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An experimental study to assess the effectiveness of pelvic floor exercise for the management of urinary incontinence among women in selected areas of Pune city

Swati Deshmane and K Memchoubi

Abstract

Introduction: An experimental study to assess the effectiveness of pelvic floor exercise for the management of urinary incontinence among women was conducted by Ms. Swati Deshmane for the degree of Master in the subject Medical Surgical Nursing at Bharati Vidyapeeth (Deemed to be University), College of Nursing, Pune, Maharashtra.

Methods and research approach: The Research Approach refers to the way in which the Investigator plans and constructs in research process. The researcher has adopted the quantitative approach.

Result: The p-value was 0.20 before the intervention of pelvic floor exercise which is greater than 0.05, which then reduced to 0.02 after the intervention of pelvic floor exercise (Less than 0.05), this proved that pelvic floor exercise was highly effective in the management of Urinary incontinence among women.

Conclusion: The researcher concludes that pelvic floor exercise helps in managing the Urinary Incontinence among women. Pelvic floor exercise is cost-effective and should be the first choice of treatment for Urinary Incontinence. To be effective, Pelvic Floor exercise has to be thoroughly taught and performed with weekly or monthly follow-up.

Keywords: Assess effectiveness, pelvic floor exercise, management, urinary incontinence, level of urinary incontinence and women

Introduction

Urinary Incontinence (UI) is a complaint, that exert influence on the physical, social, economic, psychosocial well-being of women and their families ^[1].

Types of Urinary Incontinence are Urge Incontinence is by involuntary detrusor contractions, Stress Incontinence is associated with sudden pressure on the bladder, Overflow Incontinence is associated with urethral blockage or abnormal bladder contraction, Functional Incontinence results as a functional limitations (i.e. mobility problems, health related problems or a medication) which makes the women difficult to reach the bathroom ^[2]. Temporary Urinary Incontinence can be caused by certain foods, drinks, and medications that may act as diuretics, which increases urine volume and stimulates the bladder.

Urinary Incontinence may also be caused by a treatable medical condition, like constipation, urinary tract infection and persistent urinary incontinence.

There are 12 groups of striated muscles arranged in 3 layers in pelvic floor, which runs in the same direction in each muscles, that in turns improves muscle tone which builds the perineal support & strength ^[3].

Research Objectives

- 1) To assess the level of Urinary Incontinence among women before implementation of Pelvic Floor Exercise in both experimental and control group.
- 2) To assess the level of Urinary Incontinence among women after implementation of Pelvic Floor Exercise in experimental group; and control group.
- 3) To assess the effectiveness of Pelvic Floor Exercise on the level of Urinary Incontinence among women.

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4) To find an association between the pre-intervention level of Urinary Incontinence and selected demographic variables.

Conceptual Framework

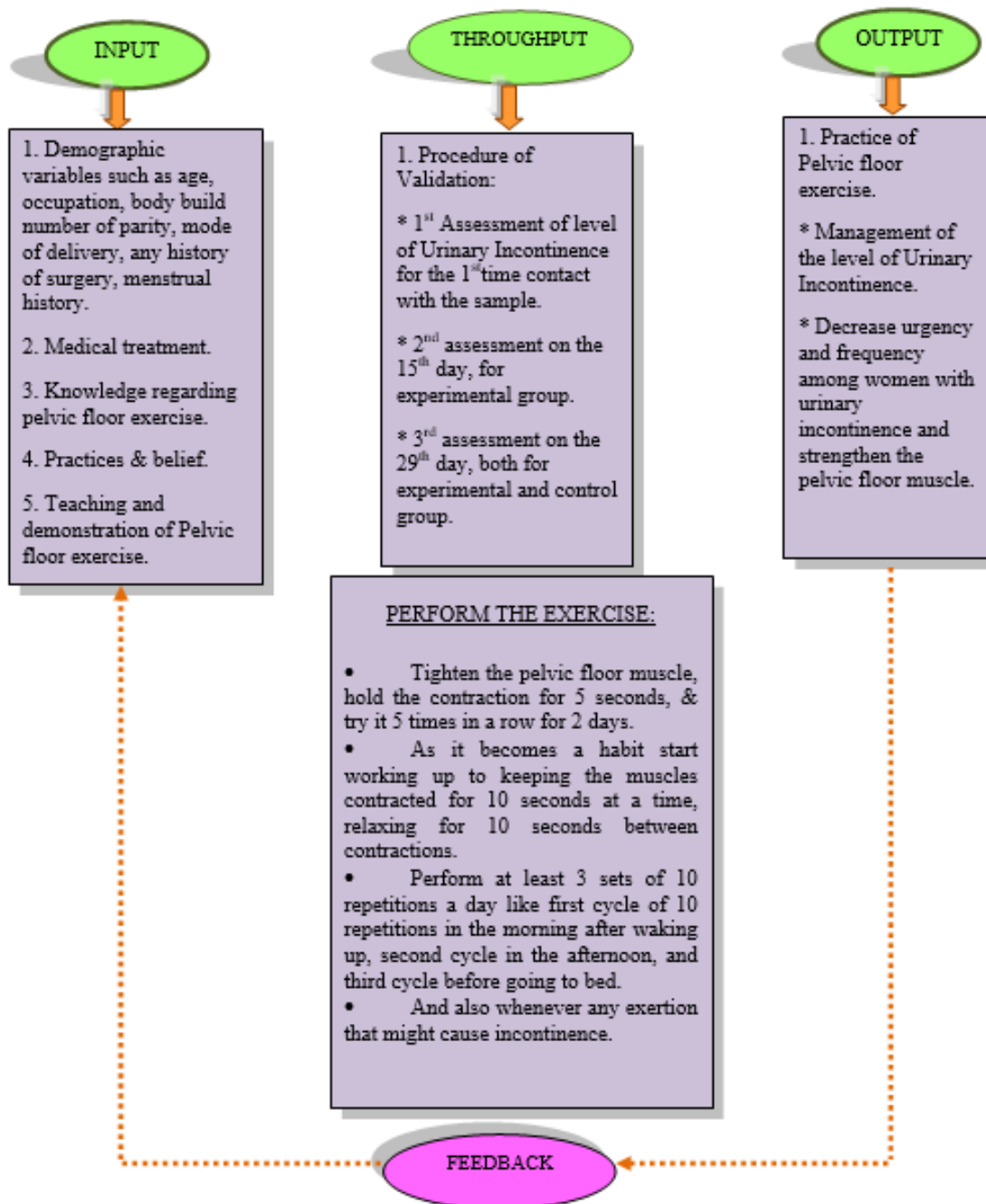


Fig 1: Diagram Showing Conceptual Framework Using General System Model

Research Methodology

Quantitative quasi-experimental approach pre-test post-test control group design had been adopted for the present study. Independent and dependent variable were Pelvic Floor Exercise and level of Urinary Incontinence respectively. Pilot study was conducted at Bibwewadi, Ratna hospital and Bharati Vidyapeeth Ayurved Hospital, Pune. Total 6 women, 3 women in experimental and 8 in control group were selected by using non probability convenience sampling technique according to the inclusion criteria of the sample i.e., Women age group of 25-65 years and women with Stress & Urge Urinary Incontinence. Women with other diseases like spinal disease/ injury/ surgery, recurrent

urinary tract infection, vaginal infection, neurogenic bladder, pregnant females and women who are unable to perform the exercise were excluded from the study. Modified self-structured questionnaire was developed to assess the level of Urinary Incontinence. The reliability was done by using test-retest method on 06 samples in Katraj, Pune. By using Karl Pearson Correlation Coefficient formula, $r = 0.98$ hence tool found to be reliable. The validity was established by experts from different specialties i.e., from Medical Surgical Nursing, Obstetrics and Gynecology Nursing, Urologist, Yoga specialist and Statistician. Total 23 experts had given back the tool with

their valuable suggestions. The tool was found to be relevant.

Data Collection

- Ethical committee clearance.
- Permission from the authorities of the institution and community areas.
- Consent from research participants.
- Data collection is done by self-instructed questionnaire.
- A questionnaire was administered to samples of experimental and control group, their level of Incontinence was measured.
- Intervention (Pelvic floor exercise) was taught to the experimental group.
- 2nd assessment on the 15th day, for the experimental group.
- 3rd assessment on the 29th day, both for experimental and control group.
- Data Analysis and Interpretation.

Results:
Section I

Table 1: Frequency and percentage distribution of demographic variables of Urinary Incontinence women. n=30, n=30

	Demographic variable	Experimental group		Control group	
		Freq	%	Freq	%
1.1	Age				
	25-35 years	13	43.3%	7	23.3%
	36-45 years	5	16.6%	6	20%
	46-55 years	9	30%	11	37%
	56-65 years	3	10%	6	20%
1.2	Occupation				
	Home Maker	17	56.6%	16	53.3%
	Service	11	36.6%	12	40%
	Others	2	6.6%	2	6.6%
1.3	Body Build				
	Under Weight	8	26.6%	4	13.3%
	Normal Weight	6	20%	14	47%
	Overweight	7	23.3%	7	23.3%
	Obese	9	30%	5	17%
1.4	No. of parity				
	1	3	10%	3	10%
	2	10	33.3%	15	50%
	3	8	26.6%	4	13.3%
	4 or more	6	20%	4	13%
1.5	Mode of Delivery				
	Home Delivery	1	3.3%	2	6.6%
	Institutional Delivery	21	70%	19	63%
	Caesarian	5	16.6%	5	16.6%
1.6	H/O Surgery				
	Abdominal	9	30%	10	33%
	Vaginal	0	0	0	0
	Other	0	0	0	0
	No history	21	70%	20	67%
1.7	Menstrual History				
	Regular	15	50%	15	50%
	Irregular	6	20%	5	17%
	Menopause	9	30%	10	33%

Section II

Table 1: A table describing the level of Urinary Incontinence before implementation of Pelvic Floor Exercise. n= 30, 30

	Level of Urinary Incontinence	Experimenta l Group		Control Group	
		(f)	%	(f)	%
Pre-interventio n	Mild 11-19	8	26.67%	8	26.67%
	Moderate 20 – 27	13	43.33%	16	53.33%
	Severe 28 – 35	6	20%	4	13%
	V. Severe 36 - 44	3	10%	2	7%

In the experimental group, 43.33% of the women had moderate level, 26.67% had mild level, 20% had severe level, and 10% had a very severe level of Urinary Incontinence.

In the control group, 53.33% of the women had moderate level, 26.67% had mild level, 13% had severe level, and 07% had a very severe level of Urinary Incontinence.

Table 2: A table describing the level of Urinary Incontinence after implementation of Pelvic Floor Exercise. n=30, 30

	Level of Urinary Incontinence	Experimental Group		Control Group	
		(F)	%	(F)	%
Post-intervention	Mild 11-19	19	63.3%	9	30%
	Moderate 20 – 27	6	20%	15	50%
	Severe 28 – 35	5	17%	5	17%
	V. Severe 36 – 44	0	0%	1	3%

In the experimental group, 63.3% of the women had mild level, 20% had moderate level, 17% had severe level, and 0% had a very severe level of Urinary Incontinence.

In the control group, 50% of the women had moderate level, 30% had mild level, 17% had severe level, and 01% had a very severe level of Urinary Incontinence.

Section III

Table 3: A table describing the effectiveness of Pelvic Floor Exercise on level of Urinary Incontinence. n=30, 30

	Group	Mean	Sd	T Cal	Df	T Table	P- Value
Before	Experimental	25	6.35	0.840	58	1.67	0.202179
	Control	23.63	6.30				
After	Experimental	19.8	5.48	2.013	58	1.67	0.026581
	Control	22.8	6.08				

Researcher applied unpaired t-test for effectiveness of intervention in the experimental group. The data presented in the above table signifies that the mean score before intervention in the experimental group is 25 & 23.63 in the control group. SD in the experimental group is 6.35 and 6.30 in the control group. Calculated t-value is 0.840 and at 58 degree of freedom tabulated t-value is 1.67. p value is 0.202

The mean score after intervention in the experimental group is 19.8 and 22.8 in the control group. SD in the experimental

group is 5.48 and 6.08 in the control group. Calculated t-value is 2.013 and at 58 degree of freedom tabulated t-value is 1.67. p value is 0.026

Tabulated t-value (i.e., 1.67) is less than calculated t-value (2.013), we reject the null hypothesis ($p=0.02 < 0.05$). Hence there is statistically significant difference on the level of Urinary Incontinence among women before and after

implementation of Pelvic Floor Exercise at 0.05 level of significance.

There is a decrease in mean and SD in both groups as some of the samples was receiving some other treatment, but there is a faster decrease in the experimental group who were receiving additional Pelvic Floor Exercise intervention.

Section IV

Table 4: A table describing the association between the pre-intervention level of Urinary Incontinence & selected demographic variables. n=30, 30

Sr No	Demographic Variable	Mild	Moderate	Severe	Very Severe	p Value	Inference	
1)	Age	25-35 yrs	5	12	1	0	0.09	Not Significant
		36-45 yrs	4	4	2	0		
		46-55 yrs	6	8	4	3		
		56-65 yrs	1	5	3	2		
2)	Occupation	Home maker	7	13	9	5	0.05	Significant
		Service	7	14	1	0		
		Other	2	2	0	0		
3)	Body Build	Under weight	3	6	3	0	0.658	Not Significant
		Normal weight	6	10	1	1		
		Over weight	3	6	4	3		
		Obese	4	7	2	1		
4)	Number Of Parity	1	2	4	0	0	0.08	Not Significant
		2	9	15	0	0		
		3	1	4	4	3		
		4 or more	1	1	6	2		
5)	Mode Of Delivery	Home delivery	0	2	1	1	0.029	Significant
		Institution delivery	8	18	9	4		
		Caesarean	5	4	0	0		
6)	History Of Surgery	No history	11	23	4	2	0.04	Significant
		Abdominal	5	6	6	3		
		Vaginal	0	0	0	0		
		Other	0	0	0	0		
7)	Menstrual History	Menopause	3	7	7	3	0.04	Significant
		Regular	10	15	3	1		
		Irregular	3	7	0	1		

The above table shows the association between the pre-intervention levels of Urinary Incontinence with selected demographic variables using Fisher's exact test. Since p-values are less than 0.05 corresponding to a demographic variable of occupation was 0.05, mode of delivery was 0.029, history of surgery was 0.04, and menstrual history was 0.04, so it is found to have association with the pelvic floor exercise among women with Urinary Incontinence.

We reject the null hypothesis. Hence, there is statistically significant association between the pre-intervention level of Urinary Incontinence among women and selected demographic variables (occupation, mode of delivery, history of surgery, menstrual history) at 0.05 level of significance.

Discussion

The findings of the study have been discussed with the reference of the objectives and hypothesis.

The finding of the study shows that Pelvic Floor Exercise was significantly effective in managing the level of Urinary Incontinence.

In the present study, p value was 0.026581 (Less than 0.05); this proved that pelvic floor exercise was found to be highly significantly effective in Urinary Incontinence among women. This is supported by another study conducted by K. Bo. The objective was to treat stress urinary incontinence with the help of pelvic floor exercise. Showed that Pelvic

Floor Exercise is effective in managing stress urinary incontinence, lasting from 3 to 6 months [23].

Seong-Hi Park, *et al*; conducted randomized controlled trials to assess the Urinary Incontinence symptoms after teaching the Kegel exercise. The sample consisted of 510 women. The study revealed that, Urinary Incontinence is managed by performing Kegel exercise. However, further research is still required for understanding how to treat or cure Stress Urinary Incontinence [24].

The finding of the study shows that there is an association between level of Urinary Incontinence & selected variables.

In the present study it was observed that occupation, mode of delivery, history of surgery, menstrual history is found to have an association with the Pelvic Floor Exercise among women with Urinary Incontinence.

A study done by Nazli Sensoy, *et al*; risk factors, incidence rates & influence on quality of life on women with Urinary Incontinence, showed that majority 89.8% (n=943) were housewives [24].

A study done by Alastair H. MacLennan, *et al*; on the incidence of pelvic floor disorders & their relationship with the age, sex, mode of delivery & parity, showed that Urinary Incontinence was more commonly investigated in nonporous women & incidence raised after pregnancy according to parity [25].

A study done by Boyles, *et al*; to assess the incidence of Urinary Incontinence in primiparous women and the effect

of mode of delivery, showed that women with vaginal delivery has increased risk of Urinary Incontinence immediately in their postpartum period ^[26].

Conclusion

Urinary Incontinence is a stressful condition from which maximum woman suffers after the age of 25 years. Women try to manage the problem of Urinary Incontinence by using an absorbent cloth and taking frequent urine breaks which causes further complications like urinary tract infections, skin rashes, problems with their sexual life, etc., however, teachings, practices and trainings are given to cure Urinary Incontinence. The women fail to continue the process within a few weeks or months when the symptoms start reducing. This may cause the reoccurrence of Urinary Incontinence again.

Women performing Pelvic Floor Exercise to cure Urinary Incontinence had a positive influence on the outcomes. During the last five decades, a Pelvic Floor Exercise is in practice in the western countries. But the Indian women are not aware of the importance of performing Pelvic Floor Exercise. The health care professionals have the responsibility of reaching out towards the women about Pelvic Floor Exercise. Identifying the specific pelvic floor muscles is very important in treating Urinary Incontinence. The study was conducted with the objective to assess the effectiveness of Pelvic Floor Exercise for the management of Urinary Incontinence.

The findings of the study revealed that there is an effective of Pelvic Floor Exercise for the management of Urinary Incontinence.

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