

## EFFECT OF JACOBSON'S RELAXATION TECHNIQUES ON STRESS DURING LATENT PHASE OF LABOUR

**Miss. Vaishali Sampat Hulwan<sup>1</sup>, DR. Jyoti Avinash Salunkhe<sup>2</sup>, Dr Satish V Kakade<sup>3</sup>,  
Mr. Ajit Anandrao Pawar<sup>4</sup>**

1. Post Graduate Student, KINS, Karad, 2. Professor and Dean (Academics), KINS, Karad,  
3. Associate Professor, Dept. of PSM, KIMS, Karad, 4. Clinical Instructor, KINS, Karad.  
Krishna Institute of Nursing Sciences, Krishna Vishwa Vidyapeeth (Deemed to be University),  
Karad (Maharashtra) India.

---

### Corresponding Author

**Dr. (Mrs.) Jyoti A. Salunkhe**

**Professor and Dean (Academics), Krishna Institute of Nursing Sciences, Karad,  
Krishna Vishwa Vidyapeeth (Deemed to be University), Karad (Maharashtra) India.**

**Email ID: [jasalunkhe.salunkhe9@gmail.com](mailto:jasalunkhe.salunkhe9@gmail.com)**

---

### KEYWORDS

Latent phase, level of  
stress, active phase,  
exercise

### ABSTRACT

Labour is a significant milestone in a mother's life, bringing both joy and stress. Jacobson's relaxation techniques can help alleviate this stress. The study aimed to reduce stress among primi parturient mothers in the first stage of labour. A quantitative research approach was used on 55 mothers using a pre-test post-test research design. Jacobson's relaxation techniques were administered from the latent phase to the active phase of labour. The data was collected using a stress scale and analysed by using descriptive and inferential statistics. The results showed that 89.1% and 10.9% of primi parturient mothers had severe and moderate stress before the intervention, and 96.4% and 3.6% had moderate and mild stress after the intervention ( $p < 0.001$ ). The study concluded that Jacobson's relaxation techniques was effective in reducing stress during the latent phase of the first stage of labour.

---

### Introduction

One of the most stressful aspects of being pregnant is giving birth to new one. Stress during labour can lessen the uterus' ability to contract, lengthen the time and likelihood of a medically assisted birth, and even raise the likelihood of a caesarean section<sup>1</sup>. Everyone experiences stress in their lives, which helps them gain confidence in dealing with difficult situations.<sup>2</sup> Stress is a generalized state that can be brought on by internal or external environmental and human factors.<sup>3</sup> Labour stress can have a negative impact on mother and neonate health, as well as foetal neural and motor development, which can lead to disability.<sup>4</sup>

Labour is a time of great change and it imposes a significant amount of stress on mother both intentionally and unintentionally stress during childbirth can alter hormone levels, which may hinder the growth of the baby or result in premature labour. It affects the body and the mind, causing both happy and unhappy feelings. The common stressors were a lack of support, poverty, illiteracy, partner violence, and ineffective coping. The women reported moderate levels of stress, and high levels of stress were linked to a variety of maternal factors.<sup>5</sup> A significant component of the process of effective stress exposure is the use of various medical, psychological, and therapeutic treatments to lessen stress and to teach coping mechanisms.<sup>6</sup>

Jacobson's relaxation techniques effects include improved stress adjustment, enhanced energy supply, muscle strain pain relief, decreased pain, anxiety, and easy deep sleep.<sup>7</sup> Relaxation methods are used as coping mechanisms during labour to decrease pain by disturbing pain sensations, limiting the ability to pay attention to pain perception, encouraging endorphin production, and assisting in the reduction of pain-exacerbating thoughts.<sup>8</sup>

The investigator observed that mothers experiencing labour pains shout and screaming, demanding caesarean section delivery instead of vaginal delivery. To provide support, companionship, and reduce stress during labour, Jacobson's relaxation techniques were used. These techniques help mothers feel supported and cared for, releasing muscle tension, improving uterine contraction patterns, and reducing stress levels.

### Material and Methods

A quantitative research approach and one group pre-test post- test research design was used. A 55 primiparturient mothers were chosen in the early stages of labour. with purposive sampling technique at labour room of Krishna Hospital and Medical Research Centre Karad, District Satara, Maharashtra. Primi parturient mothers during first stage included in the study and primi parturient mothers who have planned elective caesarean section, admitted with complications and less than 37 weeks of gestation excluded from the study. Participants were allotted in the study, from 20 January 2023 to 28 February 2023.

The socio demographic variables, level of stress was assessed with three point likert scale having 15 items. The score was interpreted in terms of mild, moderate and severe stress. And efficacy of Jacobson's relaxation techniques was assessed.

The pre-test was conducted and Jacobson's relaxation technique was administered to primi parturient mothers during their latent phase of labor, with cervical dilatation ranging from 1 to 3 centimeters, and ended when active labor began. Each exercise provided every one hourly for fifteen to twenty minutes. Total five cycles and twenty five repetitions for each primi parturient mother were given. Again stress was assessed with use of same stress scale. The current study was authorized by the Institutional Ethical Committee. Participants provided informed consent prior to data collection.

Statistical analysis was carried out by using SPSS-22 (IBM SPSS). The computed frequency, percentage, mean, standard deviation to describe the data and Paired 't' test to see the effect of Jacobson's relaxation techniques.

### Results

#### According to demographic variables

Majority mothers 40 were from age group of 21- 30 years, 21 were professionals and 45 were unemployed. Most of the primi parturient mothers 29 were residing in rural the area, 47 were from joint family, and 17 primi parturient mothers having family income 30,831 to 46,128 rupees. Majority primi parturient mothers 30 were from lower middle class family and 44 primi parturient mothers delivered at 37-38 weeks of gestation.

**Table No. 1: Distribution of Primi Parturient Mothers According to Level of stress**

n= 55

| Level of Stress | Pre test  |                | Post test |                |
|-----------------|-----------|----------------|-----------|----------------|
|                 | Frequency | Percentage (%) | Frequency | Percentage (%) |

|                      |    |       |    |       |
|----------------------|----|-------|----|-------|
| Mild ( $\leq 15$ )   | 0  | 0%    | 2  | 3.6%  |
| Moderate (16-30)     | 6  | 10.9% | 53 | 96.4% |
| Severe ( $\geq 31$ ) | 49 | 89.1% | 0  | 0%    |

Above table depicts that, majority mothers (89.1%) were having severe stress. After administration of Jacobson's relaxation techniques majority (96.4%) mothers changed in to moderate stress and only (3.6%) remain in mild stress.

**Table No. 2: Efficacy of Jacobson's Relaxation Techniques on Stress Level**

**n = 55**

| Level of Stress | Mean $\pm$ SD    | Mean $\pm$ SD<br>(Pre – Post Stress) | t value | p value |
|-----------------|------------------|--------------------------------------|---------|---------|
| Pre test        | 37.21 $\pm$ 4.32 | 18.69 $\pm$ 4.80                     | 28.837  | <0.001  |
| Post test       | 18.52 $\pm$ 2.34 |                                      |         |         |

Above table depicts that, mean pre-test (37.21 $\pm$ 4.32) level of stress of primi parturient mothers was higher than mean post-test (18.52 $\pm$ 2.34) level of stress. There was significant difference was found between pre-test and post-test level of stress of primi parturient mothers (p<0.001). There was reduction in stress level of primi parturient mothers after administration of Jacobson's relaxation techniques.

**Table No. 3: Association between Pre and Post Level of Stress with Demographic Variables**

**n = 55**

| Demographic Variables                    | Pre-test Mean $\pm$ SD | Post-test Mean $\pm$ SD | t value | p value |
|------------------------------------------|------------------------|-------------------------|---------|---------|
| <b>Age</b>                               |                        |                         |         |         |
| Below 20 year                            | 40.00 $\pm$ 2.44       | 18.75 $\pm$ 4.59        | 13.183  | <0.001  |
| 21- 30 year                              | 36.90 $\pm$ 4.04       | 18.57 $\pm$ 1.85        | 25.233  | <0.001  |
| Above 30 year                            | 35.85 $\pm$ 6.49       | 18.00 $\pm$ 1.41        | 7.859   | <0.001  |
| <b>Education</b>                         |                        |                         |         |         |
| Professional                             | 36.95 $\pm$ 4.42       | 18.47 $\pm$ 1.91        | 16.367  | <0.001  |
| Graduate or postgraduate                 | 37.12 $\pm$ 3.91       | 19.56 $\pm$ 3.36        | 15.979  | <0.001  |
| Intermediate or post high school diploma | 37.44 $\pm$ 4.33       | 17.88 $\pm$ 1.36        | 12.949  | <0.001  |
| High school certificate                  | 37.77 $\pm$ 5.42       | 17.44 $\pm$ 0.88        | 12.021  | <0.001  |
| <b>Residential area</b>                  |                        |                         |         |         |
| Rural                                    | 36.65 $\pm$ 4.56       | 18.65 $\pm$ 1.95        | 18.342  | <0.001  |
| Urban                                    | 37.72 $\pm$ 4.11       | 18.41 $\pm$ 2.66        | 22.498  | <0.001  |
| <b>Type of family</b>                    |                        |                         |         |         |
| Nuclear                                  | 35.62 $\pm$ 4.40       | 18.12 $\pm$ .99         | 10.553  | <0.001  |
| Joint                                    | 37.48 $\pm$ 4.30       | 18.59 $\pm$ 2.49        | 26.726  | <0.001  |
| <b>Socioeconomic status</b>              |                        |                         |         |         |

|                          |            |            |        |        |
|--------------------------|------------|------------|--------|--------|
| Upper middle class       | 35.36±4.96 | 19.63±1.80 | 9.925  | <0.001 |
| Lower middle class       | 37.30±3.78 | 18.60±2.77 | 24.089 | <0.001 |
| Upper lower class        | 38.50±4.70 | 17.50±.94  | 17.053 | <0.001 |
| <b>Gestational weeks</b> |            |            |        |        |
| 37-38 weeks              | 37.31±4.41 | 18.22±1.73 | 26.668 | <0.001 |
| ≥39 weeks                | 36.81±4.11 | 19.72±3.82 | 11.501 | <0.001 |

Above table depicts that, there was significant association found between mean  $\pm$  SD pre and post level of stress and demographic variables of primi parturient mothers ( $p < 0.001$ ).

### Discussion

In the present study 40 mothers were from 21 to 30 years of age and 21 completed professional education, 45 were unemployed and 29 were residing in urban area. Most of them 47 living in joint family, 17 were having income between rupees 30,831 to 46,128 per months, 30 were from lower middle class family and 44 delivered at 37-38 weeks of gestation.

Similar findings were noted by Debajani Nayak et al,<sup>9</sup> (53.3%) were in the age group of 26-30 years. Another research by Soheila Gaini et al,<sup>10</sup> reported that, majority (54.86%) primiparous women's had a diploma education that is considered as professional education. By Reza Imankhah et al,<sup>11</sup> noted that, majority (86.7%) mothers were housewife that is considered as unemployed in their study. Another research study done by Bharti Satish Weljale<sup>12</sup>, noted that, majority 16 (53.33%) were belongs to joint family and the most of primigravida mothers 12 (43.33%) were having gestational age between 38-40 weeks at the time of delivery.

Present study found that, 89.1% primi parturient mothers' experienced severe stress during the initial stage of labour, while 10.9% experienced moderate stress before intervention. After giving Jacobson's relaxation techniques 96.4% of mothers experienced moderate stress, while 3.6% remained in mild stress.

Similar findings were noted by Saira Waqqar<sup>6</sup>, 88% women reported reduction in stress level during 1st stage of labour. There was no significant difference existed between the labour stress  $98.6 \pm 19.4$  ( $P > 0.05$ ) before giving Mitchell's physiological relaxation and breathing exercise. After intervention the mean  $\pm$  SD ( $68.5 \pm 13.4$ ) ( $P < 0.05$ ). They also noted that, Mitchell's physiological relaxation with breathing exercise are more helpful in reduction of labour stress as compare to only breathing exercise during initial phase of labour.

In the present study, pre-test mean  $\pm$  SD was ( $37.21 \pm 4.32$ ) level of stress of primi parturient mothers was higher than mean  $\pm$  SD post-test ( $18.52 \pm 2.34$ ) level of stress. There was significant difference was found between pre and post-test level of stress of primi parturient mothers ( $p < 0.001$ ). There was reduction in stress level of primi parturient mothers after administration of Jacobson's relaxation techniques also there was significant association was found between mean  $\pm$  SD pre and post level of stress with demographic variables ( $p < 0.001$ ).

Similar findings were noted by Saira Waqqar<sup>6</sup>, showed that, Mitchell's physiological relaxation and breathing exercise was significantly more effective in stress reduction at the time of labour the mean SD  $68.5 \pm 13.4$  ( $P < 0.05$ ). They also noted that, 88% women reported reduction in stress level during 1st stage of labour. Another research by, Gayatri S. Kaple et al,<sup>8</sup> noted that, mean pre-test ( $8.77 \pm 1.00$ ) level of stress of mothers was higher than mean post-test ( $7.22 \pm 1.00$ ) level of stress. There was significant difference was found between pre-test and post-test level of stress of mothers, and mean difference was ( $1.55 \pm 0.51$ ) statistical significant ( $P = 0.0001$ ). They also noted that, Jacobson's relaxation techniques play an integral role in the multidisciplinary approach to relieving labour stress and helping patients have a normal vaginal delivery.

## Conclusion

The study found that, all primi parturient mothers were happy to perform Jacobson's relaxation techniques, with 89.1% experiencing severe stress before the technique. However, after the technique, 96.4% of mothers experienced a moderate level of stress. The study also found a significant difference in stress levels between pre-test and post-test, and a significant association with demographic variables ( $p < 0.001$ ).

## Acknowledgment

The authors show gratitude to all the respondents, who volunteered and also took their time to give us all necessary relevant information for the conduction of the study.

## References

1. Cunningham G, Kenneth J, Leveno S, Bloom J.(2005) Williams Obstetrics. 22nd ed. New York: McGraw Hill; p. 684-7.
2. Tripathy P, Goswami A, Nayak D, Khosla P. Comparison Of Stress Between Urban And Rural Primi Mothers During Pregnancy. European Journal of Molecular & Clinical Medicine.;7(11):2020.
3. Folkman S. Stress: appraisal and coping. Encyclopedia of behavioral medicine. Retrieved June. 2013;4:2021.
4. Mulder EJ, De Medina PR, Huizink AC, Van den Bergh BR, Buitelaar JK, Visser GH. Prenatal maternal stress: effects on pregnancy and the (unborn) child. Early human development. 2002 Dec 1;70(1-2):3-14.
5. Tripathy P, Goswami A, Nayak D, Khosla P. Comparison Of Stress Between Urban And Rural Primi Mothers During Pregnancy. European Journal of Molecular & Clinical Medicine.;7(11):2020.
6. Waqqar S, Qazi WI. Effect of Combination Relaxation Exercises on Stress During First Stage of Labour. JRCRS. 2017.n exercise, Breathing exercises also help to relieve stress during labor.
7. Chiriboga DA, Jenkins G, Bailey J. Stress and coping among hospice nurses: test of an analytic model. Nursing Research. 1983 Sep 1;32(5):294-9.
8. Kaple GS, Patil S. Effectiveness of Jacobson Relaxation and Lamaze Breathing Techniques in the Management of Pain and Stress During Labor: An Experimental Study. Cureus. 2023 Jan 1;15(1).
9. Nayak D, Rastogi S, Kathuria OK. Effectiveness of music therapy on anxiety level, and pain perception in primipara mothers during first stage of labor in selected hospitals of Odisha. IOSR Journal of Nursing and Health Science (IOSR-JNHS) e-ISSN. 2014:2320-1959.
10. Gaini S, Asl NS, Moazedian A, Makv S. The Effect of Relaxation on Reducing Anxiety and Choosing the Type of Delivery in Prim Parous Women. Clinical Schizophrenia & Related Psychoses. 2022 May 12.
11. Imankhah R, Mirgol A, Nakhaee A, Salari L. The Effect of Relaxation on the Level of Women Anxiety in the Active Phase of Labor. International Journal of Pharmaceutical and Phytopharmacological Research. 2019;9(2):38-42.
12. Weljale BS. Effectiveness of Back Massage vs Breathing Exercises on Labour Pain and Anxiety among Primigravida Mothers During First Stage of Labour in Pravara Rural Hospital, Loni (Bk). Indian Journal of Public Health Research & Development. 2021 Mar 1;12(2):75-9.