



Original Article

Prevalence of Diastasis Recti Abdominis and Its Impact on Quality of Life in Association with Low Back Pain After Postpartum; A Cross-Sectional Study

Maha Bilal Butt¹, Anam Bint Irfan Akbar^{1*}, Zufa Shafiq¹, Syed Naeem Abbas¹, Imran Manzoor¹, Urooj Sajjad¹

^{1*}Shalamar Institute of Health Sciences, Lahore, Pakistan.

ABSTRACT

Background: After giving birth, a woman experiences numerous anatomical and physiological changes, including changes in hormone order, blood loss, uterine contractions, and more. These changes can lead to postpartum problems such as postpartum hemorrhage, postpartum endometritis, depression, and diastasis recti. The two muscle bellies of the rectus abdominis must be separated to have a diastasis recti abdominis. DRA contributes to frequent health problems such as lower back discomfort in new mothers. Women who have DRA are more prone to experience more severe abdominal and pelvic pain. **Objective:** To determine the prevalence of diastasis of recti abdominis and its impact on quality of life in association with low back pain after postpartum. **Methods:** This cross-sectional study was conducted from September 2022 to March 2023 at Al-Shafi Clinic, Mother Care Hospital. The study followed 300 first-time mothers from conception to 12 months after giving birth. Data was collected from female participants who fulfilled inclusion and exclusion criteria. Consent was taken from them to ensure their voluntary participation before data collection. Then a manual test named a two-finger test was performed to diagnose DRA. Oswestry low back index and WHO quality of life questionnaire were used as outcome measure tools filled by a therapist by asking questions from participants. Data was evaluated by SPSS version 21 and descriptive statistics were presented as frequency tables, mean standard deviation, mode, bar chart, pie chart and histograms. **Results:** The mean age of the candidate was 33.99±4.13years. Differential statistics are calculated by different parametric tests. The chi-square test was used between the deliveries and the two-finger test. Cross tabulation was applied to compare quality of life and low back pain. the study recruited were 300 (100%) females. minimum no.of deliveries 1.00 and maximum 6.00. shown that the maximum number of participants was positive 292 after the chi-square test was applied. **Conclusion:** It is concluded that diastasis recti abdominis has a significant association with low back pain that affects the life quality post-partum. It showed quality of life was majorly impacted by diastasis recti abdominis as social health and general health were affected more than environmental health and physiological health due to diastasis recti abdominis.

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***Corresponding Author:** Anam Bint Irfan Akbar, Shalamar Institute of Health Sciences, Lahore, Pakistan

Email: aanam.irfan@outlook.com

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INTRODUCTION

The most critical time in a woman's life is her pregnancy, according to many experts. To produce healthy offspring during this time, a female must undergo numerous changes that could be physical, mental, or social. She may experience changes that are directly related to her womanhood as a result of the pregnancy.¹ A woman experiences numerous anatomical and physiological changes following childbirth, including changes in the ratio of the hormones (estrogen and progesterone), blood loss, contraction of the uterus, and more. These changes can lead to postpartum problems like postpartum hemorrhage, postpartum endometritis, depression, and diastasis recti. After pregnancy, diastasis recti is the most typical problem.² Both pregnant and postpartum women are bothered by diastasis rectus abdominis (DRA), or central line inter-recti separation.³ The supra-umbilical region is where rectus abdominis separation is most common where the abdominal muscles are detached by an unusual distance due to the broadening of the linea Alba, which causes the abdominal content to swell and are related to the mother's age and body mass index. These changes that occur during pregnancy frequently have an impact on the rectus abdominis, which begins to expand and lengthen as a result of the growing and developing fetus.⁴

DRA contributes to frequent health problems such as lower back discomfort in new mothers. Postpartum pain in the abdomen and pelvis is more likely to be of a greater grade and intensity in women with DRA.⁵ Diastasis Recti can be inherited but is most usually obtained during pregnancies and/or larger weight gain causing inadvertently of linea Alba.⁶ It is the most common condition in pregnancy as the prevalence in the third trimester is as great as 66% whereof 30–60% stayed post-partum.⁷ The progress rate is controversial and not illegible to condition, as no recognized studies

and research evaluate the long-term effects of physiotherapy.⁴ Because it moves from the xiphoid process to the symphysis pubis, the linea Alba is a generous ridge that is below the area affected by these hormonal changes. The continually growing stretch caused on the abdominal wall by the growing fetus goes hand in hand with the hormonal softening of the linea Alba. Therefore, the greatest tension on a structure that is already weak poses a risk of detachment.⁸ Diastasis recti abdominis prevalence among women throughout the child-bearing year has not previously been documented in the literature. According to early postpartum statistics, 50% to 60% of women tested positive.⁷ Based on prior research and published studies, it is possible to identify several risk factors that are frequently associated with the presence of DRA at 6 months postpartum. These include the women's age, pre-pregnancy body mass index (BMI), weight gain during pregnancy, BMI at 6 months postpartum, hypermobility score, baby weight at birth, abdominal outline in late pregnancy, and amount of exercise training.⁹ The excess skin after significant weight reduction during a diet or after pregnancy is another modern treatment for treating the connection between DRA and back pain. Back strain and pain have been linked to such skin redundancy and fascial indulgences in the abdominal wall.⁹

Gitta et al claim that people with DRA may also experience less energy and a lower quality of life in addition to low back pain.¹⁰ During pregnancy, linea Alba deficiency due to connective tissue softening happens by increased levels of relaxing, progesterone, and estrogen. Lower back pain diagnosed by diastasis recti abdominis can also be treated. Pregnant women would exercise for a variety of causes, including maintaining strength, muscle tone, and endurance. Exercises also refer to the patient's progress by relieving labor pain and lower back pain.¹¹ When a

multiparous woman frequently lifts and carries her young children, she places excessive strain on her abdominal muscles, which can link to diastasis recti. Many women present the Valsalva maneuvers while lifting. The Valsalva maneuver undergoes pressure on the abdominal muscles, which can cause reason straining and spreading of the DRA.¹² These stresses modify the ideal course of action and partial configuration of the abdominal muscles' walls and fascia, which reduces their capacity to generate force. Supporting the linea Alba's tension is essential to maintaining the rectus bellies' proximity and the strength of the transverse, rectus, and oblique muscles. It has been hypothesized that altered movement patterns that cause discomfort in debilitated individuals may be related to an imbalance between the strength and length of these abdominal wall muscles and the resulting changes in fascial tension.¹³ The premise behind transverse training regimens is that they lessen accidental activation of the transverse abdominis muscle and pelvic floor at the sacroiliac joint. Therapy's cornerstone is the order in which muscles are activated.¹⁴

Because exercises that target the hamstrings, in particular, might cause pain in the sacroiliac joint, hip extension exercises should emphasize early gluteus Maximus activation. Poor hip extensor activation in a movement pattern causes compression or muscle dysfunction, which in turn causes pain at the sacroiliac joint and changes mobility.¹⁵ The postpartum abdomen and DRA pose a challenge due to several factors, including a significant and occasionally complex pathology that affects all layers of the anterior abdominal wall and frequently results in a wide range of functional defects and the complex interaction between these functional and aesthetic concerns with the patient's perception of their body image, self-worth, and quality of life.¹⁶ Establishing genuine value in terms of improving the patient's functional as well as psychological

status in the case of postpartum women may turn out to be a crucial but unimportant aspect of their care.¹⁷ Poor abdominal muscle tone after pregnancy is caused by the body's failure to restore the link between the right and left rectus abdominis muscles, which results in the loss of functionality of every abdominal wall organ.¹⁸ Postnatal women with DRA are routinely offered abdominal workouts. The goal of the study is to ascertain how common diastasis recti abdominis is after post-partum, and the role of the physiotherapist is to strengthen pelvic floor muscles which involve exercises of abdominal muscles to reduce low back pain.¹⁹ The study will help to spread awareness of Diastasis recti abdominis among females. Pregnant women should be encouraged to exercise appropriately during their pregnancies to lower the number of DRA, and if it is discovered early on, early intervention should be provided to improve the impact of DRA on women's quality of life about low back pain after delivery.

METHODS

This is a cross-sectional study that was designed to ascertain the prevalence of diastasis recti abdominis upon childbirth. The sample size was calculated through epi info software placing the confidence interval at 95%, the design effect-1, and the margin of error at 5 was 0.5%. The sample size came out to be 300 participants. Non-probability convenient sampling technique was used in this current study. Consent forms both in Urdu and English were explained and were duly signed by the recruited participants. Then a manual test named two-finger tests was performed to diagnose DRA and Oswestry low back index and the WHO quality of life questionnaire was filled out by the therapist by asking questions from participants. Data was collected from Al-Shafi Clinic and Mother Care Hospital Lahore Pakistan. The ages of the participants ranged between 20 to 45 years and a maximum of six deliveries of females were included.

Females with obesity, diabetes, hypertension, disc herniation, prolapsed disc and stenosis were not included. Data was evaluated by SPSS version 21 and descriptive statistics were presented as frequency tables, mean standard deviation, mode, bar chart, pie chart and histograms.

RESULTS

According to the results, the findings mean age of the candidate was 33.99 ± 4.13 years. the study recruited were 300 (100%) females. minimum no. of deliveries 1.00 and maximum 6.00 showed that the maximum participants were positive 292 after the chi-square test was applied. According to the results findings it reveals that pain due to DRA prevents the participants from lifting heavy weights, walking, sitting and standing for more than 30 minutes, sleeping and sexual life affect diastasis recti abdominis but somehow patient can manage to perform ADLs. Due to DRA quality of life is moderately affected and a person suffer from many difficulties in performing their function. Results showed that there is a strong correlation between quality of life and DRA but social health and general health affect more than environmental health and physiological health due to DRA. According to this study, descriptive statistics were presented as frequency tables, mean standard deviation, mode, bar/pie chart and

histograms. Differential statistics are calculated by different parametric tests. The chi-square test was used between no of deliveries and two finger tests. Cross tabulation was applied to the comparison between the quality of life and low back pain.

DISCUSSION

The goal of the study was to find out the prevalence of diastasis recti abdominis and how it affects the quality of postpartum low back pain. The study found that as a woman gets older, her diastasis of the rectus abdominis gets worse. To gain access to the diastasis of the rectus abdominis, a manual test using two fingers is required. The general population's Oswestry low back index and quality of life questionnaire data will be gathered. The condition known as diastasis rectus abdominis (DRA) is on the rise, which can make one feel uneasy and lower their quality of life. Bhavna Gandhi et al. study in 2021 on the effects of diastasis recti abdominis and low back pain on postpartum female quality of life. About 80 postpartum women ranging in age from 22 to 38 were enrolled in the study. It discovered a connection between low back discomfort and quality of life as well as a connection between diastasis recti and quality of life, contentment, and importance. Thus, the present study demonstrated that postpartum women's quality of life was negatively impacted by an increase

Table 1: Level of Pain with Activity

	Normally	Little pain	Mild pain	Moderate pain	Severe pain
Lifting	21	55	85	95	35
Walking	57	32	70	84	49
Sitting	70	45	82	61	34
Standing	67	54	66	62	43
Sleeping	84	42	72	60	34

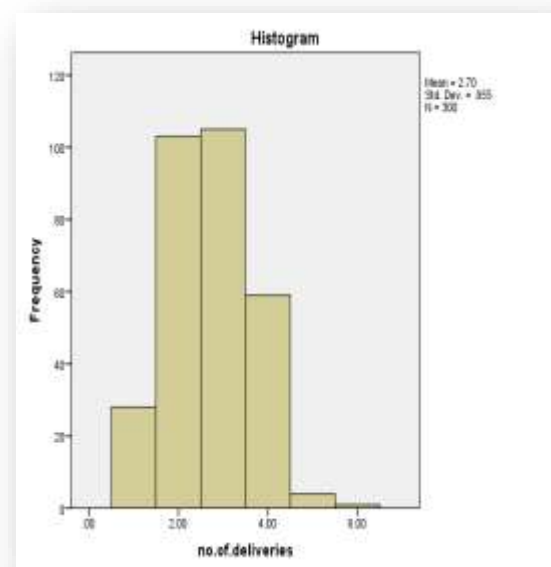
Table 2: Level of Satisfaction

	Not at All	Little	Neutral	Moderate	Very Much
How would you rate your quality of life	6	2	45	121	118
How satisfied are you with your health	0	0	1	142	149
To what extent do you feel physical pain prevents	42	92	93	65	0
How much do you need medical treatment to function in life	36	78	109	69	0
How much do you enjoy life	5	92	0	119	76
How well are you able to concentrate	9	99	103	76	5
How safe do you feel in your daily life	0	5	84	136	67
How satisfied are you with the support you get from friends	0	0	0	106	186
How satisfied are you with your capacity for work	0	47	51	193	1

in interrectal distance and low back pain.⁵ Claire Cardiaillac et al. studied postpartum diastasis rectus abdominis muscle in 2020: quality of life, prevalence, associated pelvic floor symptoms, and concordance between patient and clinician evaluations. The participants in the study found that the frequency and severity of diastasis had no significant impact on pain in the pubic or lumbar symphysis. Immediately following childbirth, 210 (83%) of the women presented with diastasis, with 116 (55%) cases of severe diastasis and 51 (42%) cases of diastasis that persisted after 36 months of follow-up. While severe diastasis does not affect pelvic floor symptoms, It significantly affects newborns' quality of life at birth and 36 months.⁷ According to a study by Sandra Gluppe et al. published in 2021, women with diastasis recti abdominis may experience greater abdominal pain and weaker abdominal muscles, but there is no evidence that pelvic floor issues are more common. The study enrolled participants to find out if women with diastasis recti

abdominis (DRA) experience more pelvic floor disorders (PFD), low back, pelvic girdle and abdominal pain than those without DRA. The groups did not differ in terms of PFD, low back, or pelvic girdle pain.⁹ A 2022 study on the role of exercise in preventing diastasis recti in pregnant women was conducted by Muntaz et al. The women in the study were recruited at a mean age of 26.5 ± 0.62 years. After six weeks of being pregnant, exercising women had a significantly lower incidence of diastasis recti than non-exercising women.¹⁸ A study done by Critchley et al. in 2022 on physical therapy was an important component of postpartum care in the fourth trimester. According to the study, physical therapists are crucial in diagnosing and treating common postpartum health issues like DRA to reduce long-term symptoms and enhance quality of life.¹⁵ Some post-partum females did not develop DRA who were physically active during pregnancy. Further studies must be conducted to measure physical activity levels. The use of questionnaires to diagnose DRA and low back pain may have

Figure 1: Number of Deliveries



have limitations because it is advised that the diagnosis of low back pain be validated with particular manual tests. The lack of information regarding the usual width of line alba after pregnancy was a limitation of the current study.

CONCLUSION

It is concluded that there is an association between quality of life and low back pain due to DRA after postpartum. It showed the quality of life was majorly impacted by DRA as social health and general health were affected more than environmental health and physiological health due to DRA.

DECLARATIONS

Consent to participate: Written consent had been taken from patients. All methods were performed following the relevant guidelines and regulations.

Availability of data and materials: Data will be available on request. The corresponding author will submit all dataset files.

Competing interests: None

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