



Research article

Impact of Diastasis Recti Abdominis and low back pain on Quality Of Life in Post-partum female

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ABSTRACT

The literature defines DRA as a gap of more than two fingerbreadths between two rectal abdominal muscle bellies, either above or below the umbilicus. Separation is referred to as DRA. Female diastasis recti is more common in postpartum women. Lower back pain is the most common cause of daily activity limitation in postpartum females. Post-partum women express concerns about their mobility, pain, and normal activities, all of which have an impact on an individual's quality of life. The study aimed to check the Impact of diastasis recti and low back pain on quality of life in post-partum females. This research will be conducted at the Physiotherapy OPD at Ravi Nair Physiotherapy College and the AVBRH in Sawangi (Meghe), Wardha. Post-partum females will be evaluated for diastasis recti. The effect of diastasis recti and low back pain on postpartum females' quality of life. The current study significantly showed that the correlation between diastasis recti and quality of life with satisfaction is $-0.473r$, and the correlation between diastasis recti and importance is $-0.452r$, and the correlation between low back pain and quality of life is $0.025r$. So the present study shows that an increase in inter rectal distance and low back pain will affect the quality of life in postpartum females. From the present study, we can conclude that an increase in rectal distance and lower back pain have an impact on the quality of life of postpartum females.

Keywords: Diastasis recti, Post-Partum female, Low back Pain, Quality of Life.

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INTRODUCTION

Diastasis rectus abdominis is a hormonally mediated mechanical effect of pregnancy on the abdominal musculature^[1]. In general, the risk factor is associated with physical health risk 5 in Postpartum women. Diastasis recti is seen in 68 percent of postpartum women. Diastasis recti abdominis is caused by mechanical stress on the anterior abdominal wall. Diastasis recti can be caused by a variety of factors, including the mechanical effect of pregnancy on the abdominal musculature and hormonal factors.

During pregnancy, the linea Alba weakens due to connective tissue softening caused by increased levels of relaxin, progesterone, and estrogen. Lower back pain caused by diastasis recti abdominis can also be surgically treated. Pregnant women should exercise for a variety of reasons, including maintaining strength, muscle tone, and endurance. Exercises also contribute to the patient's well-being by alleviating labor pain and lower back pain. Inter-recti abdominis is the-

space formed in diastasis recti abdominis as a result of linea Alba separation. The diastasis recti was measured with a dial caliper. Diastasis recti Abdomen is more common in the postpartum period. Palpation and finger-width methods are also used to measure diastasis recti abdominal width, but they are not considered reliable or valid for measuring the exact inter-recti distance. When a multiparous woman frequently lifts and carries her young children, she places additional strain on her abdominal muscles, which can lead to diastasis recti. Many women perform the Valsalva maneuvers while lifting. The Valsalva maneuver puts pressure on the abdominal muscles, which can cause straining and widening of the DRA.

Postpartum is another term for the fourth stage of labor. The Post-partum period can last up to 6 months. Risk factors that commonly occur in post-partum women include physical health risks. 5. Diastasis recti is seen in 68% of post-partum women. At 8 weeks

postpartum, the inter-recti distance gradually resolves with time and individual validity [1]. At 12-14 weeks postpartum and 6 months postpartum, Mota et al assess inter-recti abdominis [1]. Most women experience an increase in inter-recti distance in the abdominal muscle during or after pregnancy, which is caused by stretching or thinning of the linea alba. Diastasis of the abdominal muscle is considered pathologically positive if it is wider than 2.7 cm above the umbilical level. Diastasis of the rectus abdominis occurs in the second trimester of pregnancy and is most common in the third trimester. Few studies have been conducted that show that the inter-recti distance increases in the 14th week of pregnancy and continues to increase until delivery. Lower back pain is a universal health problem that affects people of all ages. The most common cause of daily activity limitation is postpartum low back pain [2]. Women who are more than 6 months postpartum are more prone to diastasis recti. It may change posture and give more back strain, which leads to reduced strength and function that leads to lower back pain [3]. Four out of ten women report persistent low back pain six months after delivery, and 20% of women with back pain report persistent symptoms three years later [2]. DRA prevalence decreased from 100% at gestational week 35 to 35-39% at 6 months postpartum. At 6 months postpartum, no statistically significant differences in pregnancy BMI, weight gain, baby's birth weight, or abdominal circumference were found between women with and without DRA. Women with DRA were no more likely than women without DRA to report lumbo-pelvic pain at 6 months postpartum.

DRA is common at 6 months postpartum, but it is not associated with lumbo-pelvic pain. Lumbopelvic pain occurs in pregnant women which may persist or arise after delivery [4]. Women with diastasis recti often experience back pain. To provide the proper support for the trunk and spine, our body requires strong and intact abdominal muscles. Because of inadequate abdominal muscle support during activity, more demand is placed on the spine, causing pain to begin at the spine [5].

Post-partum women most of the time complain regarding mobility, self-care, usual activities, pain or discomfort which affect the quality of life in an individual. At the end of the 1st month, there are limited problems with the women and they can perform usual activities [6]. The diastasis of the rectus abdominis heals between 1 day and 8 weeks after birth. Diastasis of the rectus abdominis ranges from 66% to 100% in the third trimester of pregnancy, and then drops to 53% after delivery. Diastasis recti can be surgically treated, which can lessen the effects of the diastasis recti, such as back pain. If regular exercises, such as core muscle strengthening, are performed before and during the antenatal period, the risk of developing diastasis recti is reduced, and if diastasis recti does occur, the size of the diastasis recti is reduced. The majority of women are unaware of diastasis recti and have no idea if they have it. These women are also unaware of the

various exercises that can be done. The abdominal muscles are targeted in the exercises, which can be done while pregnant. Pregnancy without complications may be motivating for women who led sedentary lifestyles prior to pregnancy. Sedentary women should be encouraged to incorporate appropriate aerobic exercises and strengthening workouts into their routine. Women who were physically active prior to pregnancy should continue to exercise on a daily basis, perform aerobic exercises, and strength exercises [7].

It is also claimed that performing abdominal strengthening exercises prior to pregnancy and continuing the exercise during pregnancy can reduce the likelihood of having a caesarean section delivery and influence more effective delivery. Most women experience an increase in inter-recti distance in the abdominal muscle during or after pregnancy, which is caused by stretching or thinning of the linea Alba. Diastasis of the abdominal muscle is pathologically positive when it widens by more than 2.7 cm above the umbilical level. Diastasis recti can occur in the second trimester of pregnancy and 90% of the time it occurs in the 3rd trimester of pregnancy [8].

Women with rectus abdominis diastasis are advised to perform abdominal exercises after giving birth. Many potential risk factors (e.g., age, height, BMI, abdominal circumference, hormonal changes, and weight gain during pregnancy, gestational age at delivery, method of delivery, birth weight, and rates of multiple pregnancy) were investigated, and may be responsible for enlarged inter-recti distance [9]. The size of the enlarged inter-recti distance determines the therapy: a small diastasis can heal naturally, but a larger one that is not treated can persist for a longer period of time and cause other problems such as decreased quality of life, poor posture, low back pain, and urinary incontinence. Exercises aid in the improvement of physical pain response. It also improves body posture. Exercises that are properly chosen reduce pain in the lumbar spine area. This is useful after delivery as well as when caring for the newborn. Every other woman may have diastasis recti after pregnancy, but with proper treatment, the inter rectal distance can be reduced. It is critical to educate women about the nature of diastasis recti abdominis, its risk factors, implications, and physiotherapy treatment.

Various studies have been undertaken which concluded that diastasis recti is one of the cause for prevalence of low back pain in postpartum women even after 1 year of delivery resulting in persistence of symptom of low back pain that affecting the functional activity of female which can hamper quality of life therefore need was felt to carry out the current study to find the effect of Diastasis Recti on Quality of Life in Postpartum women with Low back pain.

The objectives included to evaluate the width of diastasis recti, to evaluate of low back pain, to assess quality of life using, to find association of diastasis recti with low back pain and to correlate diastasis recti with quality of life.

MATERIALS AND METHODS

This observational study is conducted in Acharya Vinoba Bhave Rural Hospital and Physiotherapy OPD. Total 80 participants participated in the study calculated using convenient sampling. The inclusion criteria included the females with diastasis recti, up to 6 months post-partum females, post-partum females having low back pain and those who were belonging to 20-35 years of age. The exclusion criteria included the females with lower limb radiculopathy and females with PIVD or Stenosis.

The diastasis recti was measured using digital caliper. For severity of Low back pain, the score of Modified Oswestry low back pain disability questionnaire was measured and for quality of life, the Score of maternal postpartum questionnaire was measured. To avoid bias, age and other anthropometric factors will be matched between the two groups, and subjects who do not meet the selection criteria were excluded.

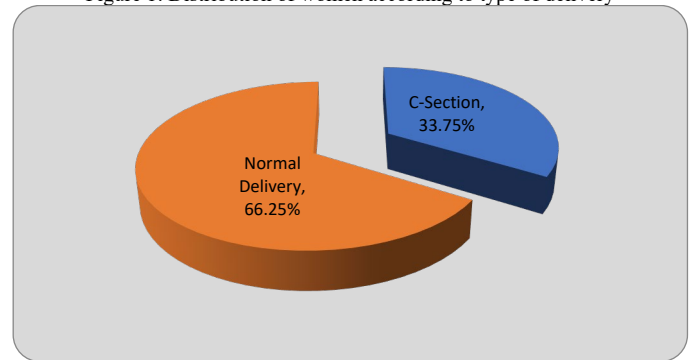
RESULT

The current study, titled "Impact of Diastasis Recti Abdominis and Low Back Pain on Quality of Life in Postpartum Females," included 80 postpartum females ranging in age from 22 to 38 years, with 27 women undergoing C-Sections and 53 having normal deliveries. And four women had less than 25% low back pain, 54 had 26-50% low back pain, and 22 had 51-75% low back pain, with a quality of life satisfaction mean of 185.63 and an importance mean of 26.61. So the correlation between diastasis recti and low back pain is $-0.096r$, the correlation between diastasis recti and quality of life with satisfaction is $-0.473r$, and the correlation between diastasis recti and importance is $-0.452r$, and the correlation between low back pain and quality of life is $0.025r$. So the present study shows that an increase in inter rectal distance and low back pain will affect the quality of life in postpartum females.

Statistical analysis

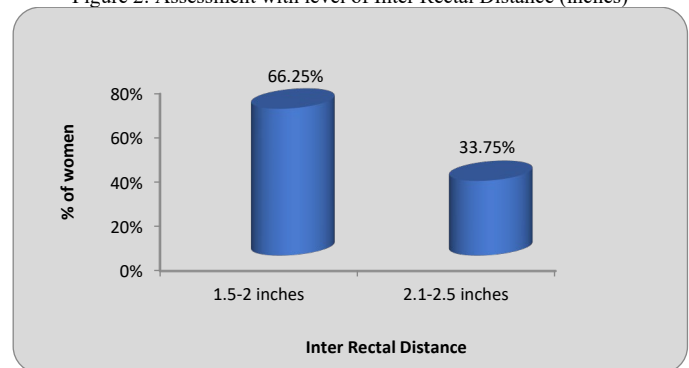
Statistical analysis was done by using descriptive and inferential statistics using Pearson's correlation coefficient and the software used in the analysis was SPSS 27.0 version and $p < 0.05$ is considered as a level of significance. All data collected for this purpose was entered into an excel sheet, tabulated, and statistically analyzed. Several statistical measures were used, including mean, standard deviation of mean, standard error mean, and data from the subject's demographic details from the student's unpaired t test. The student's unpaired t test was used to compare diastasis recti with low back pain, diastasis recti with quality of life, and low back pain with quality of life in relation to outcome measures of the dial caliper used to measure inter-rectal distance. In addition, for low back pain, a modified Oswestry low pain questionnaire was used, as well as a maternal postpartum quality of life questionnaire.

Figure 1: Distribution of women according to type of delivery



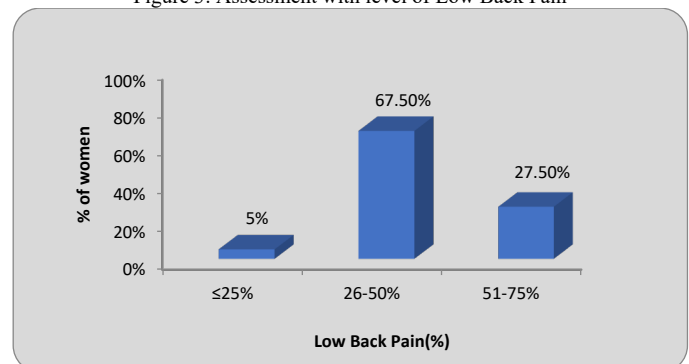
Women's age distribution: In the current study, 80 participants were included and divided into two groups of 27 and 53 participants, respectively. In this study, the age of participants allotted in both the group C-section and normal delivery were between 22-38 years. The percentage of age of participating individuals was 30% of age group 22-25 years, 33.75% of age group 26-29 years, 16.25% of age group 30-33 years and 20% of age group 34-38 years.

Figure 2: Assessment with level of Inter Rectal Distance (inches)



Distribution of women according to their type of delivery: In the present study, 80 participants were included and allotted into two groups, i.e. C-section and normal delivery. There were 27 C-sections and 53 vaginal deliveries. 33.75% C-section and 66.25% Normal delivery.

Figure 3: Assessment with level of Low Back Pain



Inter rectal assessment in inches shows that 53 women's have interrectal distance between 1.5-2.0 inches which means 66.25% women's and 27 women have 2.1-2.5 inches that is 33.75%.

Outcome measures

1. Width of diastasis recti using dial caliper: Inter rectal assessment in

inches shows that 53 women have an inter rectal distance between 1.5-2.0 inches which means 66.25% of women and 27 women shave 2.1-2.5 inches. That is 33.75%. The Mean \pm SD is 1.98 ± 0.24 (1.62-2.46 inches).

2. Correlation of Diastasis Recti with lower back pain

The test for normality of inter-rectal distance using dial caliper among postpartum females showed a mean of 2.88 and a standard deviation of 0.24 in 80 individuals. Women with low back pain showed a mean of 44.80 and a standard deviation of 11.27, so the correlation is -0.096r and the p-value is 0.398, NS, which indicated that an increase in diastasis recti leads to an increase in low back pain.

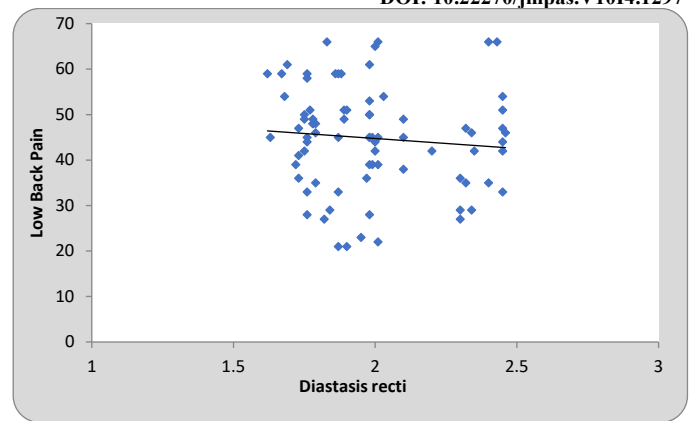
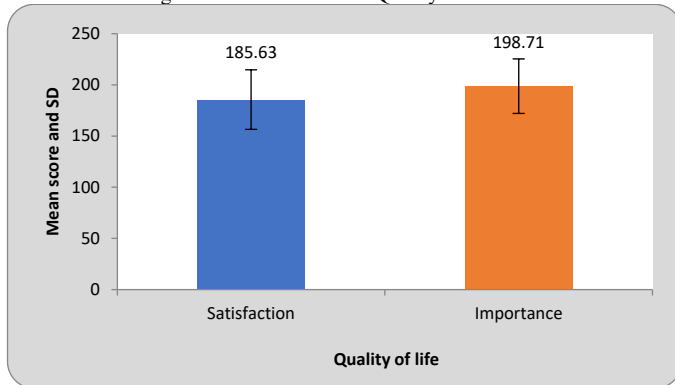


Figure 4: Assessment with Quality of life score



3. Correlation between diastasis recti and quality of life

The test for normality of inter-rectal distance using a dial caliper among postpartum females revealed a mean of 1.98 and a standard deviation of 0.24 in 80 females on quality of life related to satisfaction, a mean of 185.63 and a standard deviation of 29.09 in 80 individuals, and 198.71 mean in the importance section with a standard deviation of 26.61 correlation related to satisfaction and rectal distance.

4. Correlation between lower back pain and quality of life

In an 80-person sample, the mean for postpartum female low back pain is 44.80 and the standard deviation is 11.27. In the quality of life satisfaction section, the mean is 185.63 and the standard deviation is 29.09, with a correlation value of 0.076 and a p-value of 0.503, NS, and in the importance section, the mean is 198.71 and the standard deviation is 26.61, with a correlation value of 0.025 and a p-value of 0.826, NS, indicating that individuals with increased inter rectal distance have low back pain.

Figure 5: Correlation between diastasis recti with low back pain

DISCUSSION

Several studies have found a high prevalence of diastasis recti in females undergoing c-section, whether primipara or multipara, due to rectus abdominis muscle separation during surgery [10]. However, diastasis can occur due to the separation of two bellies of the recti muscle to accommodate the growing size of the uterus, but after delivery in the postpartum period when the structures of the abdomen and pelvic return to their normal position, the gap is eventually reduced, but diastasis may still persist and may show different features in a female with a single delivery compared to females with multiple deliveries [11].

The current study is being conducted to determine the impact of diastasis recti and low back pain on postpartum females' quality of life. Various studies have found that back pain can have an impact on one's quality of life. In postpartum females due to pregnancy, the abdominal muscles are stretched, causing weakness and even separation of the rectus muscle. If this persists, support to the trunk may be compromised, causing back pain and this may prevent females from carrying out various activities, even tai chi. Thus, current study aims to find out effect of diastasis recti and low back pain on quality of life in postpartum females.

Boxer SE and Jones S carried out a study on inter-rater reliability and concluded that rectus abdominis diastasis can be measured during the postpartum period with a high degree of reliability when measured using dial caliper. It has been demonstrated to be a simple, accurate, and practical instrument for measuring diastasis recti [12].

Mathilade N. Husky et al carried out a study in 2018 on back pain and its association with quality of life and concluded that back pain severely affects health related quality of life in population with chronic low back pain. As a result, current research is being conducted to assess the quality of life in postpartum females with diastasis recti [13].

CONCLUSION

From the present study, we can conclude that an increase in rectal distance and lower back pain have an impact on the quality of life of postpartum females. This study will help to understand that the

individual whose rectal distance is increased suffers from lower back pain and lower back pain can have more effect on the quality of life of an individual.

Limitation

1. It was difficult to persuade patients to participate in this study.
2. Because of the SARS-COVID-19 pandemic, the number of patients in the hospital was reduced. Most of the participants were afraid to participate in the research because of the SARS-COVID-19 pandemic.
3. Because of the SARS COVID-19 pandemic, the study duration was reduced from 6 months to 5 months, and we reduced our sample size from 175 to 80 in light of the pandemic scenario.
4. It was difficult to persuade patients to participate in this study. Because of the SARS-COVID-19 pandemic, the number of patients in the hospital was reduced. Most of the participants were afraid to participate in the research because of the SARS-COVID-19 pandemic.

Author's Contribution

All authors contributed equally to the manuscript.

Conflict of Interest

The authors declare no conflict of interest.

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