

Influencing Pelvic Floor Changes on the Quality of Women's Life During and Post Pregnancy

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ABSTRACT

Introduction: Pelvic floor dysfunctions are widely acknowledged as one of the most serious public health issues, in terms of frequency, cost, and influence on quality of life of women. Over a third of females are believed to have pelvic floor diseases of varying severity at some point in their lives.

Objective: To evaluate the influencing pelvic floor changes on the quality of women's life during and post pregnancy.

Methodology: This Multi-Centre cohort study was carried at the department of Urology & Transplantation, Institute of Kidney Diseases Peshawar, and Department of Gynaecology Jamrud Hospital Peshawar. The study duration was one year from June 2020 to June 2021 after approval of synopsis. A total of 45 women fulfilling the inclusion criteria were enrolled in our study. All the collection of data was carried out through predesigned questionnaire. Vaginal examination, translabial 2D/3D ultrasonography and a POP-Q test was done in the 3rd trimester of gestation and Three months after birth. The statistical analyses were performed using SAS software version 9.4.

Results: In the current study, weakness of connective tissues was observed in 23 (51.1%) and Gestational diabetes was observed in 6 (13%). Amongst 45 women, vaginal deliveries were observed in 17 (37.78%), caesarean section in 17 (37.78%) while vacuum extraction deliveries were observed in 11 (24.44%) females. Two subjects were found to have LAM avulsion three months after their VE deliveries.

Conclusion: Pelvic floor dysfunction is associated with connective tissue weakening and a larger fetus weight at delivery. To minimize future Pelvic floor problems, more women should seek postpartum care services.

Keywords: Pelvic floor changes; Quality of life; Post pregnancy

INTRODUCTION

Pelvic floor dysfunctions are widely acknowledged as one of the most serious public health issues, in terms of frequency, cost, and influence on quality of life of women. Over a third of females are believed to have pelvic floor diseases of varying severity at some point in their lives¹. Pregnancy and delivery are often regarded as critical events in the development of many diseases²⁻⁶. In the past ten years, there has been a steady rise in interest in this topic. The incidence of urinary stress incontinence associated with pregnancy and delivery may range from 3% to 67 percent^{1, 2}, whilst the incidence of post-partum anal incontinence is stated to range from 6.8% to 18 percent^{6, 7}. This variation may be explained by the varied populations studied, non-standardized obstetric labour care and most importantly, the widespread usage non-validated tools to measure pelvic floor dysfunctions⁸⁻¹¹. When reviewing current evidence on this topic, the lack of potential research is a critical consideration¹².

Pelvic floor disorders, such as urine and anal incontinence, prolapse of pelvic organ and sexual activity condition may occur during pregnancy and have a severe influence on the quality of life in women. During pregnancy, many women notice a decrease in their sexual activity and performance^{13, 14}. While many studies have looked at pelvic floor alterations during pregnancy, only a few have concentrated only on primiparous women, examined pelvic floor functioning in depth, and collected data over all three trimesters.

It is critical to understand the changes in the pelvic floor that occur during pregnancy and their likely temporal character. First, obstetric care professionals may offer women with knowledge regarding pelvic floor alterations that may occur during pregnancy, as well as the length and degree of these alterations. This might lead to the start of treatment for their conditions. Second, considering the rising caesarean section rate throughout the globe, it is critical to figure out whether pelvic floor modifications are linked to pregnancy vs delivery style. If pregnancy has a negative impact on pelvic floor functioning on its own, the debate over the significance of delivery method in pelvic floor alterations linked with childbirth becomes much more complicated. This study was

carried out to find out influencing pelvic floor changes on the quality of women's life during and post pregnancy.

MATERIALS AND METHODS

This Multi-Centre cohort study was carried at the department of Urology & Transplantation, Institute of Kidney Diseases Peshawar, and Department of Gynaecology Jamrud Hospital Peshawar. The study duration was one year from June 2020 to June 2021 after approval of synopsis. This study was approved properly by the research and ethical committee of the institute. During the research period, all primigravidae women's with an uncomplicated full - term pregnancy planned for birth at our tertiary hospital was enrolled in our study while all the multigravida women's with a previous history of pelvic surgery, recurrent urinary tract infection, females with malformations of urinary tract, hypertension (pre-conception), diabetes, disorders of connective tissue and women with neurological and cardio-logical problems were excluded. A total of 45 women fulfilling the inclusion criteria were enrolled in our study. All the collection of data was carried out through predesigned questionnaire. We did a vaginal examination, translabial 2D/3D ultrasonography and a POP-Q test in the 3rd trimester of gestation and Three months after birth. Ultrasound measures of pelvic floor anatomic alterations and clinical evaluation were the primary outcome indicators. Potential restrictions in quality of life, the development of incontinence signs, physical activity, engagement in pelvic floor muscle exercise, and effect on sexual function were all secondary outcomes. Vaginal testing was performed while in the lithotomy posture. The POP-Q grading system of the International Continence Society was used to evaluate genital descent during rest and Valsalva manoeuvre (VM). Frequency and percentages were documented for categorical variables while frequency and standard deviation were computed for continuous variables. Logistic regressions were utilised using the dichotomized variable of incontinence (yes/no), which was chosen due to the low prevalence of UI, AI, and mixed incontinence. A stepwise selection technique with 0.1-level limitations was employed for altering inclusion and/or exclusion. A comparison-wise two-sided significance threshold of 5% was selected since the research was exploratory in nature. The

statistical analyses were performed using SAS software version 9.4.

RESULTS AND DISCUSSION

A total of 45 women were enrolled in our study. The mean age in the current study was 31 years with standard deviation of 4.12. The age range in our study was 18-40 years. The mean (SD) BMI (kg/m^2) of the subjects was 25 (5.1). The mean (SD) increase in weight through pregnancy was 15 (6.6) kg. In the current study, weakness of connective tissues was observed in 23 (51.1%) and Gestational diabetes was observed in 6 (13%). Amongst 45 women, vaginal deliveries were observed in 17 (37.78%), caesarean section in 17 (37.78%) while vacuum extraction deliveries were observed in 11 (24.44%) females. The most prevalent cause for labour induction was a post-term gestation. CS and VE were most often associated with abnormal foetal observation during the 1st and 2nd phases of labour, accordingly.

In comparison to spontaneous delivery, the hiatal region was significantly smaller following both VE and CS (p less than 0.05). In each delivery group, BNM rose considerably on VM from 2 to 10 mm postpartum. On VM, the retrovesical angle reduced from 132.6 9.74° to 128.3 15.6° , although the difference was not statistically significant, and the hiatal area rose from 13.37 to 14.53 cm^2 . Only the VD group showed a significant increase in hiatal area in the paired t test. Two women were found to have ballooning of the hiatal region after VD. Two subjects were found to have LAM avulsion three months after their VE deliveries. Four participants in their 3rd trimester and seven subjects three months after birth had an anterior stage 1 when tested with the POP-Q. Three instances of stage 1 posterior POP-Q were found in the 3rd trimester, and five more were identified after three months of birth. Weakness of connective tissue and foetal weight at delivery ($p = 0.0384$), were identified as key risk factors for the incidence of pelvic floor dysfunctions in a multivariate regression analysis. Urinary incontinence was reported by 12 (26.7%) of pregnant women (UI). Seven and five women experienced urine incontinence (UI) three and twelve months after delivery, correspondingly, as did three and two women who showed anal incontinence (AI), and seven and one woman who had both urinary and anal incontinence. Despite the fact that there was no significant link between the manner of delivery and the prevalence of pelvic floor dysfunctions, 64% of those who had VE three months after giving birth reported problems. During sexual intercourse, discomfort was reported in 19 (42%) subjects after 3 months and in 11 (24%) subjects after 12 months of delivery. Dyspareunia was observed in 12 (27%) subjects after 3 month and in 7 (16%) subjects after 12 months

postpartum. During intercourse, 17 (38%) showed no changes, whereas in 9 (20%) subjects no intercourse was reported during the study. Symptoms of pain during sexual intercourse lasted 12 months postpartum in 11 (24%) of the subjects. When it comes to postpartum incontinence, just 56% of women have participated in pelvic floor muscle training, and 35% of those women have sought out further therapies like physiotherapy or electrostimulation. Based on our knowledge, our study is amongst the few studies that combine pelvic floor examination, translabial 2D and 3D ultra-sound and POP-Q and to evaluate the incidence of Pelvic floor dysfunction throughout pregnancy and after delivery. Furthermore, we evaluate the influence of pelvic floor modifications on women's quality of life using personalized questionnaires. This research might help researchers better understand pelvic floor function during pregnancy and delivery including its therapeutic implications. A previous study carried out by Jundt et al. reported comparable with POP-Q and perineal ultrasound in women of 37-weeks' gestation and after six months of deliveries¹⁵. Another study carried out by Macarthur et al. determine AI in the situation of childbirth, while a study carried out by Van Brummen et al. determined UI after delivery.

Table 1: Socio-demographic and clinical parameters of the subjects in the study

Parameter	Mean (SD)/frequency (%)
Age	31 (range 18–40) years
BMI before pregnancy	25±5.1 kg/m^2
Increase in weight through pregnancy	15±6.6 kg
Weakness of connective tissue	23 (51.1%)
Gestational diabetes	6 (13%)

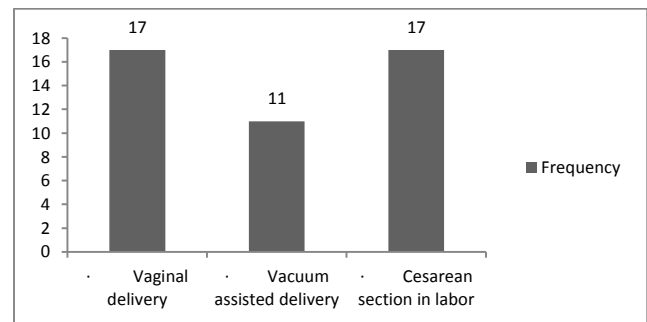


Figure 1: Mode of delivery in the subjects included

Table 2: Quantitative parameters evaluated in translabial sonography during pregnancy and after various delivery modes on VM [cm^2]

	During pregnancy (34-36th week) Mean (\pm SD)	Spontaneous delivery		Vacuum extraction		Cesarean section	
		Mean (SD)	p value	Mean (SD)	p value	Mean (SD)	p value
BNM [cm]	0.2	1.04 (\pm 0.26)	0.0001	0.86 (\pm 0.32)	0.007	1.08 (\pm 0.33)	0.0001
Retrovesical angle [$^\circ$]	132.6 (\pm 9.74)	132.08 (\pm 14.53)	0.76	133.64 (\pm 7.45)	0.41	122.06 (\pm 18.55)	0.51
Hiatal area on VM [cm^2]	13.37	16.81 (\pm 4.67)	0.0117*	13.35 (\pm 1.97)	.049	13.55 (\pm 2.86)	0.66
LAM avulsion	0	0		2		0	
Ballooning	0	2		0		0	

CONCLUSION

Pelvic floor dysfunction is associated with connective tissue weakening and a larger fetus weight at delivery. To minimize future Pelvic floor problems, more women should seek postpartum care services.

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