----|---------|
| Fatigue   | Side lying Position | 24.60±7.10 | 5.40            | 3.12                  | 58 | <0.05   |
|           | Cradle Position     | 30.00±6.20 |                 |                       |    |         |
| Pain      | Side lying position | 22.90±6.50 | 4.80            | 2.84                  | 58 | <0.05   |
|           | Cradle Position     | 27.70±6.60 |                 |                       |    |         |



Table 4.7, Shows the comparison of the mean fatigue and musculoskeletal pain scores between lactating mothers who used the side-lying breastfeeding position and those who used the cradle breastfeeding position.

The mean fatigue score among mothers in the side-lying group was  $24.60 \pm 7.10$ , whereas the cradle group had a higher mean fatigue score of  $30.00 \pm 6.20$ , with a mean difference of 5.40. The obtained unpaired t-test value was 3.12 (df = 58), and the p-value was  $< 0.005$ , indicating a statistically significant difference between the two groups. This finding suggests that mothers who adopted the side-lying position experienced significantly lower fatigue than

those who used the cradle position.

Similarly, the mean musculoskeletal pain score in the side-lying group was  $22.90 \pm 6.50$ , compared to  $27.70 \pm 6.60$  in the cradle group, with a mean difference of 4.80. The unpaired t-test value was 2.84 (df = 58), and the p-value was  $< 0.005$ , demonstrating a statistically significant difference between the groups. This indicates that mothers using the side-lying breastfeeding position experienced significantly less musculoskeletal pain than mothers using the cradle position.

## Section-D

**Table 4:** Chi Square, df, p-value, Significance with Demographic variables and Obstetrical variables with the level of fatigue among lactating mothers using cradle position group.

| Demographic variables      | No fatigue | Mild fatigue | Moderate fatigue | Severe fatigue | X2/df/p-value /Significances                      |
|----------------------------|------------|--------------|------------------|----------------|---------------------------------------------------|
|                            | f / (%)    | f / (%)      | f / (%)          | f / (%)        | f / (%)                                           |
| Age of the mother          |            |              |                  |                |                                                   |
| 18-24 years                | 1 (3.3%)   | 4(13.3%)     | 3 (10.0%)        | 0(0.0%)        | X2 - 3.52<br>Df- 9<br>p-value- 0.940 NS           |
| 25-29 years                | 1 (3.3%)   | 5(16.7%)     | 4 (13.3%)        | 2 (6.7%)       |                                                   |
| 30-34 years                | 1 (3.3%)   | 3(10.0%)     | 2 (6.7%)         | 0 (0.0%)       |                                                   |
| 40 years & above           | 1 (3.3%)   | 3(10.0%)     | 5 (16.7%)        | 0 (0.0%)       |                                                   |
| Educational Status         |            |              |                  |                |                                                   |
| Profession                 | 2 (6.7%)   | 4(13.3%)     | 5 (16.7%)        | 6(20.0%)       | X2 - 8.41<br>Df- 12<br>p-value- 0.750 NS          |
| Graduate                   | 0 (0.0%)   | 0 (0.0%)     | 0 (0.0%)         | 5(16.7%)       |                                                   |
| Intermediate, diploma      | 0 (0.0%)   | 2 (6.7%)     | 0 (0.0%)         | 3(10.0%)       |                                                   |
| High School                | 0 (0.0%)   | 0 (0.0%)     | 1 (3.3%)         | 2 (6.7%)       |                                                   |
| Middle School              | 0 (0.0%)   | 0 (0.0%)     | 0 (0.0%)         | 0 (0.0%)       |                                                   |
| Primary School             | 0 (0.0%)   | 0 (0.0%)     | 5 (16.7%)        | 0 (0.0%)       |                                                   |
| Illiterate                 | 0 (0.0%)   | 0 (0.0%)     | 0 (0.0%)         | 0 (0.0%)       |                                                   |
| Breastfeeding Duration/day |            |              |                  |                |                                                   |
| 4-6 hours                  | 1(3.3%)    | 2(6.7%)      | 2(6.7%)          | 8(26.7%)       | X2 - 2.41<br>Df- 6<br>p-value- 0.879 NS           |
| 7-8 hours                  | 0(0.0%)    | 2(6.7%)      | 4 (13.3%)        | 1(3.3%)        |                                                   |
| More than 8 hours          | 4(13.3%)   | 3(10.0%)     | 1 (3.3%)         | 2(6.7%)        |                                                   |
| Age of Infant              |            |              |                  |                |                                                   |
| <1 month                   | 1(3.3%)    | 2(6.7%)      | 4 (13.3%)        | 4(13.3%)       | X <sup>2</sup> -1.79 Df-3<br>p-value- 0.616<br>NS |
| 1-3 months                 | 1(3.3%)    | 2(6.7%)      | 3(10.0%)         | 5(16.7%)       |                                                   |
| 4-6 months                 | 0(0.0%)    | 0(0.0%)      | 2(6.7%)          | 6 (20.0%)      |                                                   |
| Occupation                 |            |              |                  |                |                                                   |
| Profession                 | 0(0.0%)    | 1(3.3%)      | 2(6.7%)          | 3(10.0%)       | X2 - 5.87<br>Df- 9<br>p-value-0.750 NS            |
| Semi-Profession            | 0(0.0%)    | 0(0.0%)      | 1(3.3%)          | 2(6.7%)        |                                                   |
| Clerical/Shop owner/Farmer | 0(0.0%)    | 0(0.0%)      | 1(3.3%)          | 2(6.7%)        |                                                   |
| Skilled Worker             | 0(0.0%)    | 2(6.7%)      | 3(10.0%)         | 3(10.0%)       |                                                   |
| Semi-Skilled Worker        | 0(0.0%)    | 0(0.0%)      | 1(3.3%)          | 3(10.0%)       |                                                   |
| Unskilled worker           | 0(0.0%)    | 0(0.0%)      | 2(6.7%)          | 1(3.3%)        |                                                   |
| Unemployed                 |            |              |                  |                |                                                   |
| Residence                  |            |              |                  |                |                                                   |
| Urban                      | 0(0.0%)    | 1(3.3%)      | 4 (13.3%)        | 2(6.7%)        | X2 - 1.34 Df-3<br>p-value- 0.720<br>NS            |
| Semi-urban                 | 0(0.0%)    | 0(0.0%)      | 6(20.0%)         | 2(6.7%)        |                                                   |
| Rural                      | 2(6.7%)    | 6 (20.0%)    | 2(6.7%)          | 5(16.7%)       |                                                   |
| Types of Family            |            |              |                  |                |                                                   |
| Nuclear family             | 0(0.0%)    | 5(16.7%)     | 5(16.7%)         | 2(6.7%)        | X2- 2.18<br>Df- 3<br>p-value- 0.536 NS            |
| Joint family               | 2(6.7%)    | 2(6.7%)      | 6 (20.0%)        | 8(26.7%)       |                                                   |
| Religion                   |            |              |                  |                |                                                   |
| Hindu                      | 5(16.7%)   | 4 (13.3%)    | 3(10.0%)         | 6(20.0%)       | X2 -4.56 Df-6<br>p-value- 0.602 NS                |
| Muslim                     | 2(6.7%)    | 2(6.7%)      | 1(3.3%)          | 4(13.3%)       |                                                   |
| Sikh                       | 0(0.0%)    | 2(6.7%)      | 0(0.0%)          | 1(3.3%)        |                                                   |
| Christian                  | 0(0.0%)    | 0(0.0%)      | 0(0.0%)          | 0(0.0%)        |                                                   |
| Family Income              |            |              |                  |                |                                                   |
| ₹39,750–52,999             | 0(0.0%)    | 0(0.0%)      | 0(0.0%)          | 0(0.0%)        | X2 -6.83<br>Df- 9<br>p-value- 0.655 NS            |
| ₹53,000–1,05,999           | 0(0.0%)    | 0(0.0%)      | 4 (13.3%)        | 2(6.7%)        |                                                   |
| 39,750-52,999              | 0(0.0%)    | 0(0.0%)      | 0(0.0%)          | 4(13.3%)       |                                                   |
| 31,800-39,749              | (0.0%)     | 0(0.0%)      | 0(0.0%)          | 3(10.0%)       |                                                   |
| 21,200-31,799              | 4(13.3%)   | 1(3.3%)      | 2(6.7%)          | 3(10.0%)       |                                                   |
| 10,600-2199                | 0(0.0%)    | 0(0.0%)      | 0(0.0%)          | 0(0.0%)        |                                                   |
| Less than 10,599           | 1(3.3%)    | 2(6.7%)      | 3(10.0%)         | 1(3.3%)        |                                                   |

| Food Pattern                               |           |           |           |           |                                                    |
|--------------------------------------------|-----------|-----------|-----------|-----------|----------------------------------------------------|
| Vegetarian                                 | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 3(10.0%)  | X2 -5.84 Df-9<br>p-value- 0.646 NS                 |
| Non-Vegetarian                             | 3(10.0%)  | 3(10.0%)  | 3(10.0%)  | 3(10.0%)  |                                                    |
| Vegan                                      | 2(6.7%)   | 3(10.0%)  | 1(3.3%)   | 5(16.7%)  |                                                    |
| Omnivore                                   | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 4(13.3%)  |                                                    |
| Duration of marriage                       |           |           |           |           |                                                    |
| 1 years                                    | 1(3.3%)   | 5(16.7%)  | 0(0.0%)   | 4(13.3%)  | X2 -4.23<br>Df- 6<br>p-value- 0.646 NS             |
| 2 years                                    | 2(6.7%)   | 6(20.0%)  | 0(0.0%)   | 2(6.7%)   |                                                    |
| More than 3 years                          | 1(3.3%)   | 1(3.3%)   | 3(10.0%)  | 5(16.7%)  |                                                    |
| Obstetrical variables                      |           |           |           |           |                                                    |
| Gravida                                    |           |           |           |           |                                                    |
| 1                                          | 1 (3.3%)  | 2 (6.7%)  | 3 (10.0%) | 2 (6.7%)  | X2- 6.84<br>Df- 6<br>p-value- 0.33 NS              |
| 2                                          | 0 (0.0%)  | 4(13.3%)  | 3 (10.0%) | 6 (20.0%) |                                                    |
| More than 3                                | 0 (0.0%)  | 3 (10.0%) | 2 (6.7%)  | 4 (13.3%) |                                                    |
| Parity                                     |           |           |           |           |                                                    |
| 1                                          | 2 (6.7%)  | 2 (6.7%)  | 3 (10.0%) | 5 (16.7%) | X2- 4.92<br>Df- 6<br>p-value- 0.55 NS              |
| 2                                          | 3(10.0%)  | 1 (3.3%)  | 1 (3.3%)  | 4 (13.3%) |                                                    |
| More than 3                                | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%)  | 4 (13.3%) |                                                    |
| Gestational age at delivery                |           |           |           |           |                                                    |
| Less than 37 weeks                         | 2 (6.7%)  | 2 (6.7%)  | 4 (13.3%) | 5 (16.7%) | X2- 7.61<br>Df- 6<br>p-value- 0.27 NS              |
| 38–42 weeks                                | 1 (3.3%)  | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%)  |                                                    |
| 40 weeks                                   | 2 (6.7%)  | 1 (3.3%)  | 2 (6.7%)  | 6 (20.0%) |                                                    |
| Mode of delivery                           |           |           |           |           |                                                    |
| Normal vaginal delivery with episiotomy    | 0 (0.0%)  | 2 (6.7%)  | 5 (16.7%) | 3 (10.0%) | X2- 11.28<br>Df- 9<br>p-value- 0.26 NS             |
| Instrumental delivery                      | 0 (0.0%)  | 0 (0.0%)  | 1 (3.3%)  | 2 (6.7%)  |                                                    |
| Normal vaginal delivery without episiotomy | 1 (3.3%)  | 1 (3.3%)  | 2 (6.7%)  | 4 (13.3%) |                                                    |
| Caesarean section                          | 0 (0.0%)  | 1 (3.3%)  | 2 (6.7%)  | 6 (20.0%) |                                                    |
| Knowledge about Breastfeeding              |           |           |           |           |                                                    |
| Yes                                        | 3(10.0%)  | 6 (20.0%) | 4 (13.3%) | 6 (20.0%) | X <sup>2</sup> - 5.03<br>Df- 3<br>p-value- 0.17 NS |
| No                                         | 1 (3.3%)  | 1 (3.3%)  | 2 (6.7%)  | 7 (23.3%) |                                                    |
| Apgar Score is Used to Assess              |           |           |           |           |                                                    |
| Overall health of the mother               | 1 (3.3%)  | 2 (6.7%)  | 4 (13.3%) | 4 (13.3%) | X2- 9.41<br>Df- 9<br>p-value-0.29 NS               |
| Gestational age of the Infant              | 1 (3.3%)  | 2 (6.7%)  | 5 (16.7%) | 3 (10.0%) |                                                    |
| Physical condition of Newborn              | 0 (0.0%)  | 3 (10.0%) | 1 (3.3%)  | 2 (6.7%)  |                                                    |
| Risk of respiratory distress               | 0 (0.0%)  | 0 (0.0%)  | 0 (0.0%)  | 2 (6.7%)  |                                                    |
| Pain Onset after Breastfeeding             |           |           |           |           |                                                    |
| 1–3 months                                 | 2 (6.7%)  | 2 (6.7%)  | 6 (20.0%) | 3 (10.0%) | X2- 6.55<br>Df- 6<br>p-value- 0.36 NS              |
| 4–6 months                                 | 2 (6.7%)  | 1 (3.3%)  | 2 (6.7%)  | 4 (13.3%) |                                                    |
| After 6 months                             | 0 (0.0%)  | 1 (3.3%)  | 3 (10.0%) | 2 (6.7%)  |                                                    |
| Nature of Pain during Breastfeeding        |           |           |           |           |                                                    |
| No pain                                    | 1 (3.3%)  | 1 (3.3%)  | 0 (0.0%)  | 4(13.3%)  | X2- 10.76<br>Df- 9<br>p-value- 0.29 NS             |
| Intermittent pain                          | 4 (13.3%) | 1 (3.3%)  | 3 (10.0%) | 3 (10.0%) |                                                    |
| Continuous pain                            | 2 (6.7%)  | 0 (0.0%)  | 2 (6.7%)  | 2 (6.7%)  |                                                    |
| Not sure                                   | 4(13.3%)  | 0 (0.0%)  | 2(6.7%)   | 1 (3.3%)  |                                                    |
| Breastfeeding Sessions per Day             |           |           |           |           |                                                    |
| 4–6 times                                  | 2 (6.7%)  | 1 (3.3%)  | 2 (6.7%)  | 5 (16.7%) | X2- 5.88<br>Df- 4<br>p-value- 0.21 NS              |
| 7–9 times                                  | 1(3.3%)   | 1 (3.3%)  | 6 (20.0%) | 4 (13.3%) |                                                    |
| 10–12 times                                | 2 (6.7%)  | 1 (3.3%)  | 3 (10.0%) | 2 (6.7%)  |                                                    |

\*p<0.05 Significant, \*\*p<0.01 Highly Significance, \*\*\*p<0.001 Very Highly Significance

**Table 5:** Chi Square, df, p-value, Significance with Demographic variables and Obstetrical variables with the level of fatigue among lactating mothers using Side lying group.

| Demographic variables | No fatigue | Mild fatigue | Moderate fatigue | Severe fatigue | X2/df/p-value /Significances            |
|-----------------------|------------|--------------|------------------|----------------|-----------------------------------------|
|                       | f / (%)    | f / (%)      | f / (%)          | f / (%)        | f / (%)                                 |
| Age of the mother     |            |              |                  |                |                                         |
| 18-24 years           | 0(0.0%)    | 3(10.0%)     | 1(3.3%)          | 3(10.0%)       | X2 - 5.32<br>Df- 9<br>p-value- 0.806 NS |
| 25-29 years           | 2(6.7%)    | 2(6.7)       | 2(6.7%)          | 3(10.0%)       |                                         |
| 30-34 years           | 1(3.3%)    | 4(13.3%)     | 4(13.3%)         | 2(6.7%)        |                                         |
| 40 years & above      | 0(0.0%)    | 0(0.0%)      | 1(3.3%)          | 1(3.3%)        |                                         |
| Educational Status    |            |              |                  |                |                                         |

|                             |           |           |           |           |                                                      |
|-----------------------------|-----------|-----------|-----------|-----------|------------------------------------------------------|
| Profession                  | 0(0.0%)   | 2(6.7%)   | 5(16.66)  | 3(10.0%)  | X2 - 8.47<br>Df- 18<br>p-value- 0.973,NS             |
| Graduate                    | 0(0.0%)   | 1(3.3%)   | 3(10.0%)  | 6(20.0%)  |                                                      |
| Intermediate, diploma       | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   |                                                      |
| High School                 | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   |                                                      |
| Middle School               | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   |                                                      |
| Primary School              | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   |                                                      |
| Illiterate                  | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   |                                                      |
| Breastfeeding Duration/day  |           |           |           |           |                                                      |
| 4-6 hours                   | 0(0.0%)   | 3(10.0%)  | 4(13.3%)  | 7(23.33%) | X2 - 6.72 Df-6<br>p-value- 0.348,NS                  |
| 7-8 hours                   | 0(0.0%)   | 1(3.3%)   | 5(16.66%) | 5(16.66%) |                                                      |
| More than 8 hours           | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   | 2(6.7%)   |                                                      |
| Age of Infant               |           |           |           |           |                                                      |
| <1 month                    | 1(3.3%)   | 1(3.3%)   | 4(13.3%)  | 9(30%)    | X2 - 4.87<br>Df- 6<br>p-value- 0.561,NS              |
| 1-3 months                  | 1(3.3%)   | 2(6.7%)   | 3(10.0%)  | 5(16.66%) |                                                      |
| 4-6 months                  | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   | 1(3.3%)   |                                                      |
| Occupation                  |           |           |           |           |                                                      |
| Profession                  | 1(3.3%)   | 1(3.3%)   | 0(0.0%)   | 4(13.3%)  | X2 - 11.28 Df-18<br>p-value- 0.884 NS                |
| Semi-Profession             | 1(3.3%)   | 2(6.7%)   | 1(3.3%)   | 3(10.0%)  |                                                      |
| Clerical/Shop owner/Farmer  | 1(3.3%)   | 1(3.3%)   | 3(10.0%)  | 4(13.33%) |                                                      |
| Skilled Worker              | 1(3.3%)   | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   |                                                      |
| Semi-Skilled                | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 2(6.7%)   |                                                      |
| Worker                      |           |           |           |           |                                                      |
| Unskilled worker            | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   |                                                      |
| Unemployed                  | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   |                                                      |
| Residence                   |           |           |           |           |                                                      |
| Urban                       | 1(3.3%)   | 4(13.33%) | 3(10.0%)  | 7(23.3%)  | X <sup>2</sup> -3.96<br>Df- 6<br>p-value- 0.682, NS  |
| Semi-urban                  | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   | 4(13.33%) |                                                      |
| Rural                       | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 8(26.6%)  |                                                      |
| Types of Family             |           |           |           |           |                                                      |
| Nuclear family              | 1(3.3%)   | 3(10.0%)  | 3(10.0%)  | 5(16.67%) | X <sup>2</sup> - 2.14<br>Df- 3<br>p-value- 0.544, NS |
| Joint family                | 2(6.7%)   | 5(16.67%) | 2(6.7%)   | 9(30%)    |                                                      |
| Religion                    |           |           |           |           |                                                      |
| Hindu                       | 1(3.3%)   | 2(6.7%)   | 5(16.67%) | 10(33.3%) | X <sup>2</sup> - 7.25<br>Df- 9<br>p-value- 0.611, NS |
| Muslim                      | 0(0.0%)   | 0(0.0%)   | 3(10.0%)  | 4(13.33%) |                                                      |
| Sikh                        | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   |                                                      |
| Christian                   | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   | 4(13.33%) |                                                      |
| Family Income               |           |           |           |           |                                                      |
| ₹39,750–52,999              | 2(6.7%)   | 1(3.3%)   | 3(10.0%)  | 2(6.7%)   | X2 - 16.83<br>Df- 18<br>p-value- 0.533, NS           |
| ₹53,000–1,05,999            | 1(3.3%)   | 1(3.3%)   | 2(6.7%)   | 6(20%)    |                                                      |
| 39,750-52,999               | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   |                                                      |
| 31,800-39,749               | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 2(6.7%)   |                                                      |
| 21,200-31,799               | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 2(6.7%)   |                                                      |
| 10,600-2199                 | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 4(13.33%) |                                                      |
| Less than 10,599            | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 1(3.3%)   |                                                      |
| Food Pattern                |           |           |           |           |                                                      |
| Vegetarian                  | 1(3.3%)   | 2(6.7%)   | 3(10.0%)  | 4(13.33%) | X <sup>2</sup> - 5.91<br>Df- 9<br>p-value- 0.749 NS  |
| Non-Vegetarian              | 1(3.3%)   | 0(0.0%)   | 3(10.0%)  | 6(20%)    |                                                      |
| Vegan                       | 0(0.0%)   | 1(3.3%)   | 0(0.0%)   | 5(16.67%) |                                                      |
| Omnivore                    | 0(0.0%)   | 1(3.3%)   | 0(0.0%)   | 3(10.0%)  |                                                      |
| Duration of marriage        |           |           |           |           |                                                      |
| 1 years                     | 1(3.3%)   | 4(13.33%) | 3(10.0%)  | 6(20%)    | X2 - 4.18<br>Df- 6<br>p-value- 0.652, NS             |
| 2 years                     | 1(3.3%)   | 0(0.0%)   | 0(0.0%)   | 9         |                                                      |
| More than 3 years           | 0(0.0%)   | 0(0.0%)   | 3(10.0%)  | 2(6.7%)   |                                                      |
| Obstetrical variables       |           |           |           |           |                                                      |
| Gravida                     |           |           |           |           |                                                      |
| 1                           | 2 (6.7%)  | 1 (3.3%)  | 3 (10.0%) | 2 (6.7%)  | X <sup>2</sup> - 3.62<br>Df- 6<br>p-value- 0.73, NS  |
| 2                           | 1 (3.3%)  | 4 (13.3%) | 2 (6.7%)  | 3 (10.0%) |                                                      |
| More than 3                 | 2 (6.7%)  | 3 (10.0%) | 2 (6.7%)  | 5 (16.7%) |                                                      |
| Parity                      |           |           |           |           |                                                      |
| 1                           | 2 (6.7%)  | 3 (10.0%) | 1 (3.3%)  | 4 (13.3%) | X2- 5.41                                             |
|                             |           |           |           |           |                                                      |
| 2                           | 0(0.0%)   | 2 (6.7%)  | 4 (13.3%) | 2 (6.7%)  | Df- 6<br>p-value- 0.82, NS                           |
| More than 3                 | 2 (6.7%)  | 1 (3.3%)  | 4 (13.3%) | 5 (16.7%) |                                                      |
| Gestational age at delivery |           |           |           |           |                                                      |
| Less than 37 weeks          | 2 (6.7%)  | 1 (3.3%)  | 3 (10.0%) | 4 (13.3%) | X2- 9.27<br>Df- 9<br>p-value- 0.41, NS               |
| 38–42 weeks                 | 3 (10.0%) | 1 (3.3%)  | 2 (6.7%)  | 6 (10.0%) |                                                      |



|                                            |          |           |           |           |                                                     |
|--------------------------------------------|----------|-----------|-----------|-----------|-----------------------------------------------------|
| 40 weeks                                   | 0 (0.0%) | 3 (10.0%) | 0 (0.0%)  | 5 (16.7%) |                                                     |
| Mode of delivery                           |          |           |           |           |                                                     |
| Normal vaginal delivery with episiotomy    | 0 (0.0%) | 4 (13.3%) | 2 (6.7%)  | 1 (3.3%)  | X2- 2.11<br>Df- 3<br>p-value- 0.55, NS              |
| Instrumental delivery                      | 2 (6.7%) | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| Normal vaginal delivery without episiotomy | 0 (0.0%) | 0 (0.0%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| Caesarean section                          | 0 (0.0%) | 3 (10.0%) | 5 (16.7%) | 4 (13.3%) |                                                     |
| Knowledge about Breastfeeding              |          |           |           |           |                                                     |
| Yes                                        | 2 (6.7%) | 3 (10.0%) | 7 (23.3%) | 4 (13.3%) | X <sup>2</sup> - 8.44<br>Df- 9<br>p-value- 0.49, NS |
| No                                         | 3(10.0%) | 2 (6.7%)  | 4 (13.3%) | 5 (16.7%) |                                                     |
| Apgar Score is Used to Assess              |          |           |           |           |                                                     |
| Overall health of the mother               | 2 (6.7%) | 0 (0.0%)  | 2 (6.7%)  | 3 (10.0%) | X2- 5.98<br>Df- 6<br>p-value- 0.43, NS              |
| Gestational age of the Infant              | 2 (6.7%) | 3 (10.0%) | 2 (6.7%)  | 4 (13.3%) |                                                     |
| Physical condition of Newborn              | 1 (3.3%) | 4 (13.3%) | 0 (0.0%)  | 3 (10.0%) |                                                     |
| Risk of respiratory distress               | 3(10.0%) | 1 (3.3%)  | 0 (0.0%)  | 0 (0.0%)  |                                                     |
| Pain Onset after Breastfeeding             |          |           |           |           |                                                     |
| 1–3 months                                 | 0 (0.0%) | 2 (6.7%)  | 1 (3.3%)  | 5 (16.7%) | X2- 4.76<br>Df- 6<br>p-value- 0.57, NS              |
| 4–6 months                                 | 2 (6.7%) | 3 (10.0%) | 1 (3.3%)  | 3 (10.0%) |                                                     |
| After 6 months                             | 4(13.3%) | 4 (13.3%) | 2 (6.7%)  | 3 (10.0%) |                                                     |
| Nature of Pain during Breastfeeding        |          |           |           |           |                                                     |
| No pain                                    | 2 (6.7%) | 1 (3.3%)  | 1 (3.3%)  | 5 (16.7%) | X2- 4.76<br>Df- 6<br>p-value- 0.57, NS              |
| Intermittent pain                          | 1 (3.3%) | 2 (6.7%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| Continuous pain                            | 3(10.0%) | 2 (6.7%)  | 2 (6.7%)  | 7 (23.3%) |                                                     |
| Not sure                                   | 0 (0.0%) | 0 (0.0%)  | 0 (0.0%)  | 0 (0.0%)  |                                                     |
| Breastfeeding Sessions per Day             |          |           |           |           |                                                     |
| 4–6 times                                  | 3(10.0%) | 4 (13.3%) | 2 (6.7%)  | 3 (10.0%) | X2- 3.91<br>Df- 4<br>p-value- 0.42, NS              |
| 7–9 times                                  | 2 (6.7%) | 3 (10.0%) | 1 (3.3%)  | 3 (10.0%) |                                                     |
| 10–12 times                                | 1 (3.3%) | 1 (3.3%)  | 2 (6.7%)  | 5 (16.7%) |                                                     |

\*p<0.05 Significant, \*\*p<0.01 Highly Significance, \*\*\*p<0.001 Very Highly Significance

**Table 6:** Chi Square, df, p-value, Significance with Demographic variables and Obstetrical variables with the level of Musculoskeletal Pain among lactating mothers using cradle position group. N = 60(30+30)

| Demographic variables      | No Pain  | Mild Pain | Moderate Pain | Severe Pain | X <sup>2</sup> /df/p-value /Significances |
|----------------------------|----------|-----------|---------------|-------------|-------------------------------------------|
|                            | f / (%)  | f / (%)   | f / (%)       | f / (%)     | f / (%)                                   |
| Age of the mother          |          |           |               |             |                                           |
| 18-24 years                | 0(0.0%)  | 3(10.0%)  | 1(3.3%)       | 3(10.0%)    | X2 - 3.82<br>Df- 3<br>p-value- 0.281 NS   |
| 25-29 years                | 2(6.7%)  | 2(6.7%)   | 2(6.7%)       | 3(10.0%)    |                                           |
| 30-34 years                | 1(3.3%)  | 4(13.3%)  | 4(13.3%)      | 2(6.7%)     |                                           |
| 40 years & above           | 0(0.0%)  | 0(0.0%)   | 1(3.3%)       | 1(3.3%)     |                                           |
| Educational Status         |          |           |               |             |                                           |
| Profession                 | 0(0.0%)  | 1(3.3%)   | 2(6.7%)       | 3(10.0%)    | X2 - 8.47<br>Df- 6<br>p-value- 0.206 NS   |
| Graduate                   | 0(0.0%)  | 2(6.7%)   | 1(3.3%)       | 2(6.7%)     |                                           |
| Intermediate, diploma      | 0(0.0%)  | 1(3.3%)   | 0(0.0%)       | 2(6.7%)     |                                           |
| High School                | 1(3.3%)  | 2(6.7%)   | 3(10.0%)      | 1(3.3%)     |                                           |
| Middle School              | 0(0.0%)  | 1(3.3%)   | 2(6.7%)       | 1(3.3%)     |                                           |
| Primary School             | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 0(0.0%)     |                                           |
| Illiterate                 | 2(6.7%)  | 1(3.3%)   | 2(6.7%)       | 1(3.3%)     |                                           |
| Breastfeeding Duration/day |          |           |               |             |                                           |
| 4-6 hours                  | 4(13.3%) | 5(16.7%)  | 3(10.0%)      | 2(6.7%)     | X2 - 3.27<br>Df- 2<br>p-value- 0.195,NS   |
| 7-8 hours                  | 1(3.3%)  | 3(10.0%)  | 2(6.7%)       | 3(10.0%)    |                                           |
| More than 8 hours          | 1(3.3%)  | 1(3.3%)   | 2(6.7%)       | 3(10.0%)    |                                           |
| Age of Infant              |          |           |               |             |                                           |
| <1 month                   | 2(6.7%)  | 4(13.3%)  | 2(6.7%)       | 4(13.3%)    | X2 -2.11<br>Df- 2<br>p-value- 0.348,NS    |
| 1-3 months                 | 1(3.3%)  | 2(6.7%)   | 2(6.7%)       | 5(16.7%)    |                                           |
| 4-6 months                 | 1(3.3%)  | 2(6.7%)   | 3(10.0%)      | 2(6.7%)     |                                           |
| Occupation                 |          |           |               |             |                                           |
| Profession                 | 0(0.0%)  | 1(3.3%)   | 1(3.3%)       | 5(16.7%)    | X2 - 7.91<br>Df- 6<br>p-value- 0.245 NS   |
| Semi-Profession            | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 1(3.3%)     |                                           |
| Clerical/Shop owner/Farmer | 1(3.3%)  | 2(6.7%)   | 1(3.3%)       | 1(3.3%)     |                                           |
| Skilled Worker             | 1(3.3%)  | 2(6.7%)   | 3(10.0%)      | 2(6.7%)     |                                           |
| Semi-Skilled Worker        | 0(0.0%)  | 2(6.7%)   | 2(6.7%)       | 1(3.3%)     |                                           |
| Unskilled worker           | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 3(10.0%)    |                                           |
| Unemployed                 | 0(0.0%)  | 0(0.0%)   | 2(6.7%)       | 0(0.0%)     |                                           |

| Residence                                  |           |           |           |           |                                                     |
|--------------------------------------------|-----------|-----------|-----------|-----------|-----------------------------------------------------|
| Urban                                      | 2(6.7%)   | 1(3.3%)   | 1(3.3%)   | 1(3.3%)   | X2 - 1.94<br>Df- 2<br>p-value- 0.379,NS             |
| Semi-urban                                 | 3(10.0%)  | 2(6.7%)   | 5(16.7%)  | 3(10.0%)  |                                                     |
| Rural                                      | 4(13.3%)  | 1(3.3%)   | 4(13.3%)  | 3(10.0%)  |                                                     |
| Types of Family                            |           |           |           |           |                                                     |
| Nuclear family                             | 1(3.3%)   | 2(6.7%)   | 0(0.0%)   | 5(16.7%)  | X <sup>2</sup> - 0.86<br>Df- 1                      |
| Joint family                               | 4(13.3%)  | 6(20.0%)  | 5(16.7%)  | 7         |                                                     |
|                                            |           |           |           |           | p-value- 0.354                                      |
| Religion                                   |           |           |           |           |                                                     |
| Hindu                                      | 4(13.3%)  | 7         | 2(6.7%)   | 6(20.0%)  | X <sup>2</sup> - 4.62<br>Df- 3<br>p-value- 0.202,NS |
| Muslim                                     | 0(0.0%)   | 1(3.3%)   | 6         | 4(13.3%)  |                                                     |
| Sikh                                       | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   |                                                     |
| Christian                                  | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   | 0(0.0%)   |                                                     |
| Family Income                              |           |           |           |           |                                                     |
| ₹39,750–52,999                             | 2(6.7%)   | 1(3.3%)   | 1(3.3%)   | 1(3.3%)   | X2 - 5.11                                           |
| ₹53,000–1,05,999                           | 2(6.7%)   | 0(0.0%)   | 2(6.7%)   | 3(10.0%)  | Df- 3                                               |
| 39,750-52,999                              | 0(0.0%)   | 2(6.7%)   | 2(6.7%)   | 1(3.3%)   | p-value- 0.164                                      |
| 31,800-39,749                              | 0(0.0%)   | 2(6.7%)   | 4(13.3%)  | 1(3.3%)   | NS                                                  |
| 21,200-31,799                              | 0(0.0%)   | 1(3.3%)   | 2(6.7%)   | 2(6.7%)   |                                                     |
| 10,600-2199                                | 1(3.3%)   | 0(0.0%)   | 0(0.0%)   | 2(6.7%)   |                                                     |
| Less than 10,599                           | 1(3.3%)   | 1(3.3%)   | 0(0.0%)   | 0(0.0%)   |                                                     |
| Food Pattern                               |           |           |           |           |                                                     |
| Vegetarian                                 | 2(6.7%)   | 3(10.0%)  | 5(16.7%)  | 3(10.0%)  | X <sup>2</sup> - 2.73<br>Df- 3<br>p-value- 0.435 NS |
| Non-Vegetarian                             | 0(0.0%)   | 2(6.7%)   | 2(6.7%)   | 4(13.3%)  |                                                     |
| Vegan                                      | 1(3.3%)   | 0(0.0%)   | 0(0.0%)   | 2(6.7%)   |                                                     |
| Omnivore                                   | 0(0.0%)   | 0(0.0%)   | 3(10.0%)  | 2(6.7%)   |                                                     |
| Duration of marriage                       |           |           |           |           |                                                     |
| 1 years                                    | 4(13.3%)  | 3(10.0%)  | 2(6.7%)   | 6(20.0%)  | X2 - 1.68                                           |
| 2 years                                    | 1(3.3%)   | 2(6.7%)   | 1(3.3%)   | 4(13.3%)  | Df- 2                                               |
| More than 3 years                          | 2(6.7%)   | 3(10.0%)  | 1(3.3%)   | 1(3.3%)   | p-value- 0.435,NS                                   |
| Obstetrical variables                      |           |           |           |           |                                                     |
| Gravida                                    |           |           |           |           |                                                     |
| 1                                          | 2 (6.7%)  | 1 (3.3%)  | 3 (10.0%) | 2 (6.7%)  | X2- 3.62<br>Df- 6<br>p-value- 0.73                  |
| 2                                          | 1 (3.3%)  | 4 (13.3%) | 2 (6.7%)  | 3 (10.0%) |                                                     |
| More than 3                                | 2 (6.7%)  | 3 (10.0%) | 2 (6.7%)  | 5 (16.7%) |                                                     |
| Parity                                     |           |           |           |           |                                                     |
| 1                                          | 3 (10.0%) | 3 (10.0%) | 1 (3.3%)  | 4 (13.3%) | X2- 2.88<br>Df- 6<br>p-value- 0.82                  |
| 2                                          | 1 (3.3%)  | 2 (6.7%)  | 4 (13.3%) | 2 (6.7%)  |                                                     |
| More than 3                                | 2 (6.7%)  | 1 (3.3%)  | 4 (13.3%) | 5 (16.7%) |                                                     |
| Gestational age at delivery                |           |           |           |           |                                                     |
| Less than 37 weeks                         | 2 (6.7%)  | 1 (3.3%)  | 3 (10.0%) | 4 (13.3%) | X2- 5.41<br>Df- 6<br>p-value- 0.49,NS               |
| 38–42 weeks                                | 3 (10.0%) | 1 (3.3%)  | 2 (6.7%)  | 6 (10.0%) |                                                     |
| 40 weeks                                   | 0 (0.0%)  | 3 (10.0%) | 0 (0.0%)  | 5 (16.7%) |                                                     |
| Mode of delivery                           |           |           |           |           |                                                     |
| Normal vaginal delivery with episiotomy    | 0 (0.0%)  | 4 (13.3%) | 2 (6.7%)  | 1 (3.3%)  | X2- 9.27                                            |
|                                            |           |           |           |           | Df- 9                                               |
| Instrumental delivery                      | 2 (6.7%)  | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%)  | p-value- 0.41                                       |
|                                            |           |           |           |           | NS                                                  |
| Normal vaginal delivery without episiotomy | 0 (0.0%)  | 0 (0.0%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
|                                            |           |           |           |           |                                                     |
| Caesarean section                          | 0 (0.0%)  | 3 (10.0%) | 5 (16.7%) | 4 (13.3%) |                                                     |
| Knowledge about Breastfeeding              |           |           |           |           |                                                     |
| Yes                                        | 2 (6.7%)  | 3 (10.0%) | 7 (23.3%) | 4 (13.3%) | X <sup>2</sup> - 2.11<br>Df- 3<br>p-value- 0.55,NS  |
| No                                         | 3 (10.0%) | 2 (6.7%)  | 4 (13.3%) | 5 (16.7%) |                                                     |
| Apgar Score is Used to Assess              |           |           |           |           |                                                     |
| Overall health of the mother               | 2 (6.7%)  | 0 (0.0%)  | 2 (6.7%)  | 3 (10.0%) | X2- 8.44<br>Df- 9<br>p-value- 0.49,NS               |
| Gestational age of the Infant              | 2 (6.7%)  | 3 (10.0%) | 2 (6.7%)  | 4 (13.3%) |                                                     |
| Physical condition of Newborn              | 1 (3.3%)  | 4 (13.3%) | 0 (0.0%)  | 3 (10.0%) |                                                     |
| Risk of respiratory distress               | 3 (10.0%) | 1 (3.3%)  | 0 (0.0%)  | 0 (0.0%)  |                                                     |
| Pain Onset after Breastfeeding             |           |           |           |           |                                                     |
| 1–3 months                                 | 0 (0.0%)  | 2 (6.7%)  | 1 (3.3%)  | 5 (16.7%) | X2- 5.98<br>Df- 6                                   |
| 4–6 months                                 | 2 (6.7%)  | 3 (10.0%) | 1 (3.3%)  | 3 (10.0%) |                                                     |

|                                     |           |           |          |           |                                       |
|-------------------------------------|-----------|-----------|----------|-----------|---------------------------------------|
| After 6 months                      | 4 (13.3%) | 4 (13.3%) | 2 (6.7%) | 3 (10.0%) | p-value- 0.43,NS                      |
| Nature of Pain during Breastfeeding |           |           |          |           |                                       |
| No pain                             | 2 (6.7%)  | 1 (3.3%)  | 1 (3.3%) | 5 (16.7%) | X2- 4.76<br>Df- 6<br>p-value- 0.57,NS |
| Intermittent pain                   | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%) | 2 (6.7%)  |                                       |
| Continuous pain                     | 3 (10.0%) | 2 (6.7%)  | 2 (6.7%) | 7 (23.3%) |                                       |
| Not sure                            | 0 (0.0%)  | 0 (0.0%)  | 0 (0.0%) | 0 (0.0%)  |                                       |
| Breastfeeding Sessions per Day      |           |           |          |           |                                       |
| 4–6 times                           | 3 (10.0%) | 4 (13.3%) | 2 (6.7%) | 3 (10.0%) | X2- 3.91<br>Df- 4<br>p-value- 0.42,NS |
| 7–9 times                           | 2 (6.7%)  | 3 (10.0%) | 1 (3.3%) | 3 (10.0%) |                                       |
| 10–12 times                         | 1 (3.3%)  | 1 (3.3%)  | 2 (6.7%) | 5 (16.7%) |                                       |

\*p<0.05 Significant, \*\*p<0.01 Highly Significance, \*\*\*p<0.001 Very Highly Significance

**Table 7:** Chi Square, df, p-value, Significance with Demographic variables and Obstetrical variables with the level of Musculoskeletal Pain among lactating mothers using Side lying group. N = 60(30+30)

| Demographic variables      | No Pain  | Mild Pain | Moderate Pain | Severe Pain | X <sup>2</sup> /df/p-value /Significance            |
|----------------------------|----------|-----------|---------------|-------------|-----------------------------------------------------|
|                            | f / (%)  | f / (%)   | f / (%)       | f / (%)     | f / (%)                                             |
| Age of the mother          |          |           |               |             |                                                     |
| 18-24 years                | 0(0.0%)  | 2(6.7%)   | 4(13.33%)     | 3(10.0%)    | X <sup>2</sup> -5.32<br>Df- 9<br>p-value- 0.806,NS  |
| 25-29 years                | 0(0.0%)  | 0(0.0%)   | 3(10.0%)      | 4(13.33%)   |                                                     |
| 30-34 years                | 0(0.0%)  | 3(10.0%)  | 2(6.7%)       | 2(6.7%)     |                                                     |
| 40 years & above           | 0(0.0%)  | 0(0.0%)   | 2(6.7%)       | 5(16.67%)   |                                                     |
| Educational Status         |          |           |               |             |                                                     |
| Profession                 | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 1(3.33%)    | X <sup>2</sup> -8.41<br>Df- 18<br>p-value- 0.971 NS |
| Graduate                   | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 3(10.0%)    |                                                     |
| Intermediate, diploma      | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 3(10.0%)    |                                                     |
| High School                | 0(0.0%)  | 0(0.0%)   | 4(13.33%)     | 5(16.67%)   |                                                     |
| Middle School              | 0(0.0%)  | 0(0.0%)   | 3(10.0%)      | 3(10.0%)    |                                                     |
| Primary School             | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 2(6.7%)     |                                                     |
| Illiterate                 | 0(0.0%)  | 0(0.0%)   | 2(6.7%)       | 4(13.33%)   |                                                     |
| Breastfeeding Duration/day |          |           |               |             |                                                     |
| 4-6 hours                  | 0(0.0%)  | 2(6.7%)   | 2(6.7%)       | 6(20.0%)    | X2 - 2.41<br>Df- 6<br>p-value- 0.878,NS             |
| 7-8 hours                  | 0(0.0%)  | 0(0.0%)   | 1(3.33%)      | 4(13.33%)   |                                                     |
| More than 8 hours          | 0(0.0%)  | 1(3.33%)  | 1(3.33%)      | 7(23.3%)    |                                                     |
| Age of Infant              |          |           |               |             |                                                     |
| <1 month                   | 1(3.33%) | 1(3.33%)  | 3(10.0%)      | 6(20.0%)    | X2 -1.79<br>Df- 6<br>p-value- 0.938,NS              |
| 1-3 months                 | 1(3.33%) | 4(13.33%) | 2(6.7%)       | 4(13.33%)   |                                                     |
| 4-6 months                 | 2(6.7%)  | 1(3.33%)  | 3(10.0%)      | 2(6.7%)     |                                                     |
| Occupation                 |          |           |               |             |                                                     |
| Profession                 | 0(0.0%)  | 1(3.33%)  | 2(6.7%)       | 3(10.0%)    | X2 - 1.34 Df-6<br>p-value- 0.938 NS                 |
| Semi-Profession            | 1(3.33%) | 0(0.0%)   | 2(6.7%)       | 2(6.7%)     |                                                     |
| Clerical/Shop owner/Farmer | 0(0.0%)  | 0(0.0%)   | 2(6.7%)       | 2(6.7%)     |                                                     |
| Skilled Worker             | 1(3.33%) | 2(6.7%)   | 1(3.33%)      | 4(13.33%)   |                                                     |
| Semi-Skilled Worker        | 0(0.0%)  | 0(0.0%)   | 1(3.33%)      | 2(6.7%)     |                                                     |
| Unskilled worker           | 0(0.0%)  | 0(0.0%)   | 1(3.33%)      | 1(3.33%)    |                                                     |
| Unemployed                 | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 1(3.33%)    |                                                     |
| Residence                  |          |           |               |             |                                                     |
| Urban                      | 1(3.33%) | 2(6.7%)   | 3(10.0%)      | 5(16.67%)   | X2 -1.34<br>Df- 6<br>p-value- 0.969,NS              |
| Semi-urban                 | 0(0.0%)  | 2(6.7%)   | 1(3.33%)      | 3(10.0%)    |                                                     |
| Rural                      | 0(0.0%)  | 3(10.0%)  | 4(13.33%)     | 6(20.0%)    |                                                     |
| Types of Family            |          |           |               |             |                                                     |
| Nuclear family             | 2(6.7%)  | 2(6.7%)   | 4(13.33%)     | 8(26.6%)    | X2- 2.18<br>Df- 3<br>p-value- 0.536,NS              |
| Joint family               | 1(3.33%) | 2(6.7%)   | 6(20.0%)      | 5(16.67%)   |                                                     |
| Religion                   |          |           |               |             |                                                     |
| Hindu                      | 0(0.0%)  | 1(3.33%)  | 4(13.33%)     | 7(23.3%)    | X <sup>2</sup> - 4.56<br>Df- 6<br>p-value- 0.601,NS |
| Muslim                     | 0(0.0%)  | 0(0.0%)   | 8(26.6%)      | 4(13.33%)   |                                                     |
| Sikh                       | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 0(0.0%)     |                                                     |
| Christian                  | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 1(3.33%)    |                                                     |
| Family Income              |          |           |               |             |                                                     |
| ₹39,750–52,999             | 2(6.7%)  | 1(3.33%)  | 1(3.33%)      | 5(16.67%)   | X2 - 6.83<br>Df- 18<br>p-value- 0.991 NS            |
| ₹53,000–1,05,999           | 0(0.0%)  | 1(3.33%)  | 3(10.0%)      | 4(13.33%)   |                                                     |
| 39,750-52,999              | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 0(0.0%)     |                                                     |
| 31,800-39,749              | 0(0.0%)  | 1(3.33%)  | 0(0.0%)       | 6(20.0%)    |                                                     |
| 21,200-31,799              | 0(0.0%)  | 0(0.0%)   | 0(0.0%)       | 0(0.0%)     |                                                     |
| 10,600-2199                | 0(0.0%)  | 0(0.0%)   | 1(3.33%)      | 1(3.33%)    |                                                     |
| Less than 10,599           | 0(0.0%)  | 2(6.7%)   | 0(0.0%)       | 2(6.7%)     |                                                     |
| Food Pattern               |          |           |               |             |                                                     |

|                                            |          |           |           |           |                                                     |
|--------------------------------------------|----------|-----------|-----------|-----------|-----------------------------------------------------|
| Vegetarian                                 | 1(3.33%) | 2(6.7%)   | 3(10.0%)  | 5(16.67%) | X2 - 5.84<br>Df- 9<br>p-value- 0.756,NS             |
| Non-Vegetarian                             | 0(0.0%)  | 3(10.0%)  | 2(6.7%)   | 6(20.0%)  |                                                     |
| Vegan                                      | 0(0.0%)  | 2(6.7%)   | 2(6.7%)   | 3(10.0%)  |                                                     |
| Omnivore                                   | 0(0.0%)  | 0(0.0%)   | 0(0.0%)   | 1(3.33%)  |                                                     |
| Duration of marriage                       |          |           |           |           |                                                     |
| 1 years                                    | 1(3.33%) | 1(3.33%)  | 4(13.33%) | 5(16.67%) | X <sup>2</sup> - 4.23<br>Df- 6<br>p-value- 0.646,NS |
| 2 years                                    | 1(3.33%) | 1(3.33%)  | 3(10.0%)  | 4(13.33%) |                                                     |
| More than 3 years                          | 1(3.33%) | 1(3.33%)  | 2(6.7%)   | 6(20.0%)  |                                                     |
| Obstetrical variables                      |          |           |           |           |                                                     |
| Gravida                                    |          |           |           |           |                                                     |
| 1                                          | 1 (3.3%) | 2 (6.7%)  | 3 (10.0%) | 2 (6.7%)  | X2- 6.84<br>Df- 6<br>p-value- 0.33,NS               |
| 2                                          | 4(13.3%) | 0 (0.0%)  | 3 (10.0%) | 6 (20.0%) |                                                     |
| More than 3                                | 0 (0.0%) | 3 (10.0%) | 2 (6.7%)  | 4 (13.3%) |                                                     |
| Parity                                     |          |           |           |           |                                                     |
| 1                                          | 2 (6.7%) | 2 (6.7%)  | 3 (10.0%) | 5(16.7%)  | X2- 4.92<br>Df- 6<br>p-value- 0.55,NS               |
| 2                                          | 3(10.0%) | 1 (3.3%)  | 1 (3.3%)  | 4(13.3%)  |                                                     |
| More than 3                                | 1 (3.3%) | 2 (6.7%)  | 2 (6.7%)  | 4(13.3%)  |                                                     |
| Gestational age at delivery                |          |           |           |           |                                                     |
| Less than 37 weeks                         | 2 (6.7%) | 2 (6.7%)  | 4 (13.3%) | 5(16.7%)  | X2- 7.61<br>Df- 6<br>p-value- 0.27                  |
| 38–42 weeks                                | 1(3.3%)  | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| 40 weeks                                   | 2 (6.7%) | 1 (3.3%)  | 2 (6.7%)  | 6(20.0%)  |                                                     |
| Mode of delivery                           |          |           |           |           |                                                     |
| Normal vaginal delivery with episiotomy    | 0 (0.0%) | 4 (13.3%) | 2 (6.7%)  | 1 (3.3%)  | X2- 11.28<br>Df- 9<br>p-value- 0.26 NS              |
| Instrumental delivery                      | 2 (6.7%) | 1 (3.3%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| Normal vaginal delivery without episiotomy | 0 (0.0%) | 0 (0.0%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| Caesarean section                          | 0 (0.0%) | 3 (10.0%) | 5 (16.7%) | 4 (13.3%) |                                                     |
| Knowledge about Breastfeeding              |          |           |           |           |                                                     |
| Yes                                        | 2 (6.7%) | 3 (10.0%) | 7 (23.3%) | 4 (13.3%) | X <sup>2</sup> - 5.03<br>Df- 3<br>p-value- 0.17,NS  |
| No                                         | 3(10.0%) | 2 (6.7%)  | 4 (13.3%) | 5 (16.7%) |                                                     |
| Apgar Score is Used to Assess              |          |           |           |           |                                                     |
| Overall health of the mother               | 2 (6.7%) | 0 (0.0%)  | 2 (6.7%)  | 3 (10.0%) | X2- 9.41<br>Df- 9<br>p-value- 0.29 NS               |
| Gestational age of the Infant              | 2 (6.7%) | 3 (10.0%) | 2 (6.7%)  | 4 (13.3%) |                                                     |
| Physical condition of Newborn              | 1 (3.3%) | 4 (13.3%) | 0 (0.0%)  | 3 (10.0%) |                                                     |
| Risk of respiratory distress               | 3(10.0%) | 1 (3.3%)  | 0 (0.0%)  | 0 (0.0%)  |                                                     |
| Pain Onset after Breastfeeding             |          |           |           |           |                                                     |
| 1–3 months                                 | 0 (0.0%) | 2 (6.7%)  | 1 (3.3%)  | 5 (16.7%) | X2- 6.55<br>Df- 6<br>p-value- 0.36,NS               |
| 4–6 months                                 | 2 (6.7%) | 3 (10.0%) | 1 (3.3%)  | 3 (10.0%) |                                                     |
| After 6 months                             | 4(13.3%) | 4 (13.3%) | 2 (6.7%)  | 3 (10.0%) |                                                     |
| Nature of Pain during Breastfeeding        |          |           |           |           |                                                     |
| No pain                                    | 2 (6.7%) | 1 (3.3%)  | 1 (3.3%)  | 5 (16.7%) | X2- 10.76<br>Df- 9<br>p-value- 0.29,NS              |
| Intermittent pain                          | 1 (3.3%) | 2 (6.7%)  | 2 (6.7%)  | 2 (6.7%)  |                                                     |
| Continuous pain                            | 3(10.0%) | 2 (6.7%)  | 2 (6.7%)  | 7 (23.3%) |                                                     |
| Not sure                                   | 0 (0.0%) | 0 (0.0%)  | 0 (0.0%)  | 0 (0.0%)  |                                                     |
| Breastfeeding Sessions per Day             |          |           |           |           |                                                     |
| 4–6 times                                  | 3(10.0%) | 4 (13.3%) | 2 (6.7%)  | 3 (10.0%) | X2- 5.88<br>Df- 4<br>p-value- 0.21,NS               |
| 7–9 times                                  | 2 (6.7%) | 3 (10.0%) | 1 (3.3%)  | 3 (10.0%) |                                                     |
| 10–12 times                                | 1 (3.3%) | 1 (3.3%)  | 2 (6.7%)  | 5 (16.7%) |                                                     |

\*p<0.05 Significant, \*\*p<0.01 Highly Significance, \*\*\*p<0.001 Very Highly Significance

## Major Findings

**Objective 1:** The study included 60 lactating mothers, with 30 in the cradle group and 30 in the side-lying group. In the cradle group, 66.6% of mothers were aged 18–24 years, while in the side-lying group 33.3% were aged 18–24 and 33.3% were aged 25–29 years. 50% of cradle mothers breastfed for 4–6 hours daily, whereas 50% of side-lying mothers breastfed for 7–8 hours. Infants below one month constituted 60% in the cradle group and 66.67% in the side-lying group. 50% of mothers in both groups belonged to nuclear families. 83.33% of mothers in both groups were Hindu.

Most mothers were primigravida (66.6%) in both groups. Caesarean delivery was predominant in the cradle group

(56.6%), while normal vaginal delivery with episiotomy was common in the side-lying group (60%).

**Objective 2:** The mean fatigue score was  $30.00 \pm 6.20$  in the cradle group and  $24.60 \pm 7.10$  in the side-lying group. The mean difference in fatigue scores was 5.40, with an unpaired t-value of 3.12 (df=58) and  $p < 0.005$ . For musculoskeletal pain, the mean score was  $27.70 \pm 6.60$  in the cradle group and  $22.90 \pm 6.50$  in the side-lying group. The mean difference in pain scores was 4.80, with  $t = 2.84$  (df=58) and  $p < 0.005$ . In the cradle group, 10% had no fatigue, 36.67% had mild, 40% had moderate and 13.33% had severe fatigue. In the side-lying group, 20% had no fatigue, 50% had mild,

23.33% had moderate and 6.67% had severe fatigue. For pain, the cradle group had 10% no pain, 26.6% mild, 33.3% moderate and 30% severe pain. The side-lying group had 16.67% no pain, 10% mild, 23.33% moderate and 50% severe pain.

**Objective 3:** The association between demographic and obstetrical variables and fatigue/pain was assessed using the Chi-square test. In the cradle group, age ( $\chi^2=3.52$ ,  $p=.940$ ), education ( $\chi^2=8.41$ ,  $p=.750$ ) and breastfeeding duration ( $\chi^2=2.41$ ,  $p=.879$ ) were not significant. Infant age ( $\chi^2=1.79$ ,  $p=.616$ ), occupation ( $\chi^2=5.87$ ,  $p=.750$ ), residence ( $\chi^2=1.34$ ,  $p=.720$ ) and family type ( $\chi^2=2.18$ ,  $p=.536$ ) were also not significant. Religion ( $\chi^2=4.56$ ,  $p=.602$ ), income ( $\chi^2=6.83$ ,  $p=.655$ ), food pattern ( $\chi^2=5.84$ ,  $p=.646$ ) and marriage duration ( $\chi^2=4.23$ ,  $p=.646$ ) showed no significant association. For obstetrical variables, gravida ( $\chi^2=6.84$ ,  $p=.330$ ), parity ( $\chi^2=4.92$ ,  $p=.550$ ) and gestational age ( $\chi^2=7.61$ ,  $p=.270$ ) were not significant. Mode of delivery ( $\chi^2=11.28$ ,  $p=.260$ ), breastfeeding knowledge ( $\chi^2=5.03$ ,  $p=.170$ ) and Apgar knowledge ( $\chi^2=9.41$ ,  $p=.290$ ) were also non-significant. Pain onset ( $\chi^2=6.55$ ,  $p=.360$ ), nature of pain ( $\chi^2=10.76$ ,  $p=.290$ ) and breastfeeding sessions ( $\chi^2=5.88$ ,  $p=.210$ ) were not significantly associated with fatigue. Overall, all p-values were  $>0.05$ ; therefore,  $H_0$  was accepted and  $H_1$  was rejected for the tested associations.

### Nursing Implications

#### Nursing Education:

- Serves as a learning resource for undergraduate and postgraduate nursing students.
- Strengthens teaching related to breastfeeding positions and maternal ergonomics.
- Enhances students' clinical knowledge regarding prevention of breastfeeding-related discomfort.
- Encourages evidence-based learning in maternal and child health nursing.
- Provides case examples for classroom discussions and clinical demonstrations.

#### Nursing practice:

- Provides evidence that the side-lying breastfeeding position is more effective in reducing maternal fatigue and musculoskeletal pain.
- Helps nurses identify appropriate breastfeeding positions based on the mother's comfort and clinical condition.
- Enables nurses to provide individualized breastfeeding counselling during the postnatal period.
- Promotes ergonomic breastfeeding practices, thereby reducing physical strain on mothers.
- Improves maternal comfort, which may enhance breastfeeding continuation and exclusivity.

#### Nursing Administration:

- Assists nursing administrators in developing breastfeeding education protocols.
- Supports the organization of regular in-service education programmes on breastfeeding techniques.
- Encourages implementation of evidence-based breastfeeding guidelines in hospitals.
- Promotes standardization of breastfeeding counselling practices among nursing staff.
- Helps improve the quality of postnatal nursing services.

### Nursing Research:

- Adds to the existing body of scientific knowledge on breastfeeding positions and maternal comfort.
- Provides baseline data for future research on breastfeeding practices.
- Encourages replication of the study with larger sample sizes and different populations.
- Stimulates research on additional breastfeeding positions and ergonomic interventions.
- Promotes studies evaluating long-term maternal and infant outcomes

**Limitation of the study:** The study was limited to one hospital.

- The sample size was relatively small.
- Purposive sampling limited the generalizability of findings.
- Fatigue and pain were measured using self-report scales, which may introduce subjective bias.
- Only two breastfeeding positions were evaluated.

### Recommendations

- Conduct large-scale studies including multiple hospitals and diverse populations.
- Assess other breastfeeding positions (football hold, cross-cradle) for maternal comfort.
- Introduce objective measures such as posture analysis or electromyography to study musculoskeletal strain.
- Develop educational programs and policies for postpartum ergonomic support.
- Evaluate the effect of supportive devices like pillows and armrests on reducing fatigue and pain.

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