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Correlation between Rest Period Postdelivery and Severity of Low Back Pain and Disability in Primiparous Women in Pune Region.

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ABSTRACT
Background: Women's bodies undergo significant alterations as a result of becoming pregnant.One of the most important mechanisms is related to mechanical factors, thehormonal changes which cause joint laxity and weight gained during pregnancy which causes the abdomen sagittal diameter to grow, which in turn causes the center of gravity to shift anteriorly hence increases lower back tension. The aim of the study was to correlate the rest period postdelivery and severity of low back pain and disability in primiparous women in Pune region. **Method:** An observational study involving 70 primiparous womens who underwent both LSCS and FTND and with 6 months postdelivery of Pune region carried out. Multipara, any orthopedic condition and surgery related to lower back and with the history of delivery before 36 weeks were excluded. The Ronaldo Morris Disability Questionnaire Scale was employed to assess severity of low back pain and disability. **Result:** Results were obtained using MS excel and SPSS version 21. Correlation analysis showed a significant correlation between Period of rest and RMDQ score (r=-0.405). Despite the statistical correlation, these two variable were moderately negative correlation between period of rest and RMDQ score, those who underwent LSCS (r=-0.49069) and for FTND (r=- 0.58079). **Conclusion:**It was observed that the period of rest increase low back pain and disability decrease.

Keywords: Center of gravity,Hormonal changes, Low back pain , Period of rest, Postdelivery, Sagittal diameter.

I. INTRODUCTION

Women's bodies undergo major changes as result of getting pregnant. Low back pain is the common complaint during pregnancy.From 5% to 37% of women experience low back pain after giving birth.[1]The quality of life and the capacity of women to perform everyday routine tasks including cleaning, lifting, sitting, and walking can be negatively impacted by low back discomfort.[2]The musculoskeletal system is the source of all pregnancy-related lower back pain, including that experienced by all women. There is a varying incidence of low back pain at different stages of pregnancy, ranging from around 20% to more than 50%, according to previous research done in different populations. [3-4]

There are multiple explanations and pathophysiology's for low backache during the pregnancy period. These include: (1) an increase in back load resulting from the overall weight gained during pregnancy. (2) Changes in hormones that causespine to become unstable. (3)connective tissue microtrauma in the lumbar joint as a result of the growing foetus's anterior flexion moment being balanced by the trunk extensor muscle.Due to progesterone and oestrogen, there is reduction in tone of smooth muscles and increase in growth of uterus this all occur during pregnancy period which ultimately cause low back pain after delivery.[5]

During pregnancy, in order to provide support for and accommodate the growing fetus, the mother experiences majorstructural and physiological changes. The following are examples of aberrant musculoskeletal alterations that can develop during pregnancy, and it is vital to differentiate between the typical physiological changes that occur during pregnancy and these adaptations: (1)Exaggerated lordosis of the lower backand (2) laxity in the anterior and longitudinal ligaments of the lumbar spine cause hypermobility. (3) The body experiences mechanical tension from the expanding uterus, which also alters the body's center of gravity. (4) The abdominal muscles have stretched to their maximum elastic length by the end of pregnancy. The shift in center of gravity also

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lessens the mechanical advantage of the abdominal muscles and put stress on the low back.[6]

Women's who continue their jobs immediately within 2 to 3 months postdelivery, may involve frequent forward bending, long time sitting position, heavy lifting. It's vital to study these changes and signs and symptoms occurring after the delivery. So it is important to know and study prevalence of low back pain in women after 6 months of delivery and to correlate rest period and low back pain in primiparous women.

II. MATERIALS AND METHOD

The study used convenient mode of sampling. It was carried out in the 70 primiparous women in Pune region. It included women who underwent LSCS and FTND, who are at their 6 months postdelivery and within age group 21 to 30 years. Multigravida, any orthopaedic condition and surgery related to lower back and with the history of delivery before 36 weeks were excluded. Prior to the study, the participants were informed about the confidentiality of information and their anonymity. Participation in the study was entirely voluntary.

Ronaldo Morris Disability Questionnaire were given and demographic data was collected. RMDQ consists of 24 questions to asses severity low back pain. The score ranges from 0 (no disability) to 24 (maximum disability).A detailed data analysis of each question was done using Microsoft Excel software after which an overall analysis was done to gain the final results and draw to a conclusion.

III. RESULTS

The result have highlighted the correlation between period of rest and severity of low back pain and disability among primiparous women's

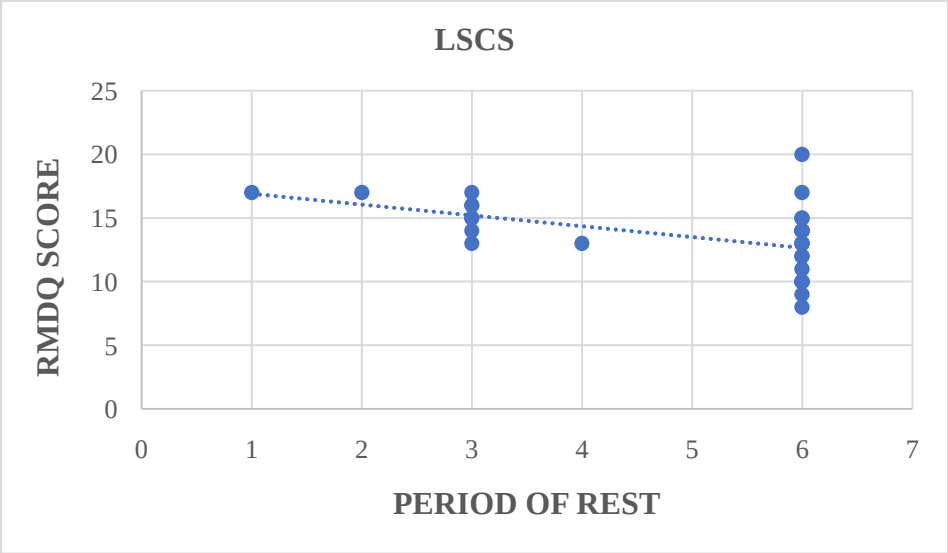

FIGURE NO. 1 Correlation Of Rest Period Vs Participants Who Underwent Lscs.

The participants who underwent LSCS showed moderately negative correlation between period of rest and RMDQ score (r=-0.49069).

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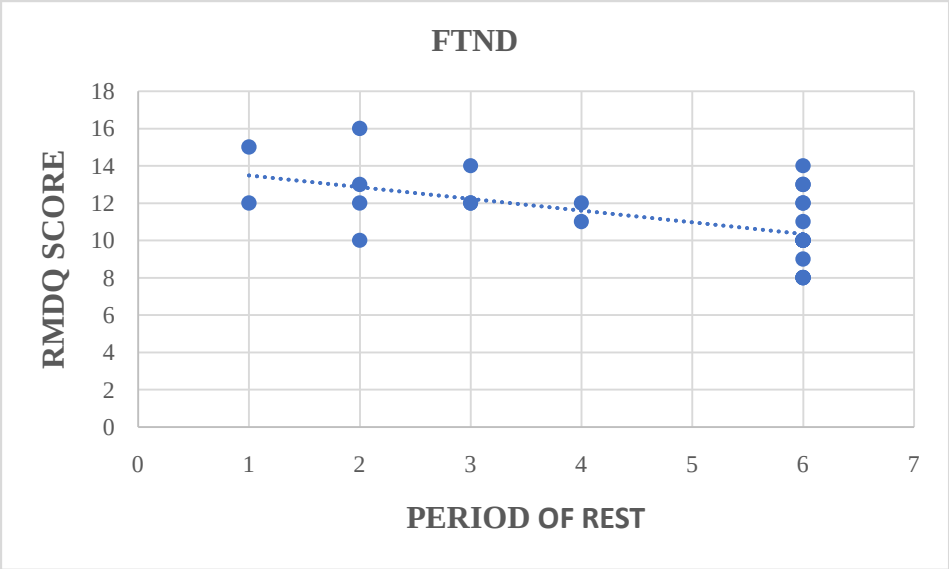

FIGURE NO. 2 Correlation Of Rest Period Vs Participants Who Underwent Ftnd.

The participants who underwent FTND showed statistically moderately negative correlation between the period of rest and RMDQ score (r=-0.58079).

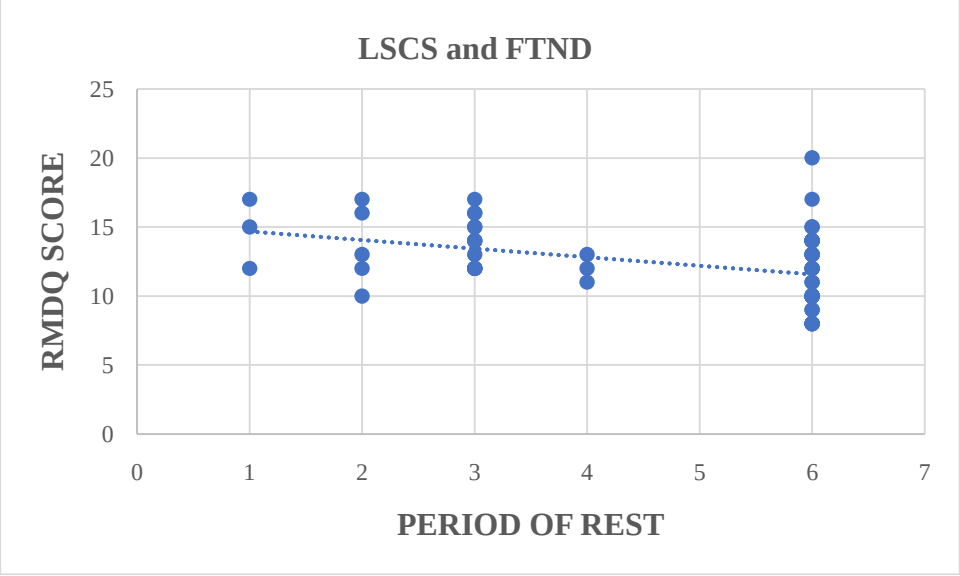

FIGURE NO. 3 Correlation Of Rest Period Vs Participants Who Underwent Ftnd And Lscs.

Overall result revealed that, significant correlation with p-value = 0.000 (<0.05). Hence, there is relationship between period of rest and the RMDQ score, participants those who underwent both LSCS and FTND. Correlation coefficient (r= -0.405) indicates that relationship is moderately negative correlating to period of rest and RMDQ score.

This study concludes that as the period of rest increases, low back pain and disability decreases among the primiparous women.

IV. DISCUSSION

The results showed that out of total 70 participants. According to the collected data, out of total participants (N=70) 34 participants underwent LSCS, in which 23 participants took 6months period of rest, while none of the participant took 5

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months period of rest, 1 participant took 4 months period of rest, 8 participants took 4 months and 1 participant who took 2 months period of rest and 1 participant took 1 month period of rest. Out of 70 participants, 36 participants underwent FTND, in which 21 participants took 6 months period of rest, while none of the participant took 5 months period of rest, 2 participants took 4 months period of rest, 7 participants took 4 months and 4 participants who took 2 months period of rest and 2 participants took 1 month period of rest.According to the data collected, 31 participants were housemaker and 17 participants were having jobs with maternity leave and 22 participants were doing jobs without maternity leave.

According to results from figure no. 1, it was widely believed following MacArthur and colleagues' study that epidural analgesia raises the incidence of new chronic back pain. Thus, it was hypothesized that the lower back and legs' motor block from the epidural injection of local anaesthetics during labor resulted in poor posture and immobility. According to Russell et al., women who had epidural anaesthesia had a similar higher risk of low back discomfort than those who had not.[7]

Certain physiological and anatomical changes that occur during pregnancy may influence the frequency of persistent lower back pain,however the type of anaesthesia used does not alter the persistence of LBP following caesarean section or a normal vaginal delivery. Many women in clinical practice may experience chronic low back pain following caesarean section. After Caesarean Section, a significant percentage of women in clinical practice may experience chronic low back discomfort. They concluded that spinal anaesthesia was not associated with low back pain. [8-9]

Consequently from figure no. 2, throughout pregnancy, the expanding uterus pulls and weakens their abdominal muscles, altering their posture and putting strain on their backs. Taking extra weight both during and after pregnancy strains joints and requires more effort from muscles. Additionally, throughout pregnancy and as the body prepares for childbirth, hormonal changes cause the ligaments and joints that connect the pelvis to the spine to loosen. The body changes physically and hormonally during a period of nine months, and these changes take time to manifest. Exaggerated lordosis, increased joint and peripheral laxity, and an expanding uterus cause an increase in the flexion moment of the back, which exacerbates low back pain are the skeletal changes observed following pregnancy.[10]

Presence of diastasis recti indicate number of changes to the integrity of the abdominal wall. For example, the viability of the lumbosacral fascia, which provide a circumferential support to the lumbar spine. If such changes do occur lead to muscle imbalances, inefficiency in movement, change in posture and hence development of back pain.[11]According to a biomechanical process, the pregnant woman's abdominal muscles may extend to accommodate her growing uterus. This could lead to muscle fatigue and an additional strain on the spine, which must bear the full weight of the torso's increased weight. There is a high correlation between having LBP throughout pregnancy and after birth and gluteus medius weakness.[12]

Figure no. 3 showed that, Dumas et al (1995a), they did study on postural change in postnatal women and the result of this study was that posture in postnatal were not significantly different, measured at late stage of pregnancy, increase in the postural curve measured during pregnancy being maintained even three months postnatally.[13]

According to Mattea Romano study, the third phase is the delayed postpartum period, which can extend up to six months, based on studies showing that discomfort lessens as the length of rest increases. Pathology is uncommon at this phase, and changes occur very gradually. This is the period when connective tissue and muscle tone recover to their prepregnant state. Despite the gradual changes that occur during this stage, caregivers should keep in mind that a woman's body does not fully return to its prepregnant state until around six months after giving birth.[14]

V. CONCLUSION

Our findings thus bring us to the conclusion that participants who took postdelivery 6 months period of rest had less low back pain and disability, whereas who took 1 month period of rest had highest score of RMDQ that is as the period of rest increases, low back pain decreases. Out of 70 participants, 63% of them who took 6 months period of rest showed reduced severity of low back pain unlike participants who took less than 6 months period of rest postdelivery.

Strength and weakness of the study was done in limited period of time, limited to one specific and limited geographical area. Education and socio-economic status were not assessed, which would have given an idea for the reason of

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the results.A larger sample size could have been collected. This research was limited to primipara women. Multipara women can therefore be included in future research to achieved better results. This research can be enhanced by establishing a correlation between female individuals who exercise and their postpartum rest period.

CLINICAL IMPLICATIONS

It should be necessary for all women to rest for six months postdelivery, so as to minimize complications of low back pain.They should be made aware of the pathophysiology of regression to pre-pregnancy status.All postdelivery females should receive sufficient ergonomic instruction in order to reduce the degree of low back discomfort.

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ABBREVATIONS

- LBP- Low Back Pain
- FTND- Full Term Normal Delivery
- LSCS- Lower Segment Caesarean Section
- RMDQ- Ronaldo Morris Disability Qestionnaire