

## Frequency of diastasis recti and lumbopelvic pain during pregnancy and factors associated with diastasis recti

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**Objective:** To determine the frequency of diastasis recti and lumbopelvic pain during pregnancy and to determine the factors associated with diastasis recti.

**Methodology:** It was cross sectional survey, conducted from September 1, 2017 to December 30, 2017 in Qamar Hospital, Gujar Khan. In this study, 400 pregnant females >18 years of age were included through non probability convenient sampling technique. Pregnant females with severe illness or with complication were excluded from study. Clinical examination of finger palpation method was used for assessment of diastasis recti and a questionnaire was used to determine frequency of lumbo pelvic pain and factors associated with diastasis recti. Diastasis recti was measured by palpation at the level of umbilicus, 4.5 cm above and below umbilicus.

**Results:** Mean age of females was 27.4±3.89 years. Among 400 pregnant females, 24% were

having mild diastasis recti. Females with diastasis recti had higher BMI score (27.3±3.89). 79.2% with diastasis recti and 53.9% without diastasis recti were multiparous. Large number of females with diastasis recti (86.5%) had lumbo pelvic pain and 52.6% without diastasis recti had lumbo pelvic pain during current pregnancy. Most of the pregnant females with diastasis recti i.e. 62.5% had bilateral sacroiliac joint pain and 43.8% without diastasis recti had bilateral sacroiliac joint pain.

**Conclusion:** The study concluded that 24% females are suffering from mild diastasis recti during pregnancy. Most of pregnant females are experiencing lumbo pelvic pain. Factors like greater BMI, lifting activity, previous LSCS delivery and lumbopelvic pain are associated with diastasis recti. (Rawal Med J 202;45:682-685).

**Keywords:** Diastasis recti abdominis, inter recti distance, rectus abdominis.

### INTRODUCTION

Diastasis recti abdominis (DRA) is a separation of two muscle bellies of rectus abdominis muscles in the length of the linea alba with widening and fibrous dissection of the linea alba.<sup>1</sup> It usually occurs during pregnancy. Prevalence ranges from 27 to 39% and happens in 2<sup>nd</sup> trimester or in post-partum period.<sup>2-5</sup>

Leading causes may be raised levels of pregnancy hormones like estrogens, progesterone and relaxin leads to the softening of linea Alba and related musculature.<sup>6</sup> As the pregnancy proceeds the enlarged uterus poses a mechanical stress on the weak abdominal musculature leading to the development of DRA.<sup>7</sup>

The risk factor to development of DRA may be increase age of women, higher weight gain during pregnancy, larger infant size, carrying multiples,

several births, cesarean section, benign hypermobility joint syndrome, heavy lifting during pregnancy.<sup>8</sup> It may disturb many the functions of the abdominal wall including its role in posture, trunk stability, respiration, delivery of fetus, trunk flexion and rotation side bending.<sup>6</sup> Normal pelvic floor functions are also compromised causing urinary or anal incontinence and pelvic organ prolapse<sup>1</sup> and lumbo pelvic pain.<sup>9</sup> Lumbo-pelvic pain is a localized pain in the L2-L5 area with and without radiation to the lower limbs.<sup>10</sup>

Low back pain or pelvic pain during and after pregnancy is a common complication of pregnancy.<sup>11,13</sup> Daily activities (such as gait pattern, step and stride length, stance phase and joint motion during gait) may increase it as pregnancy progresses.<sup>14</sup> The present study was design to determine the frequency of DRA and lumbopelvic

pain during pregnancy and factors associated with diastasis recti development.

### METHODOLOGY

This study was cross sectional survey, conducted from September 1, 2017 to December 30, 2017 in Qamar Hospital Gujar Khan. We recruited 400 pregnant females through non-probability, convenience sampling technique. Pregnant women aged >18, women with previous vaginal or lower segment caesarean section (LSCS) delivery were included. Females with serious illness or with complications were excluded. Structured questionnaire was used, while the manual finger palpation method for measurement of diastasis recti was utilized. DRA was measured by palpating the level of umbilicus, 4.5 cm above and below umbilicus. The women were tested in a standardized position which is lying on back and knees bend on 90° on the bench with arms crossed over the chest and they were instructed to lift up head and chin toward knee.

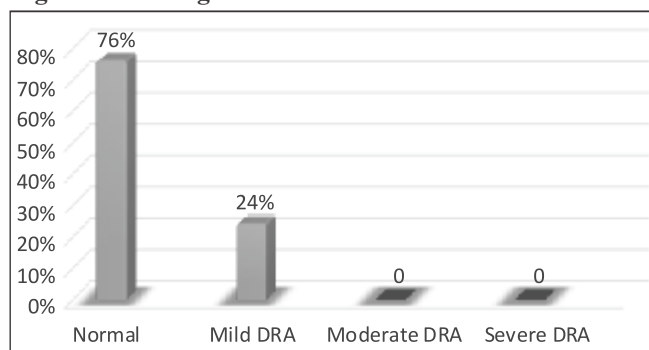
The women were classified into four groups: (1) less than 2 finger breadths normal separation, (2) separation of 2-3 finger breadths is mild diastasis, (3) separation of 3-4 finger breadths is moderate diastasis and (4) severe diastasis is a separation of 4 or more finger breadths.

**Statistical Analysis:** The data were analyzed through SPSS version 21. The mean, percentages and standard deviations were calculated for all variables. The Chi-square test was applied to test association of diastasis recti.  $p < 0.05$  was considered significant.

### RESULTS

The mean age of participants was  $27.4 \pm 3.32$  years. Out of 400 females, 76% were normal and 24% were with mild DRA (Figure). Mean BMI score were  $27.3 \pm 3.89$ . 61.5% of overweight females had DRA, 52.10% of females involved in lifting activity had DRA. Majority of females (86.5%) with DRA had lumbopelvic pain, 57% of females having LSCS delivery had DRA and 79.2% multigravida females had DRA (Table 1)

**Figure. Percentage of Diastasis recti abdominis.**



**Table 1. Frequency of causative factors of Diastasis Recti**

Causative factors		Diastasis recti	
		YES	NO
<b>BMI</b>	Under Weight	0%	1.6%
	Normal	19.8%	46.7%
	Over weight	61.5%	43.4%
	Obesity	18.8%	7.9%
<b>Lifting</b>	Yes	52.10%	40.5%
	No	47.9%	59.5%
<b>Lumbo pelvic pain</b>	Yes	86.5%	52.6%
	No	13.5%	47.4%
<b>Previous Mode of delivery</b>	Normal	43%	91.5%
	Cesarean	57%	9.5%
<b>Gravida</b>	Primigravida	21.8	47.1
	Multigravida	79.2%	53.9%
<b>Pelvic floor exercises</b>	Yes	0	0%
	No	100%	100%

**Table 2. Association of variables with diastasis recti.**

Association of different factors with diastasis recti	P value
Lumbopelvic pain	0.001**
Mode of delivery	0.001**
Lifting activity	0.045*
BMI	0.001**

We found 52.6% women had lumbopelvic pain with no DRA while 86.5% women had lumbopelvic pain had mild DRA ( $p=0.001$ ). A Chi-Square was used to observe association between different

factors and DRA and p-value was founded to be significant and it is shown in (Table 3).

## DISCUSSION

In current study, frequency of DRA was 24% with mild diastasis recti. Bakken et al showed 33.1% prevalence in pregnancy. Bioissonnault et al also reported prevalence of DRA as 27% in the 2nd trimester and 39% was seen in post-partum period.<sup>2,4</sup> Some association was found between multiparity and DRA as 79.2% females with DRA were multiparous.

Same significant association was found between multiparity and DRA in a study.<sup>15</sup> In current study, 50% females with DRA had previous LSCS delivery as mode of delivery. In this study, 52.1% females with diastasis recti were exposed to lifting activities in house chores during pregnancy. Increased probability of DRA in pregnant females who performed heavy lifting almost 20 times a week has been reported.<sup>1</sup>

In current study, we found strong association between lumbo pelvic pain and DRA. A previous study by Parker et al also reported that women with DRA were more prone to have abdominal or lumbopelvic pain during pregnancy.<sup>16</sup> However, Michalska et al found prevalence of lumbo pelvic pain with and without DRA as 27.3% and 27.5%, respectively.<sup>14</sup>

Sperstad et al reported no significant difference between women with and without DRA regarding low back or lumbo pelvic pain.<sup>1</sup> In our study, all women with and without DRA were unaware of any abdominal and pelvic floor exercises. It may be due to the poor awareness about the importance of exercises during and before pregnancy. Gluppe et al found a very high incidence and size of DRA in pregnant ladies who did not exercise than in exercising pregnant ladies.<sup>9</sup>

## CONCLUSION

We found that 24% females had mild diastasis recti during pregnancy. Previous caesarian section, lifting activities, higher BMI and low back pain were associated with diastasis recti. Large number of pregnant females with diastasis recti had lumbo pelvic pain.

### Author Contributions:

Conception and design: Huma Riaz, Sara Abroo  
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