

Prevalence of Diastasis Recti among Pregnant Women: A Cross Sectional Study

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Abstract

Background: In the female population, Diastasis Recti (DRA) is common in pregnant and postpartum women. Diastasis Recti is common in the second and third trimester of pregnancy. Due to stretching of uterus and abdominal muscles linea alba becomes weak during pregnancy also including hormonal changes like increases in progesterone.

Objective: The objective of this study was to find the prevalence of Diastasis Recti among pregnant women.

Study type, settings & duration: This cross sectional study was conducted at Kanaan Physiotherapy and Spine Clinic, Lahore from June to October 2022.

Methodology: The sample size of current study was 40 participants by Rao software. The data was collected by performing diastasis recti test using digital caliper and self-generated questionnaire. The inclusion criteria consisted of pregnant women with the age of 22 to 38 years and having back pain. The exclusion criteria was women with spontaneous abortion and who were at the high risk of diabetes, hypertension, heart problem, alcohol, drug use or any other condition that can affect the health of mother and fetus. The data was analyzed through SPSS 20.0.

Results: The results of this study indicated that prevalence of diastasis recti was very common during pregnancy. The results indicated that 82% of the women had diastasis recti during pregnancy. Mostly in 55% of the women diastasis recti was present in above umbilicus while in 45% of the women it was below umbilicus.

Conclusion: The findings concluded high prevalence of diastasis recti among women with pregnancy as measured by caliper. Furthermore, more common type of diastasis recti was found to be supra-umbilical.

Key words: Diastasis recti, pregnancy, postpartum period, pubic symphysis, rectus abdominis

Introduction

D iastasis Recti is an impairment caused by the separation of the rectus abdominal muscle along the linea alba.¹ In the female population, DRA is common in pregnant and postpartum women. Diastasis Recti is common in the second and third trimester of pregnancy. Due to stretching of uterus and abdominal muscles linea alba becomes weak

during pregnancy also including hormonal changes like increases in progesterone, estrogen, and relaxin.² Diastasis recti >2.7 is considered as pathological while other studies have defined diastasis recti as an inter-recti distance of >2 cm at umbilicus or 4.5 cm above or below the umbilicus.³ A diastasis recti may result in low back pain, pelvic and back muscles weakness and uterine expansion, urinary incontinence and breathing problems resulting in difficulty in getting back into a regular routine.⁴ Contributive factors for diastasis recti are either hormones or stretching of abdominal muscles during pregnancy.⁵ During pregnancy 30% and 70% of women are effected by diastasis recti abdominals according to Boissonnault and Blaschak.⁶ Another study suggests after delivery 33% to 74% of women present with Diastasis Recti.⁷ Inter rectus distance becomes narrow in women presenting with diastasis recti.⁸ A study by Michalska, et al suggested that the most common conservative treatment method for DRA is physiotherapy including abdominal muscle strengthening and postural guidance.⁹ Prospective

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Authors Contribution

SA conceptualized the project. ST did the data collection. KY did the literature search. NA & FS performed the statistical analysis. Drafting, revision & writing of manuscript were done by KK.

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study by Chiarello suggested a positive effect of physiotherapy on symptoms of RD.¹⁰ Another study suggests that most commonly used treatment were strengthening exercises of abdominal and pelvic muscles.¹¹ Mostly therapist use manual techniques, therapeutic exercises, 81.2% use therapeutic modalities and postpartum women includes abdominal muscles training (82.8%) with functional activities.¹² The awareness and rehabilitation of diastasis recti abdominis is quite important among health professionals otherwise it may cause complications in next pregnancy. Therefore, this study was meant to find the prevalence of diastasis recti in pregnant women.

Methodology

This cross-sectional study was conducted in Kanaan Physiotherapy and Spine Clinic Lahore, Pakistan from June to October 2019 including sample size of 40 participants by Rao software Technique. The data was collected by using digital caliper and self-generated questionnaire. The participants fulfilling the eligibility criteria were included in this study. The inclusion criteria consisted of pregnant women with the age of 22 to 38 years and having back pain. The exclusion criteria was women with spontaneous abortion and who were at the high risk of diabetes, hypertension, heart problem, alcohol, drug use or any other condition that can affect the health of mother and fetus. After taking consent from the participant's Diastasis Recti test was done. Participants were lying down with knees bent and feet flat on flat floor and then asked them to slowly raise their head towards knee. Researcher placed the caliper horizontally across the midline of the abdomen at the level of umbilicus and then checked 2 inch above and below the umbilicus. Sinking of caliper into gap showed separation. The width of the lineal Alba was measured from the xyphoid to the pubic symphysis.

The Ethical approval was obtained from ethical Review Committee of Kanaan Physiotherapy and Spine Clinic, Lahore.

Results

The minimum and maximum ages were 22 and 38 years respectively. Results regarding age showed that at the age of 22-28 years there were 28 (70%) pregnant women with diastasis recti and at the age of 28-38 years there were 40(30%) pregnant women with diastasis recti. Out of 40 participants about 11 (27.5%) were primigravida and 29 (72.5%) were multigravida.65% women had low back pain and 35% women did not have any low back pain. Diastasis recti was present in 82.5% of pregnant women while in 17.5% of pregnant women there

were no diastasis recti. Results regarding level of diastasis recti showed that in 55% women diastasis recti was present above umbilicus and level of widening by caliper was 2-2.5cm and in 45% women diastasis recti was present below umbilicus level of widening was 2.6-3.5cm.

Table: Frequency table.

Characteristics	Frequency	Percentage
Age		
22 to 28 years	28	70
28 to 38 years	12	30
Serial no. of child		
Primigravida	11	27.5
Multigravida	29	72.5
Low back pain		
Yes	26	65.0
No	14	35.0
Presence of diastasis recti		
Yes	33	82.5
No	7	17.5
Level of diastasis recti		
Above umbilicus	22	55.0
Below umbilicus	18	45.0
Level of widening by caliper		
2-2.5	22	55.0
2.6-3.5	18	45.0

Discussion

The results of this study showed high prevalence of diastasis recti during pregnancy also associated with multigravida women. A study by Bioissonault et al showed 27% frequency in the second and fourth trimester and 39 % in post-partum period.¹³ This study showed that 82.5% of the diastasis recti was present in pregnant women. Boissonault and Blackhawk found that it may remain separated in the postpartum period in 35 to 60% of women.¹⁴ The results of this study found an association between low back pain (65%) and diastasis recti abdominis. This is in agreement with the fact that diastasis recti can contribute to low back pain, pelvic and back muscles weakness and uterine expansion, urinary incontinence and breathing problems resulting in difficulty in getting back into a regular routine. This study stated that in 55% of women level of widening by caliper was 2-2.5cm and in 45% level of widening was 2.6-3.5cm. While in other studies, diastasis recti >2.7 is considered as pathological.⁴ The awareness and rehabilitation of diastasis recti is very important. Chiarello et al. studied the effects of physical activity in Diastasis Recti. Two groups were included research group with strengthening their abdominals presented one person with diastasis recti and the distance between the abdominals was also lower than the control group which did not perform any exercise.¹⁵ A study by Sancho et al. (2015) compared DRA of vaginal deliveries and caesarean at rest in female and

founded no significant difference between the groups.¹⁶ No significant association was found of DRA with urinary incontinence. Same findings were found by Gitta *et al.* (2017) in case control study no association was found between DRAM width and urinary incontinence.¹⁷ Candida in his study measured DRA by palpation 4.5 cm above, at and below the umbilicus. The women were tested in crook lying position and divided into four categories d: ¹ non-DRA as a separation <2 fingerbreadths ² mild diastasis as a separation of 2–3 fingerbreadths, ³ moderate diastasis as 3–4 fingerbreadths and ⁴ severe diastasis as a separation of 4 or more fingerbreadth.¹⁸ Moat Ella in his study did analyses of 2D Ultrasound and found this procedure to be a reliable method. Beer *et al.* (2009) set the value for DRA as IRD >16 mm at 2 cm below the umbilicus.¹⁴ A study conducted by Barbosa *et al.* compared measurements on ultrasound images with caliper measurements and found the mean differences of DRAM width between methods were less than 1mm.¹⁹ This study used digital caliper because caliper meets all the requirements of standards and was accurate. The aim of this study was to find out the prevalence of diastasis recti in pregnant women and the use of accurate measuring device in the clinical setting. This study was done manually through caliper by physiotherapist. The awareness of diastasis recti is very important otherwise it can cause complications. Therefore, further studies are needed on the prevalence of diastasis recti among pregnant women.

This study was done with small sample size. Only a small area was considered in Lahore Pakistan. More studies should be done with large sample size and in both urban and rural areas.

High prevalence of diastasis recti was found among pregnant women at the age of 22-28 years. Mostly diastasis recti was present above umbilicus in 55% of women and its level of widening by caliper was mostly 2-2.5cm

Conflict of interest: None declared.

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