

# THE EFFECT OF ADVANCED BEHAVIORAL TECHNIQUE ON SEVERITY OF STRESS URINARY INCONTINENCE.



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## Abstract

Urinary Incontinence (UI) is not a disease in itself but the morbidity associated with this condition is at times more severe than the major debilitating diseases. Fortunately, the cure is easy, cost effective and non-invasive if the woman seeks health care as soon as the condition is noticed. Research studies in various disciplines of health across the globe support use of pelvic floor muscle exercise (PFME) as a first line management of UI. One of the objectives of the study was to assess effectiveness of PFMEs on severity of UI. A Pre-experimental, one group, pre-test post-test research design was adopted for the study. Severity of UI was calculated using severity score index from King's Health Questionnaire. PFMEs were demonstrated and the participants were requested to comply and maintain a daily diary; four weeks, three times a day, schedule for the exercises. The findings suggested that PFMEs are effective in control of Stress urinary incontinence (SUI) among women.

**Key words:** Advanced behavioral technique, SUI, Women, PFME and Effectiveness.

## Background

Women are more prone to stress urinary incontinence owing to their sexual and reproductive function and anatomical aspects of their genitor-urinary tract. Globally 1 in every 3 woman suffers from stress urinary incontinence at some point in her life with average prevalence rate of 34% to 46.5%.<sup>(1,3,6)</sup>

A market research study by Junicon, in India in the year 2007 reported 22 million Indian women suffering from SUI. (Labonita Ghosh/DNA).<sup>4</sup>

Women constitute 48% of India's total population of which almost 51.5% is in reproductive age group. (Census.gov.in;2011)<sup>2</sup> This is the age group which undergoes major physiological changes and anatomical alterations especially during pregnancy and childbirth, their reproductive organs and pelvic floor support system undergo various alterations which makes them more prone to develop stress urinary incontinence.

A study conducted for treatment seeking behavior of

urinary incontinence among North Indian women, in Chandigarh, India, shows that of the 220 enlisted incontinent women 20%(44) women consulted some health agency. Only 8.6 % ( 19) women had heard about pelvic floor muscle exercises.

72 % ( 158) cases had UI for more than one year. The most common reason quoted for not seeking treatment of UI was considered as 'normal', 'did not take it seriously' and 'shyness'. 70% (153) women reported that UI affected their daily routine as well as social activities like shopping and visiting friends. The researcher concluded that UI is a common but neglected problem of women. (Kumari S, AJ Singh, Jain V.)<sup>1</sup>

## Need for the study and literature review

Stress Urinary Incontinence (SUI) is second type of UI in women, results from failure of sphincter control mechanisms as the bladder is filled. SUI may also occur due to increased intra-abdominal pressure, due to impaired pelvic floor support or, failure of closure of urethra. The urethral failure makes a woman incontinent

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even if she is sitting or standing quietly. Coughing, sneezing, laughing, bending or even brisk walking may trigger leak if the pelvic support is weakened.

PFME strengthens the muscles for urethral support and are one of the most preferred non-invasive and cost-effective behavioral techniques in the management of SUI among women and men. (Catherine E. DuBeau, MD, 2002)<sup>5</sup>

Since the publication of the Agency for Health Care Policy and Research (AHCPR) clinical practice guideline in 1996, the recommendations for behavioral intervention have been reaffirmed by an interdisciplinary group of experts. The WHO with the International Consultation Society on Incontinence report (2001), included an extensive and comprehensive discussion of studies on conservative treatments of SUI in women.

Through her personal experiences in the clinical area of obstetrics and gynecology the Researcher has learnt that, women feel reluctant to discuss their genitourinary problems with health care professionals and even with their family members until they develops secondary infections/symptoms which need medical management. Also, UI is one of these problems which remain undetected and untreated due to social taboo associated with it. Women feel shy as the condition not only affects their physiology but also affects their psychology and self confidence. These were some of the factors which made the researcher take up this study to benefit the women suffering with this problem of UI.

### Objectives

- ? To assess the severity of urinary incontinence among women with stress urinary incontinence.
- ? To evaluate the effectiveness of Pelvic floor muscle exercises on severity of urinary incontinence among women with stress urinary incontinence.
- ? To associate the findings with selected study variables

### Hypotheses

**H<sub>1</sub>:** There is significant difference between the severity score of incontinence after implementation of Pelvic floor

muscle exercises for the prescribed duration among women with urinary incontinence.

**H<sub>2</sub>:** There is significant association between severity of urinary incontinence scores and selected demographic, obstetric and health variables after implementation of Pelvic floor muscle exercises for the prescribed duration among women with urinary incontinence.

### Methodology

**Research Design:** Pre-experimental, one group, pre-test post test design.

**Settings:** Multispecialty and super specialty hospitals of Pune city.

**Population:** Women with stress urinary incontinence and seeking health care in selected Super-specialty and multispecialty hospitals of Pune City.

**Sample and sample size:** 60 Women suffering from stress urinary incontinence were selected using purposive sampling technique, who did not have any contraindication for performing Pelvic floor muscle exercises.

**Tool:** the tool for collection of data consisted of three sections:-

**Section A:** Demographic characteristics of woman

**Section B:** Medical history.

**Section C:** Severity assessment tool had total 11 items which is a standardized tool from King's Health Questionnaire (KHQ).

**Supportive tools for participants:** How to perform PFMEs and daily record diary for PFMEs. These were for compliance promotional tools and not considered for analytical aspects of this study.

**Validity & Reliability:** The developed tools along with brief synopsis of study were given to 10 experts from the field of urology, obstetrics, gynecology, physiotherapy, psychology and nursing. The suggestions for additional obstetric data and single tool for medical and OBG history were incorporated. The tools were tested with test-retest method for severity scale, PFMEs demonstrations tested with inter-rater method.

Statistical relevance of the tool was calculated using Cronbach's alpha and Karl Pearson's correlation coefficient. Values obtained were 0.71 and 0.97 respectively.

**Data collection procedure:** Ethical considerations were taken care of. Written permission was obtained from the administrative authorities of the hospitals prior to data collection. The study was conducted on 60 women who attended indoor and/or outdoor services at Obstetrics and Gynecology and/or female surgery unit of the study setting, and fulfilled inclusion criteria for the study.

Brief introduction about the researcher and purpose of contact was explained to the identified women; if they expressed interest in the study detailed information about, method and purpose of the research was given to them. Once verbal consent was given by the woman a formal written informed consent was obtained,

? Identified sample was explained about data collection tool and after collection of initial demographic data and health history demonstration of PFME was done.

? Re-demonstration of PFME from the participants taken on the same day in the same sitting and they were informed to practice these exercises four times in day for minimum 8-10 muscle contractions and relaxation each time for a period of 4 weeks. To maintain record of daily exercises, a daily diary sheet was given to them.

? Women were called for follow-up every week at the study setting to check their performance and technique of PFME. At the end of 4 weeks the daily exercise record sheet was collected back to check compliance to intervention requirements and to decide inclusion of sample data into final analysis or exclusion from it. Severity questionnaire re-administered as a part of post-test and collected back.

? Researcher expressed her gratitude towards their cooperation and patience to comply with study requirements of follow-up at the end of data collection.

## Findings

### Section A: Demographic characteristics of woman

Results revealed that out of 60 woman 12(20%) were in the age group of 20-30 years, and 22(36.6) % belonged to the age group of 30-40 years, whereas majority of them were of age 40-50 years, i.e.24(40%). Surprisingly there were only 2(3.3%) of them who belonged to the age group of 51-60 years. Educational data revealed that only 9(15%) of them were illiterate, while majority of them 20(33.3%) were primary educated.

### Section B: Medical history.

**Table No. 1: Description of samples based on their medical history N=60**

Medical History variable	F	%
<b>Number of pregnancies</b>		
One	8	46.7%
Two	18	30.0%
Three	10	16.7%
Four	2	3.3%
Five	2	3.3%
<b>Age at first delivery</b>		
Below 18 years	33	55.0%
19-23 years	17	28.3%
24-29 years	10	16.7%
<b>Type of delivery</b>		
FTND	49	81.67%
PTVD	3	5.0%
Full term forceps	2	3.33%
Full term vacuum	3	5.0%
LSCS	1	1.67%
Abortion	2	3.33%
<b>Place of delivery</b>		
Both (Home and Hospital)	13	21.7%
Home	2	3.3%
Hospital	45	75.0%
<b>Symptom duration of UI (in months )</b>		
Up to 3 months	18	30.0%
3 - 6 months	20	33.3%
6 - 9 months	9	15.0%
9 - 12 months	7	11.7%
More than 12 months	6	10.0%
<b>If any other medical problem</b>		
No	58	96.7%
Hypertension	2	3.3%

Data presented in the above table No. 1 revealed 28(46.7%) of the women had single delivery and the age of first delivery was below 18 years for majority (55%) of them. 49(81.67%) of them had undergone full term normal vaginal birth. Majority 45((5%) of them were delivered in hospital and the duration of SUI before treatment was from 3 months to 18 months.

**Section C: Analysis of data related to association of severity with study variables.**

**Table 2: Association of severity with demographic variables using Fisher's exact test**

**N=60**

Demographic variable		Severity		p-value
		Mild	Moderate	
Age	20-25 years	5	1	0.358
	25-30 years	4	2	
	30-35 years	8	3	
	35-40 years	8	3	
	40-45 years	7	3	
	45-50 years	5	9	
	51-60 years	1	1	
Education	Illiterate	5	4	0.810
	Primary	13	7	
	Secondary	11	6	
	H.Sc.	8	3	
	Graduation	1	2	

Table 2 represents the summary of Fisher's exact test results for association of severity with demographic variables. Since p-values corresponding to age and education are large (greater than 0.05), none of the demographic variable was found to have significant association with severity of urinary incontinence.

**Table 3: Association of Obstetrical variables with severity of urinary incontinence using Fisher's exact test**

**N= 60**

Demographic variable	Severity		p-value
	Mild	Moderate	
<b>Symptom duration of urinary incontinence</b>			
Upto 3 months	11	7	0.328
3-6 months	15	5	
6-9 months	4	5	
9 to 12 months	3	4	
More than 12 months	5	1	
<b>Place of delivery</b>			
Both	8	5	0.771
Home	2	0	
Hospital	28	17	
<b>Number of pregnancies</b>			
One	17	11	0.971
Two	12	6	
Three	7	3	
Four	1	1	
Five	1	1	
<b>Type of delivery</b>			
Abortion	0	2	0.030
Full Term forceps	0	2	
Full Term vacuum	1	2	
FTND	33	16	
LSCS	1	0	
PTVD	3	0	

**What does the study convey?**

This study reaffirms the use of pelvic floor muscle exercises as a conservative method for primary as well as secondary prevention and control of stress urinary incontinence among women.

**Who will use these findings?**

Findings of this study can be utilized by the nurses and midwives for primary prevention of stress urinary incontinence among women who are in their reproductive age.

Researchers can utilize findings from this study to develop new research proposals.

Longitudinal and cross sectional studies into different age groups and occupation can be done to see effect of life style and development of SUI.

**How can the findings be put in to practice?**

These findings highlighted the need for teaching (Pelvic Floor Muscle Exercise) PFMEs for women undergoing vaginal births to prevent SUI during post partum period. Hospital administrators can incorporate mandatory assessment checklist for signs of UI for all adult females attending their health care settings as a part of secondary prevention.

Table No. 3 presents the summary of Fisher's exact test results for association of severity with obstetrical variables. Since p-value corresponds the type of delivery is small (less than 0.05) & only the type of delivery was found to have significant association with severity of urinary incontinence.

**Table 4: Effectiveness of Pelvic floor muscle exercises on severity of urinary incontinence using frequency & percentage.**

N=60

Severity	Before Implementation of Pelvic floor muscle exercises		After implementation of Pelvic floor muscle exercises	
	F	%	F	%
	No (Score 0)	0	0.0	17
Mild (Score 1-11)	38	63.3	43	71.7
Moderate (Score 12-22)	22	36.7	0	0.0
Severe (Score 23-33)	0	0.0	0	0.0

Table 4 revealed the data of marked movement of samples from moderate pretest scores to "0"score in post-test. There were (0) "zero" samples with "zero leak" in pretest and they turned to 17 showing up "zero leak" in post-test. The data confirms benefits of Pelvic floor

muscle exercises in prevention and control of UI.

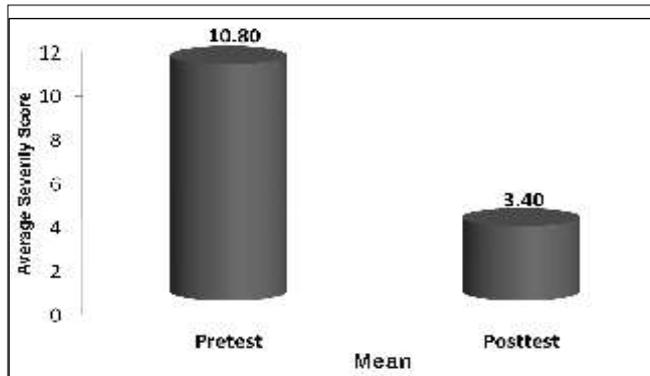
**Section IV: Effectiveness of Pelvic floor muscle exercises on severity urinary incontinence among women with SUI using paired t-test**

**Table 5: Paired t-test for effectiveness of Pelvic floor muscle exercises on severity urinary continence among women with urinary incontinence**

N=60

	Mean	SD	t	df	p-value
Pretest	10.8	4.6	19.3	59	0.000
Posttest	3.4	3.1	-	-	-

Table 5 above indicates that average severity score before implementation of Pelvic floor muscle exercises was 10.8 and was reduced to 3.4 after implementation of Pelvic floor muscle exercises. T-value for this comparison was 19.3 with 59 degrees of freedom. Corresponding p-value was 0.000, which is small (less than 0.05); the null hypothesis  $H_{0a}$  does not show significant difference between the previous and present episodes of incontinence among women with urinary incontinence after implementation of advance behavioral technique is rejected. These findings are suggestive of significant symptomatic improvement in urinary incontinence after the implementation of Pelvic floor muscle exercises.



**Figure 3: Cylindrical diagram shows Paired t-test results for effectiveness of Pelvic floor muscle exercises on severity urinary incontinence among women with SUI.**

### Discussion

The study results show, majority (40%) samples with peri-menopausal age group (40-50 years) which was similar to the mean age of (41.54years) reported in a study done by **Abha Singh et.al.**<sup>7</sup> Similarly the major number (81.67%) of participants belonged to FTND class which was closer to what was reported (82.72%) by **Abha Singh et.al.**<sup>7</sup>

Regarding duration of urinary incontinence and treatment seeking behavior also the findings of this study correlates with above authors. As the maximum duration for incontinence in the study participants was up to 18 months and authors (**Abha Singh et.al.**)<sup>7</sup> quoted that, upto 36 months of urinary incontinence, women had not gone for any medical help.

### Conclusion

Results of the study revealed association of SUI with reproductive functions of the women and age of marriage as well as age of delivery as an essential contributory factor for the health status of the woman. The same has been quoted in various Indian and foreign<sup>8</sup> studies.

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