



# **Pilot study on Effectiveness of combined Kegel exercises and Abdominal Hypopressive Technique in management of Stress Urinary Incontinence among middle aged women- An evaluative approach.**

*Susan Manoj<sup>1\*</sup>, Dr. Kavitha<sup>2</sup>*

*<sup>1</sup> PhD Nursing Scholar, LNCT University Bhopal, <sup>1</sup> Associate Professor, Kasturba College of Nursing, BHEL, Bhopal, Madhya Pradesh*

*\*Corresponding Author  
Email: [susan10mj@gmail.com](mailto:susan10mj@gmail.com)*

## **ABSTRACT**

*Stress urinary incontinence (SUI) poses a significant burden to the women's health. The need to assess symptoms of SUI and to teach women its management is very important, as it hinders their social life and has negative impact on their wellbeing. Many treatment options are available for managing SUI, combined Kegel exercises and abdominal hypopressive technique can be used as non-invasive and cost effective management modalities for reducing and alleviating the symptoms thus, improving their social, physical and psychological wellbeing. This study aims to evaluate the effectiveness of combined Kegel exercises and abdominal hypopressive technique in management of stress urinary incontinence among middle aged women.*

***Method:** Evaluative research approach with quasi experimental pre- test post- test control group research design was adopted for the study. Study population comprised of middle aged married women between 40 to 65 years having stress urinary incontinence. Convenient sampling technique was used to select the samples, 10 each were allotted into experimental and control group. The subjects under study in experimental group was explained and instructed to perform Kegel exercise and Hypopressive technique for 4 weeks alternating between Kegels and Hypopressive between days. The control group was only told to follow the hygienic care measures no interventions were given to them.*

***Result:** The results of the study revealed that after the implementation combined Kegel exercises and abdominal hypopressive technique, the level of stress urinary incontinence was reduced to 32.50% among the women in experimental group and in control group it was reduced only 5.62%. Statistically significant difference was found between experiment and control group in urinary leakage and pelvic floor muscle tone. With regard to pelvic floor*

muscle tone after the intervention in Experiment group, 90% of the women had gained good contraction whereas in control group no changes were observed. The urinary leakage was also reduced in experimental group after intervention and no changes were observed among the in control group

**Conclusion:** Stress incontinence (SI) is the most common type of incontinence suffered by women. Appropriate assessment and timely interventions can result in positive outcomes by reducing the urinary leakage and improving the pelvic floor muscle tone. The results of the present study concluded that combined Kegel exercises and abdominal hypopressive technique is effective in managing the SUI among the women.

**Key words:** Stress urinary incontinence (SUI), Kegel exercises and abdominal hypopressive technique, Pelvic floor muscle tone, urinary leakage, Middle aged married women.

## INTRODUCTION

Health is the fundamental right of every individual. Women's health is of more concern as women have unique health issues which includes pregnancy, menopause, and conditions of the female organs. Among the health issues one that is of concern is urinary incontinence it has become a silent struggle for many. Incontinence affects twice as many women as men. This may be because pregnancy, childbirth, and menopause may make urinary incontinence more likely to affect women. Stress urinary incontinence is one among the commonest problem faced by the women. Although it is not life threatening, it is a very debilitating condition which affects the quality of life of millions of women worldwide.

International Continence Society defines Stress urinary incontinence (SUI), as "the complaint of involuntary leakage of urine on effort, exertion, sneezing, or coughing". Although it is not a life-threatening condition SUI affects the quality of women's lives in many ways and may limit women's social and personal relationships, as well as limiting physical activity.

Most women do not seek medical attention for this condition. It is estimated that only one in four women seek medical advice for incontinence due to embarrassment, limited access to health care or poor screening by health care providers.

Studies have found that urinary incontinence affects women of all ages. In middle-aged women, prevalence estimates range from 30% to 40%, and rise to about 50% in older women.

Urethral closure is maintained by an adequate support provided by the endopelvic fascia and the tonic contraction of the levator ani muscles. Pelvic floor muscles can start to weaken as age advances and slowly loosens the laxity which can further complicate the issues related to incontinence among females, further adding burden to health issues among women.

Although surgical treatments are widely used for SUI, self-managed conservative methods can be utilized to avoid long term recurrence or possible complications of surgical interventions.

Pelvic Floor Muscle Training (Kegel exercises) restores the ability to contract these muscles in a timed and coordinated way and thus improves or restores continence.

Hypopressive exercises, is currently a new technique, that aims to stimulate abdominal and pelvic muscles, which helps in strengthening core as well as improves pelvic floor muscle functioning.

Studies have suggested that Kegel exercises (Pelvic floor muscle training), abdominal hypopressive technique, Bladder training, vaginal devices, electrical stimulation are some conservative options for SUI which are effective interventions in management of SUI.

### **PURPOSE OF THE STUDY:**

Stress urinary incontinence is a common symptom that can seriously affect the physical, psychological, and social well-being of affected individuals of all ages. Nurses are in key position to ensure adequate care and advice to the clients suffering with SUI.

Kegel exercises (Pelvic floor muscle training), abdominal hypopressive technique, Bladder training are some of the non-invasive interventions which has been used to manage the stress urinary incontinence.

As per the current guidelines of European Association of Urology lifestyle modifications (such as weight reduction) and conservative treatments should be advocated to all women with Stress Urinary Incontinence as first-line treatment as it reduces the burden and is cost effective way of management of SUI.

Combined Kegels and hypopressive exercises will help to make the pelvic floor muscles co-contract and co-ordination of pelvic floor muscle contraction with deep abdominal muscle contraction is more effective than specific strength training of the pelvic floor muscles to enhance continence.

Systematic review of the studies on alternative exercises for stress UI suggested abdominal training, Paula method, and Pilates exercise. However, studies have not been conducted that examined the effect of kegel exercises combined with abdominal hypopressive technique on UI in community areas.

Kegels and abdominal hypopressive techniques apart from being cost effective is also non-pharmacological, non-invasive and easy method to practice that can be utilized on our women to help them to cope up with their necessary care over the sensitive issue of Stress Urinary Incontinence. The combination of both methods kegels and hypopressive is an excellent way to improve strength of the pelvic floor as connective tissue is stretched.

### **STATEMENT OF PROBLEM:**

A study to evaluate the effectiveness of combined Kegel exercises and abdominal hypopressive technique in management of Stress Urinary Incontinence among middle aged women in selected community areas of Bhopal.”

### **OBJECTIVES:**

1. To assess the Pre- test & Post - test level of stress urinary incontinence among Middle aged women in Control & Experimental group.
2. To evaluate the effectiveness of combined Kegel exercises and Hypopressive technique in terms of stress urinary incontinence among middle aged women.
3. To find out the association between pre-test level of stress urinary incontinence with selected demographic variables among middle aged women in experimental group.

4. To find out the association between pre-test level of stress urinary incontinence with selected demographic variables among middle aged women in control group

#### **HYPOTHESIS:**

**H1:** There will be a significant difference in pre and post- test scores on stress urinary incontinence among Middle aged women in Experimental group.

**H2:** There will be a significant difference in pre and post- test scores on stress urinary incontinence among Middle aged women in Control group.

**H3** There will be a significant difference in post-test scores of stress urinary incontinence between experimental and control group among Middle aged women.

**H4:** There will be a significant association between pre-test level of stress urinary incontinence and selected demographic variables among middle aged women in experimental group.

**H5:** There will be a significant association between pre-test level of stress urinary incontinence and selected demographic variables among middle aged women in control group.

#### **RESEARCH METHODOLOGY:**

The study utilized the Evaluative research approach. Quasi experimental pre- test post- test control group design research design was adopted for the study. Study was carried after obtaining permission from the Block Medical officer of the selected areas Study population consisted of middle aged married women aged between 40 to 65 years having stress urinary incontinence. Based on the inclusion and exclusion criteria, 20 study samples were identified using the convenient sampling technique. 10 each were allotted into experimental and control group.

After obtaining verbal and written consent from the selected middle aged women Interview technique was used to collect the structured baseline variables RUIS (revised urinary incontinence scale) was utilized for sample collection. The subjects under study in experimental group was explained and instructed to perform Kegel exercise and Hypopressive technique. Follow up was planned twice in a week to ensure they are following and practicing the intervention. The experimental group practiced the Kegel exercise and Hypopressive technique for 4 weeks every day. The efficacy of Kegel exercise and Hypopressive technique was assessed by the outcome measures of the urinary incontinence level, amount of leakage and pelvic floor strength through vaginal digital test before and after the intervention. The subjects were reinforced to practice these exercises alternating between Kegels and Hypopressive between days. The control group was only asked to follow the hygienic measures and was not given any interventions.

#### **ETHICAL CONSIDERATION:**

The legal & ethical permissions and administrative approval was obtained from the concerned University and Block medical officers of the selected areas. Anonymity, confidentiality, and informed consent from the sample were also considered.

## ANALYSIS AND INTERPRETATION OF FINDINGS

## Description of Subjects According to Socio Demographic Variables

**Table 1: Frequency and Percentage Distribution of Demographic Profile of the Samples in Experiment and Control Group.** (n=20)

Demographic variables		Group			
		Experimental (n=10)		Control (n=10)	
		f	%	f	%
Age	40 -45 years	1	10.00%	1	11.11%
	46- 50 years	4	40.00%	2	22.22%
	51 -55 years	2	20.00%	2	22.22%
	56 -60 years	3	30.00%	4	44.45%
	61 -65 years	0	0.00%	0	0.00%
Education	No formal education	3	30.00%	4	40.00%
	Primary	3	30.00%	4	40.00%
	Higher secondary	2	20.00%	1	10.00%
	Graduation	2	20.00%	1	10.00%
	Masters & above	0	0.00%	0	0.00%
Monthly income(rupees)	Below 10,000	0	0.00%	2	20.00%
	10,001-20,000	3	30.00%	3	30.00%
	20,001- 30,000	4	40.00%	3	30.00%
	Above 31,000	3	30.00%	2	20.00%
Parity status	Nulliparous	0	0.00%	0	0.00%
	Primiparous	0	0.00%	0	0.00%
	Multipara	7	70.00%	8	80.00%
	Grand multipara	3	30.00%	2	20.00%
Type of delivery	Normal delivery	8	80.00%	9	90.00%
	Instrumental delivery	0	0.00%	0	0.00%
	C-Section	2	20.00%	1	10.00%
Number of children	No. issues	0	0.00%	0	0.00%
	1-2	4	40.00%	3	30.00%
	3-4	3	30.00%	5	50.00%
	>4	3	30.00%	2	20.00%
Occupation	Home maker	5	50.00%	5	50.00%
	Unskilled worker	2	20.00%	2	20.00%
	Skilled worker	2	20.00%	2	20.00%
	Professionals	1	10.00%	1	10.00%
Activity level	Sedentary	0	0.00%	0	0.00%
	Moderate	5	50.00%	4	40.00%
	Very active	4	40.00%	4	40.00%
	Heavy worker	1	10.00%	2	20.00%
BMI	Below 18.5	2	20.00%	2	20.00%
	18.5-24.9	6	60.00%	3	30.00%
	25.0-29.9	2	20.00%	5	50.00%
	30.0 and above	0	0.00%	0	0.00%
Attained Menopause	Yes	8	80.00%	7	70.00%
	No	2	20.00%	3	30.00%
Any family history of urinary incontinence	Yes	1	10.00%	1	10.00%
	No	9	90.00%	9	90.00%

The above table shows the demographic information of middle aged women in selected community areas of Bhopal those who participated for the study.

The findings of the study revealed that majority (44%) of sample in control group were in age group of 56-60years and (40%) samples in experimental group were in age group of 46-50years. None of the samples were in the age group of 61 -65 years. With regard to the educational status, majority (30%) of the sample in Experimental group and majority of the sample in Control group (40%) were not having any formal education and this was followed by primary



educational status. While viewing the monthly income majority of the samples in both groups monthly income ranged between 20,000-30,000 rupees. In relation to the parity status majority of samples in Experimental group (70%) and in Control group (80%) were multipara. When comparing the mode of delivery in experimental group (80%) and in Control group (90%) had normal delivery and only 20% of samples in experimental group and 10% of samples in control group had C- section. The findings revealed that most of the samples had 1-2 children in experimental group (40%) and 3-4 children in control group (50%). Regarding the occupational status majority (50%) of the sample from both the groups were housewives. Considering the activity levels the findings revealed that majority of the middle aged women in experimental (50%) and control (40%) had moderate activity level, which was followed by very active level equally (40%) in both the groups. According to the BMI, Majority (60%) of the middle aged women of experimental group had BMI 18.5-24.9 whereas the middle aged women of control group (50%) had BMI 25-29.9. And none of the women in both the groups had BMI of 30.0 and above. The data revealed that majority of the samples from both the group had attained menopause. While viewing the family history of urinary Incontinence, 90% of the samples of both the group had no family history of urinary Incontinence.

**Table 2: Pre-test comparison of percentage and chi square distribution of level of urinary incontinence among middle aged women in the experimental and the control group (n=20)**

Level of SUI	Group				Chi square test
	Experiment		Control		
	f(10)	%	f(10)	%	
Mild	3	30.00%	4	40.00%	$\chi^2=0.23p=0.89$ DF=1(NS)
Moderate	6	60.00%	5	50.00%	
Severe	1	10.00%	1	10.00%	
Total	100	100.00%	10	100.00%	

$P>0.05$  not significant DF= Degrees of Freedom

The above table explains that in Experiment group, in pretest, majority of women (60.00%) of them were having moderate level of stress urinary incontinence, (30.00%) of the women were having mild level of stress urinary incontinence, and only (10.00) % of them were found to have severe level of urinary incontinence. When compared to control group it was observed that in control group also majority of women(50.00%) of were having moderate level of urinary incontinence, (40.00%) of the women had mild level of urinary incontinence, and only (10.00) % of them had severe level of urinary incontinence score.

Statistically there is no significant difference between experiment and control group, this was confirmed using chi square test at level  $p<0.001$ .

**Table 3: Post-test comparison of percentage and chi square distribution of level of urinary incontinence among middle aged women in the experimental and the control group (N=20)**

Level of SUI	Group				Chi square test
	Experiment		Control		
	f	%	f	%	
Mild	10	100.00%	5	50.00%	$\chi^2=4.24p=0.05^*$ DF=1(S)
Moderate	0	0.00%	5	50.00%	
Severe	0	0.00%	0	0.00%	
Total	10	100.00%	10	100.00%	

The above table depicts the post-test level of stress urinary incontinence among middle aged women in experimental and control group. It was revealed that 10 (100%) of the women in experimental group had mild level of stress urinary incontinence; none of them had severe or moderate level of stress incontinence. Whereas, in control group, 5 (50.00%) of women had mild level of stress urinary incontinence, and the other 5 (50.00%) of them were having moderate level of stress urinary incontinence. There was statistically high significant difference between experiment and control group at  $p=0.05$  level.

**Table 4: Comparison of mean post-test level of urinary incontinence score in experimental and control group:**

Group	N	Mean score	Std. Deviation	Mean difference	Student's independent t-test
Experiment	10	4.40	2.01	3.60	t=3.76, p=0.01** DF=18, significant
Control	10	8.00	2.26		

$P \leq 0.01$  highly significant DF=Degrees of Freedom

Above table shows the comparison of mean post test score of stress urinary incontinence scores among women between experimental and control groups.

On an average, experimental group women are having 4.40 mean score and control group women are having 8.00 mean score, so the difference is 3.60 score. There was a huge difference in mean score and high significant difference proved using student's independent 't'test.

**Table 5: Illustrates the comparison of pre-test & Post-test values evaluating the amount of leakage among Middle aged women in Control & Experimental group. (n=20)**

Amount of urinary leakage	Group				Chi square test
	Experiment		Control		
	f	%	f	%	
<b>Pre test</b>					$\chi^2=2.11$ p=0.55 DF=3(NS)
No leakage	0	0.00%	1	10.00%	
Slight leakage	3	30.00%	3	30.00%	
Moderate leakage	4	40.00%	5	50.00%	
Severe leakage	3	30.00%	1	10.00%	
<b>Total</b>	10	100.00%	10	100.00%	
<b>Post test</b>					$\chi^2=8.60$ p=0.05* DF=1(S)
No leakage	2	20.00%	1	10.00%	
Slight leakage	8	80.00%	3	30.00%	
Moderate leakage	0	0.00%	5	50.00%	
Severe leakage	0	0.00%	1	10.00%	
<b>Total</b>	100	100.00%	10	100.00%	

The above table explains, that in pretest none (0%) in Experiment group and 1 (10%) of the women in control group had no urine leakage. Both 3(30%) of women in Experiment group and control group had slight leakage. 4(40%) of women in Experiment group and 5(50%) of women in control group had moderate urine leakage. 3(30%) of women in Experiment group and 1(10%) of women in control group was observed with severe urine leakage during the whole test.

In post- test 2 (20%) of women in Experiment group and 1 (10%) of the women in control group had no urine leakage. 8(80%) of women in Experiment group and 3(30%) in control group had slight leakage. None of the women in experimental group had moderate or severe amount of urine leakage during the whole test whereas no changes were

observed in moderate 5 (50%) and severe 1(10%) amount of leakage among the women in control group during the whole test.

Statistically there is a significant difference between experimental and control group. It was calculated by using chi square test. The difference was by chance not choice hence the intervention combined kegel exercise and hypopressive technique was effective in reducing the amount of leakage among the women in experimental group.

**Table 6: The table shows the comparison of Pre-test & Post-test evaluation of pelvic floor muscle tone among Middle aged women in Control & Experimental group.**

Pelvic Floor Muscle Tone	Group				Chi square test
	Experiment		Control		
	f	%	f	%	
<b>Pretest</b>					
No Contraction	1	10.00%	1	10.00%	$\chi^2=0.27p=0.61$ DF=2(NS))
Poor contraction	6	60.00%	7	70.00%	
Good Contraction	3	30.00%	2	20.00%	
<b>Total</b>	10	100.00%	10	100.00%	
<b>Post test</b>					
No Contraction	0	0.00%	1	10.00%	$\chi^2=9.95p=0.01^{**}$ DF=2(S)
Poor contraction	1	10.00%	7	70.00%	
Good Contraction	9	90.00%	2	20.00%	
<b>Total</b>	10	100.00%	10	100.00%	

The above table reveals the pelvic floor muscle contraction among the women in experimental and control group before and after the intervention. In both Experiment group and control group 1 (10%) of the women had no contraction. 6(60%) of women in Experiment group and 7 (70%) of women in control group had poor contraction. 3(30%) of women in Experiment group and 2(20%) of women in control group had good pelvic floor muscle contraction.

In post- test 9 (90%) of women in experimental group had good pelvic floor muscle contraction and only 1(10%) had poor pelvic floor muscle contraction, whereas no changes was observed in control group.

Statistically there is a significant difference between experiment and control group. It was calculated by using chi square test.

- Chi square test was computed to find Association between pre-test level of stress urinary incontinence of the selected demographic variables among middle aged women in experimental group and control group.
- Data revealed that there was no significant association between pre-test level of stress urinary incontinence and monthly income, parity status, types of delivery, number of children, occupation, activity level, BMI, attained menopause, and any family history of urinary incontinence in both experimental and control group. Whereas, there was a slight significance with age, educational status and stress urinary incontinence among middle aged women in experimental group and in control group there was slight significance with age and stress urinary incontinence.
- Association was also sought regarding amount of leakage with selected demographic variables findings among middle aged women in experimental group and control group revealed that there was significant association with regard to age and education level in experimental group where as in in control group age and activity level had slight association. No other significant association was found with rest of the selected demographic variables in both the study groups.



- Association regarding pelvic floor muscle tone with selected demographic variables revealed that, there was significant association with age and pelvic floor muscle tone in both the study groups. No other significant association was found with rest of the selected demographic variables in both experimental and control group.

### CONCLUSION AND RECOMMENDATIONS

Stress incontinence (SI) is the most common type of incontinence suffered by women and it can affect women of all ages. Older women are particularly vulnerable. In addition, women who have given birth are more likely to have stress incontinence. SUI can have a significant negative impact on the quality of life, they may be reluctant to initiate discussions about incontinence; therefore, being a nurse we are in position to identify the urinary problems among women, especially women's above 45 should be asked focused questions about voiding problems.

Statistical significant differences were observed among the middle aged married women in experiment and control group in reducing the urinary incontinence. It was observed that following the intervention, women in Experimental group had reduction in urinary incontinence, amount of leakage and improvement in pelvic floor muscle tone where as in control group no positive outcomes were seen. In this present study, the researcher has identified that combined kegel and abdominal hypopressive exercise has a more positive significance in reducing the SUI symptoms. The selected intervention is simple, cost effective and non-invasive measures which, if used effectively, can improve the assessment and management of incontinent women. This can empower women to live active, normal lives and minimize the psychological distress associated with what is a potentially debilitating condition.

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