



## EFFECT OF PELVIC FLOOR EXERCISE ON QUALITY OF LIFE IN PATIENTS WITH STRESS URINARY INCONTINENCE

**Dr. Dheepa C\***

MS(OG) Assistant Professor of Obstetrics and Gynecology, Government Medical College, Omandurar Government Estate \*Corresponding Author

**Dr. A. Mangala Geetha**

MD DGO DNB MBA Professor and Head of the Department of Obstetrics and Gynecology

**Dr. Divya Mahendran**

MS (OG) Assistant Professor of Obstetrics and Gynecology

### ABSTRACT

**Background:** The primary objective of this study was to study the effectiveness of 'pelvic floor exercise' among women found to suffer from Stress Urinary Incontinence. The study mainly focused on all the women with SUI and the pelvic floor exercise was taught to them and the improvement in the quality of life was studied. **Methods:** All patients attending the department were examined clinically by cough stress test to ascertain the leakage of urine. Only those who were urine culture negative patients were included in the study. The Incontinence Quality of Life Questionnaire (I-QOL) was administered to them. The patients were subsequently taught to do the Kegel's exercise. At the end of two months of exercise the I-QOL were re-administered and the change in the scores was noted. **Results:** There was a significant difference in the scores in each sub group and also in the overall scores. **Conclusion:** Surgical options should be utilized only after behavioral therapy has been initiated especially in the younger age group.

**KEYWORDS :** Stress Urinary Incontinence, Kegel's exercise, Behavioral therapy

### INTRODUCTION:

The International Continence Society defines Urinary Incontinence as, "the complaint of any involuntary leakage of urine". (1). Based on the etiology, Urinary Incontinence is classified into four types - Urge incontinence, Stress incontinence, Continuous incontinence and Overflow incontinence. Among these urge and stress incontinence are more common among women. (2)

According to the International Continence Society, Stress Urinary Incontinence is defined as the involuntary leakage of urine with exertion such as coughing, sneezing, and laughing. (1) During physical exertion, an increase in the abdominal pressure causes stress on the bladder causing urine to leak. Stress urinary incontinence is due to urethral hyper mobility, intrinsic sphincter deficiency and pelvic floor muscle weakness. (2)

Risk factors for Stress Urinary Incontinence include advanced age, pregnancy, childbirth, menopause, obesity. (3) (4) (5) Stress Urinary Incontinence is more common among women who have delivered vaginally than those who delivered by caesarean section. It is mainly due to weakness of pelvic floor. There is an increased prevalence among the menopausal women which indicates that estrogen levels also play an important role in urinary continence. (6)

Stress Urinary incontinence impairs quality of life of women extensively restricting her from the social activities. It is a very debilitating condition rather than a life threatening condition. Women with stress urinary incontinence do not talk about their condition to their partner or their close relatives. (7) (8)

They have a social stigma. They believe that they will be considered dirty or unhygienic by others. These women are more hesitant to ask about it to the physician. They feel that there is no cure to this disease and they have to live with it for their life. There is also a misconception that Stress Urinary incontinence is a result of aging process and that there is no control over their bladder function. This feeling of helplessness leads to depression and affects their quality of life. It becomes difficult to assess the conditions because of under-reporting arising from social embarrassment associated with the condition. (9) (10)

These patients can be managed conservatively with pelvic floor exercises. Arnold Kegel, MD, first described these exercises almost 50 years ago. The exercise is done as eight to twelve contractions for three times a day. It helps to strengthen the pelvic floor muscle.

Levator ani muscles form the base of the pelvic floor and mainly consist of approximately 70% slow twitch and 30% fast-twitch muscle fibers. Slow-twitch muscle fibers produce less force on contraction and

assist in improving muscle endurance by generating a slower, more sustained, but less intense contraction. Fast-twitch muscle fibers, which help in quick and forceful contractions, are used during sudden increases in intra-abdominal pressure there by helping in urethral closure. (2)

Pelvic Floor Muscle Training exercises consist of repeated, high-intensity, pelvic muscle contractions of both types of muscle fibers. Following these exercises there are changes in various measures of pelvic floor strength, such as anal sphincter strength or increased urethral closure pressure, and resistance, all of which help prevent urine leakage. (2)

The Incontinence Quality of Life Questionnaire (I-QOL) was developed in 1999 by the Seattle quality of life group. It is a self-report Quality of Life measure specific to urinary problems that has been validated (11) and used to assess the impact of urinary problems and their treatment.

The primary objective of this study was to study the effectiveness of 'pelvic floor exercise' among women found to suffer from Stress Urinary Incontinence. The study mainly focused on all the women with SUI and the pelvic floor exercise was taught to them and the improvement in the quality of life was studied.

### METHODOLOGY:

An observational study was carried out from November 2022 to May 2023 in the Department of Obstetrics and Gynecology, Government Medical College, Omandurar Government Estate – Block B, Chennai. All patients who came with a history suggestive of stress urinary incontinence were taken as corpus for this analytical study. They were examined clinically by cough stress test to ascertain the leakage of urine during an episode of increased intra-abdominal pressure caused by an induced cough. The patients observed to have a positive cough test were subjected to a urine routine examination and urine culture sensitivity test in order to determine the presence of a urinary tract infection. Those patients without an evidence of a urinary tract infection were recruited in the study.

The recruited patients were then screened and those who met the pre-determined inclusion criteria were included for further evaluation. The required demographic and relevant medical details of these patients were entered in proforma and questionnaire on stress urinary incontinence and 'the quality of life questionnaire' was administered to them. Among patients who could not comprehend the questionnaire, the questions were explained to them and the answers they gave were entered in the questionnaire. The patients were subsequently taught to do the Kegel's exercise. They were instructed to do 3 sessions per day, consisting of 25 – 30 sustained contractions at each session. They

were then explained about the bladder diary which required them to record the amount of fluid intake and amount of leakage at each episode. An exercise chart was also included and the patients were asked to record the findings and maintain the same at home. They were then asked to come for follow up after one month.

During the review after a month, the bladder diary and exercise chart were reviewed. The requirements of the bladder diary, exercise chart and Kegel's exercise were reinforced to them. The quality of life questionnaire was re-administered and the patient was required to review a month later. During the second review (a month after the first), the questionnaire on stress urinary incontinence and the 'quality of life questionnaire' were re-administered and the change in the scores was noted. The data obtained through the questionnaires were entered in a Microsoft Excel spreadsheet and this data was used for further analysis. The change in the quality of life was evaluated using Statistic Package for Social Studies (SPSS) software.

## RESULTS:

Out of the 24049 patients who came to outpatient department for gynecological complaints, 234 patients had complaints of Stress Urinary Incontinence. Among these, 178 had a positive cough stress test. Only 57 of these patients were recruited to the study after screening through the inclusion and exclusion criteria. Seven patients were lost to follow up and the remaining fifty patients were included in the analysis.

For the purpose of the study, the results were analysed from two main perspectives:

- 1) Change in the Stress score after two months of exercise (Kegel's exercise)
- 2) Change in the Quality of Life score after two months of exercise (Kegel's exercise)

The Quality of Life was further classified into three sub scales, as per the International Continence Society, as i) Avoidance and Limiting Behavior, ii) Psychosocial Impacts and iii) Social Embarrassment. These three categories were further analyzed as separate groups apart from the individual characteristics.

The mean stress score at baseline is 10.14 and after two months of pelvic floor exercise is 6.14 indicating that the exercise helps in reducing stress urinary incontinence. The p value is observed to be significant inferring that the reduction in stress due to pelvic floor exercise is noteworthy (Table 1). The means are depicted with the help of a simple line graph to depict the decrease in stress.

With the help of Repeated Measures ANOVA, the results in above table show that there is an increase in quality of life from time of recruitment to two months after the exercise in I-QOL. The p values are found to be significant indicating that the improvement is considerable. The mean scores are observed to be significantly different in all three time periods (Table 1). There was considerable improvement from time of recruitment and after two months.

Eight of the 22 items in the questionnaire were classified under Avoidance and Limiting Behavior. Among the eight, only three questions had changed in mean score value and they were statistically significant. Other five questions, the patients didn't have these problems. In the study the other three questions have improved with two months of pelvic floor exercise – Kegel's exercise.

Out of the 22 question, nine questions are included in the sub scale of Psychosocial impact. The mean score of these nine questions had significantly changed after two months of pelvic floor exercise – Kegel's exercise. (Table 1)

The subscale for Social embarrassment included the remaining five questions. The mean score of these five questions had significantly changed after two months of pelvic floor exercise – Kegel's exercise. (Table 1) Thus there was improvement in Quality of Life after two months of exercise

## DISCUSSION:

A Meta – analysis of the published studies on epidemiology of urinary incontinence in the world showed that stress incontinence is the most common type of incontinence. (12) Reviewing the data for the worldwide prevalence of urinary incontinence, Stress incontinence constituted nearly 50% followed by mixed incontinence which

constituted about 29% of these cases. Consistent with the European and US surveys, (13) our study showed urge incontinence to be less common.

Pelvic floor exercise was observed to reduce stress levels and improve quality of life. This exercise was observed to work effectively in women across all ages. Further, it was observed to improve quality of life steadily over time as one continues to perform the exercise. Irrespective of the last child birth and the duration of suffering stress urinary incontinence the pelvic floor exercise was observed to effectively improve quality of life and reduce stress urinary incontinence.

The correlation with duration of Stress Urinary Incontinence with a change in scores was analyzed. This showed an improvement in the Stress score and Quality of Life score after two months of Pelvic floor exercise – Kegel's Exercise. But in the patients who had duration of stress urinary incontinence above 21 months there was no significant improvement in the Quality of Life score.

The correlation with the duration of last child birth was considered. There was a statistically significant change in the stress score (p value <0.001) and Quality of Life score (p value <0.001) after two months of Pelvic floor exercise – Kegel's exercise in patients with last child birth duration less than 21 years. With the last child birth duration more than the 21 years, the change in the quality of life score was not significant (p value = 0.002). Hence as the duration increases the change in the quality of life with exercise increases but at a lesser extent with Pelvic floor exercise – Kegel's exercise.

## CONCLUSION:

Stress Urinary Incontinence is a condition which affects the Quality of Life of all the women. Behavioral therapy – Pelvic Floor Muscle Exercise (Kegel's Exercise) is one of cost effective treatment modality.

There was a statistically significant change in the Stress score (p value <0.001) and Quality of Life score (p value <0.001) after two months of Pelvic Floor Exercise (Kegel's Exercise).

A larger multi-centric study with urodynamic studies will help to confirm the benefits of Behavioral therapy. Surgical options should be utilized only after behavioral therapy has been initiated especially in the younger age group.

**Table 1: Change in scores after two months of exercise**

Parameter Evaluated	Point Of Evaluation	Mean Score	Standard Deviation	P Value
Mean Stress score	At the time of recruitment	10.14	0.433	<0.001
	After two months	6.14	0.555	
Overall Quality of Life score	At the time of recruitment	46.88	9.31	<0.001
	After two months	78.94	16.18	
Avoidance and limiting behavior	At the time of recruitment	35.30	1.18	<0.001
	After two months	38.26	1.74	
Psychosocial impact	At the time of recruitment	19.48	2.54	<0.001
	After two months	31.68	6.36	
Social embarrassment	At the time of recruitment	7.78	2.597	<0.001
	After two months	18.18	5.487	

## REFERENCES

1. Haylen BT, de Ridder D, Swift S, Swift SE, Freeman RM. The terminology for female pelvic floor dysfunction. *International Urogynecology*. 2009 November 25; 21: p. 5-26.
2. Payne CK. Conservative management of urinary incontinence; Behavioural and pelvic floor therapy. In Wein AJ, Kavoussi LR. *Textbook of Urology*. Philadelphia: Elsevier; 2012. p. 2003-2024.
3. Kuh D, Cardozo L, Hardy R. Urinary incontinence in middle aged women: Childhood enuresis and other life time risk factors in a British Prospective Cohort. *Journal of Epidemiology and Community Health*; Aug 1999; 53, 8; ProQuest. 1999 August; 53(8): p. 453-458.
4. Peyrart L, Halliot O, Bruyere F, Boutin JM, Bertrand P. Prevalence and risk factors of urinary incontinence in young and middle aged women. *BJU international*. 2002; 89(1): p. 61-66.
5. Fritel X, Ringa V, Varnoux N, Fauconnier A, Pault S, Breart G. Mode of delivery and severe stress incontinence. A cross-sectional study among 2,625 perimenopausal women. *BJOG*. 2005 December; 112(12): p. 1646-1651.
6. Gyhagen M, Bullarbo M, Nielsen TF, Milsom I. A Comparison of the Long-term Consequences of Vaginal Delivery Versus Caesarean Section on the Prevalence, Severity and Bothersomeness of Urinary Incontinence Subtypes: A National Cohort

- Study in Primiparous Women. BJOG. 2013 Nov 21; 120(12): p. 1548-1555.
7. Son YJ, Kwon B. Predictive risk factors for impaired quality of life in middle aged women with urinary incontinence. International Neurourology Journal. 2010 Dec; 14(4): p. 250-255.
8. Margalith I, Gillon G, Gordon D. Urinary Incontinence in women under 65:Quality of life, stress related to incontinence and patterns of seeking health care. Quality of Life Research. 2004 Oct; 13(8): p. 1381 - 1390.
9. Bogner HR, Gallo JJ, Sammel MD, Daniel FE, Armenian HK, Eaton WW. Urinary Incontinence and Psychological Distress in Community-Dwelling Older Adults. Journal of American Geriatric Society. 2002 March; 50(3): p. 489-495.
10. Hung KJ, Awtrey CS, Tsai AC. Urinary Incontinence, Depression , and Economic Outcomes in a Cohort of women between ages of 54 and 65. Obstet Gynecol. 2014 April; 123(4): p. 822-827.
11. Schurch B, Denys P, Kozma CM, Reese PR, Slaton T, Barron R. Reliability and Validity of the Incontinence Quality of Life Questionnaire in Patients with Neurogenic Urinary Incontinence. Arch Phys Med Rehabil. 2007; 88: p. 646-52.
12. Hampell C, Wienhold D, Benken N, Eggersman C, Thuroff JW. Definition of overactive bladder and epidemiology of urinary incontinence. Urology. 1997 December; 50(7): p. 4-14.
13. Ananias C, Diokno MD. Incidence and Prevalence of Stess Urinary Incontinence. Advanced studies in Medicine. 2003; 3: p. 824-28.