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On the Effectiveness of Pelvic Floor Exercise for the Stress Urinary Incontinence Among Women

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ABSTRACT

The aim of the study to determine the efficacy of pelvic floor exercise for stress urinary incontinence. In this study interventional evaluatory approach & time series research design were utilized. This research was carried out in a rural community area of Sawangi (Meghe) Wardha were 30 women who fulfill the criteria of sample selection that women selected as a sample according to non-probability purposive sampling technique. Significant difference were found before & after pelvic floor exercise. The findings of the severity of stress urinary incontinence were 14 (46.70 %) of women had grade I in pre assessment whereas, 12 (40%) of women had grade I in post assessment. A 16 (53.3%) of women had grade II in pre assessment whereas, 6 (20%) of women had grade II in post assessment. A 12 (40%) of women had grade 0 in post assessment whereas, 0(0%) of women had grade 0 in pre assessment. Significant association was found between the history of mode of delivery of first attempt with stress urinary incontinence (p = 0.022) & also, significant association was found between age (p=0.031), marital status (p = 0.001) & history of mode of delivery of second attempt (p = 0.016) with severity of stress urinary incontinence. Stress urinary incontinence is the main problem that may develop due to weak pelvic floor muscles & only pelvic floor exercise is a primary treatment to improve pelvic muscle strength.

KEY WORDS: EFFECTIVENESS, PELVIC FLOOR EXERCISE, STRESS URINARY INCONTINENCE, SEVERITY OF STRESS URINARY INCONTINENCE, INGELMAN-SUNDBERG SCALE.

INTRODUCTION

Urinary incontinence is a medical disease in which the urinary bladder loses its control, which can range from a small amount of urine loss during sneezing, coughing, laughing, to a total loss of bladder control. It is a problem of involuntary leakage of urine & classification according to symptoms and incidence of pathophysiological mechanisms. (Norton, Brubaker, 2006) Urinary stress incontinence is also known as a medical problem in which uncontrollable leakage of urine due to stress, effort, heavy exercise, sneezing, or coughing and urinary stress incontinence is a unique type of urinary incontinence. Urinary stress incontinence have a great effect on the standard of living of women & can restrict professional and individual activity and physical activity among women. (Montgomery, 2014.) Stress urinary incontinence is the commonest issue among females because of internal abdominal pressure like coughing, sneezing, laughing, running, exercises, and exertion. It is commonly found in females above the age of 15 years, stress urinary incontinence affecting certain age ranges and severity will be increased with age. This is a serious social health problem in young females which decreases the standard of living. (Sangsawang, 2013)

The study aims to determine the efficacy of pelvic floor exercise for the prevention and treating stress urinary incontinence. The objective was to assess the stress urinary incontinence among women before & after pelvic floor exercise, to assess the severity of stress urinary incontinence among women before & after pelvic floor exercise, to find out the association between stress urinary incontinence & severity with selected demographic variables. Urinary incontinence can damage the standard of living of an individual, & it will lead to a disturbing social relationship, depressive symptoms from embarrassment, and hospital stay because of urinary tract

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infection, skin breakdown. Stress urinary incontinence may affect sexual function. (Palmer, 1996) Urinary stress incontinence is a common issue, experiencing discomfort, guilt, or complete lack of self-esteem, including significant social and human consequences. It has an impact not only on the standard of living but also on the costs. (Lenderking et al., 1996)

MATERIAL AND METHODS

In this study time series research design & an interventional evaluatory approach was used. The research was carried out in the rural community area of Sawangi Meghe, Wardha were 30 females who have fulfill the sample selection criteria that selected as a study sample according to the non-probability purposive sampling technique. Permission was taken from institutional ethical committee. The tools were a structured questionnaire on demographic variables and stress urinary incontinence, Ingelman-Sundberg scale for assessing the severity of stress urinary incontinence, Checklist of pelvic floor exercise used for data collection. The tool was supplied to 12 specialists from various fields of medical surgical nursing, obstetrical & gynecological nursing. Expert suggestions & recommendations were used to make changes in tools. Before collecting data, authorization was received from the relevant authorities in the chosen community area. Consent was received from the sample (Bokne et al., 2019).

Pelvic floor exercise was given by the researcher to the participant. Pilot research was carried out on 3 samples in a selected rural community area salod, Wardha. Data collection process on 1st day pre-assessment of stress urinary incontinence & severity of stress urinary incontinence was done. On the same day, pelvic floor exercise was explained and demonstrated to those women who have grade I and II stress urinary incontinence. Instructed them to empty their bladder. They can sit, stand, and half lie with the leg slightly apart closed & draw around the anal passage as through preventing a bowel action. Then they have to draw up around the vagina and urethra as if to stop the flow of urine in midstream hold for 10 seconds then relax and repeat 10 times. Instructed them to do pelvic floor exercise 3 times/ day for 2 weeks (morning, afternoon, night). Researcher monitor activities on 1st,4th,7th, 10th& 13th day after that post-assessment was done after 2 weeks to determine the efficacy of pelvic floor exercise by using tools.

RESULTS AND DISCUSSION

Grades of stress urinary incontinence are compared by using the Chi-square test. Significant difference was found in pre & post assessment. Significance of difference between the severity of stress urinary incontinence before & after pelvic floor exercise.

The above table shows the association of severity of stress urinary incontinence with age in years of women, marital status of women, and history of mode of delivery of women in the second attempt.

Section A Percentage-wise distribution of women according to demographic variables. n=30

Demographic Variables	Number of Women (f)	Percentage (%)
Age(yrs)		
31-40 yrs.	13	43.3
41-50 yrs.	4	13.3
51-60 yrs.	8	26.7
>60 yrs.	5	16.7
Marital Status		
Married	19	63.3
Unmarried	0	0
Widow	11	36.7
Number of children		
No children	0	0
One	2	6.7
Two	19	63.3
Three or more	9	30
H/O birth canal injury		
Yes	1	3.3
No	29	96.7
H/O mode of delivery 1stattempt		
Normal Delivery	28	93.3
LSCS	2	6.7
2ndattempt		
Normal Delivery	24	85.7
LSCS	4	14.2
3rd attempt		
Normal Delivery	6	66.7
LSCS	3	33.3
4th attempt		
Normal Delivery	2	66.7
LSCS	1	33.3
H/O previous abdominal surgery		
Yes	22	73.3
No	8	26.7

DISCUSSION

In this present study, the stress urinary incontinence is identified when unintentional leaking of urine with sudden pressure on the abdomen. According to analysis, it is found that 17(56.7%) of women had urine leak during running or picking up heavy objects in pre assessment whereas, 6 (20%) of women had urine leak during running or picking up heavy objects in post assessment. 13(43.3%) of women had urine leak when cough and sneeze in pre assessment whereas, 11(36.7%) of women had urine leak when cough and sneeze post assessment. 13 (43.3%) of women had urine never leak in post assessment whereas, 0(0%) of women had urine never leak in pre assessment. 9(30%) of women had urine passed suddenly during the day in pre assessment whereas, 2(6.67%) of women had urine passed suddenly

during the day in post assessment. 21(70%) of women had urine never passed suddenly during the day in pre assessment whereas, 28(93.33%) of women had urine never passed suddenly during the day in post assessment.

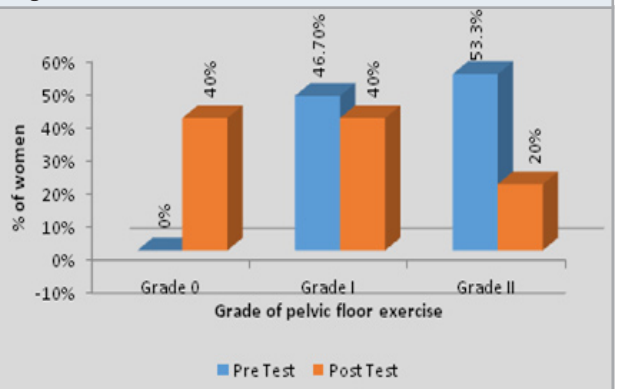
Section B Assessment of stress urinary incontinence before & after pelvic floor exercise. n=30

	Pre assessment	Post assessment	χ2-value
When Does urine leak			
Never	0(0%)	13(43.3%)	18.43 p=0.0006,S
Leak while running or picking up heavy objects.	17(56.7%)	6(20%)	
Leak when you cough and Sneeze	13(43.3%)	11(36.7%)	
Leak all the time	0(0%)	0(0%)	
Have you ever suddenly passed urine during the day			
Yes	9(30%)	2(6.6%)	5.04 p=0.019,S
No	21(70%)	28(93.3%)	
Do you pass urine by continuous dribbling			
Yes	7(23.3%)	1(3.3%)	5.19 p=0.022,S
No	23(76.7%)	29(96.6%)	
How much does leaking urine interfere with yours everyday life			
Not at all	0(0%)	10(33.3%)	27.46 p=0.0001,S
A little	9(30%)	17(56.7%)	
Somewhat	9(30%)	3(10%)	
A lot	12(40%)	0(0%)	
If you need to go to the toilet to pass urine, how long can you hold on			
0-1 minutes	17(56.7%)	0(0%)	20.05 p=0.0001,S
1-5 minutes	10(33.3%)	11(36.7%)	
5-10 minutes	3(10%)	9(30%)	
>10 minutes	0(0%)	10(33.3%)	

Section C Significance of difference between the severity of stress urinary incontinence among women before & after pelvic floor exercise. n = 30

	Pre assessment	Post assessment	ϰ2-value
Grade 0	0(0%)	12(40%)	16.70
Grade I	14(46.7%)	12(40%)	p=0.0002,S
Grade II	16(53.3%)	6(20%)	

Figure 1



7(23.30%) of women had urine lost by continuous dribbling in pre assessment whereas,1(3.33%) of women had urine lost by continuous dribbling in post assessment. 23(76.7%) of women had urine never lost by continuous dribbling in pre assessment whereas, 29(96.67%) of women had urine never lost by continuous dribbling in post assessment. 9(30%) of women had urine leaking interfere a little in their everyday life in pre assessment whereas, 17(56.70%) of women had urine leaking interfere a little in their everyday life in post assessment. 9(30%) of women had urine leaking interfere somewhat in their everyday life in pre assessment whereas, 3(10%) of women had urine leaking interfere somewhat in their everyday life in post assessment.

12(40%) of women had urine leaking interfere a lot in their everyday life in pre assessment whereas, 0(0%) of women had urine leaking interfere a lot in their everyday life in post assessment. 10(33.30%) of women had urine leaking not at all interfere in their everyday life in post assessment whereas, 0(0%) of women had urine leaking not at all interfere in their everyday life in pre assessment.10(33.3%) of women are holding urine for 1-5 minutes in pre assessment whereas, 11(36.7%) of women are holding urine for 1-5 minutes in post assessment. 3(10%) of women are holding urine for 5-10 minutes in pre assessment whereas, 9(30%) of women are holding urine for 5-10 minutes in post assessment. 0(0%) of women are holding urine for more than 10 minutes in pre assessment whereas, 10(33.3%) of women are holding

urine for more than 10 minutes in post assessment. 17(56.7%) of women are holding urine for 0-1 minutes in pre assessment whereas, 0(0%) of women are holding urine for 0-1 minutes in post assessment.

Section D Association of stress urinary incontinence with selected demographic variables. n=30

Demographic variables	No. of women(f)	Mean stress urinary incontinency	F-value/ t- value	Df	F- tab value/ t-tab value	p-value
Age (yrs)						
31-40 yrs.	13	10.30±0.75	1.70	3,26	2.98	0.19 NS,p>0.05
41-50 yrs.	4	10.75±1.50				
51-60 yrs.	8	11.12±0.64				
>60 yrs.	5	10.20±1.09				
Marital status						
Married	19	10.63±1.01	0.49	28	2.05	0.62 NS,p>0.05
Unmarried	0	0±0				
Widow	11	10.45±0.82				
Number of children						
No children	0	0±0	1.30	2,27	3.35	0.28 NS,p>0.05
One	2	11.50±2.12				
Two	19	10.57±0.83				
Three or more	9	10.33±0.86				
H/O birth canal injury						
Yes	1	11±0	0.46	28	2.05	0.64 NS,p>0.05
No	29	10.55±0.94				
H/O mode of delivery						
1st attempt						
Normal Delivery	28	10.46±0.83	2.42	28	2.05	0.022 S,p<0.05
LSCS	2	12±1.41				
2nd attempt						
Normal Delivery	24	10.62±0.87	0.27	28	2.05	0.78 NS,p>0.05
LSCS	4	10.50±0.57				
3rd attempt						
Normal Delivery	6	10.33±0.81	1.36	28	2.05	0.21 NS,p>0.05
LSCS	3	11±0				
4th attempt						
Normal Delivery	2	11±0	-	-	-	-
LSCS	1	11±0				
H/O previous abdominal surgery						
Yes	22	10.50±0.96	0.64	28	2.05	0.52 NS,p>0.05
No	8	10.75±0.88				

Section E Association of severity of stress urinary incontinence with selected demographic variables. n=30

Demographic variable	Severity of stress urinary incontinence			κ2-value	Df	Tabulated 'κ2' values	p-value
	Grade 0	Grade I	Grade II				
Age (yrs.)							
31-40 yrs.	10	2	1	13.88	6	12.59	0.031 S,p<0.05
41-50 yrs.	1	2	1				
51-60 yrs.	1	5	2				
>60 yrs.	0	3	2				
Marital Status							
Married	12	6	1	13.49	2	5.99	0.001 S,p< 0.05
Unmarried	0	0	0				
Widow	0	6	5				
Number of children							
No children	0	0	0	2.38	4	9.49	0.66 NS,p>0.05
One	1	1	0				
Two	9	6	4				
Three or more	2	5	2				
H/O birth canal injury							
Yes	0	1	0	1.55	2	5.99	0.46 NS,p >0.05
No	12	11	6				
H/O mode of delivery							
1st attempt							
Normal Delivery	12	11	5	1.87	2	5.99	0.39 NS,p >0.05
LSCS	0	1	1				
2nd attempt							
Normal Delivery	10	11	3	8.32	2	5.99	0.016 S,p<0 .05
LSCS	1	0	3				
3rd attempt							
Normal Delivery	2	3	1	1.35	2	5.99	0.50 NS,p >0.05
LSCS	0	2	1				
4th attempt							
Normal Delivery	1	1	0	0.75	1	3.84	0.38 NS,p >0.05
LSCS	0	1	0				
H/O previous abdominal surgery							
Yes	10	7	5	2.30	2	5.99	0.31 NS, p>0.0 5
No	2	5	1				

A study was supported by a parallel group randomized controlled trial which was conducted in twenty three community & secondary care centers providing continence care in Scotland & England where 600 women were selected as samples. Mean ICIQ-UI SF scores at 24 months were 8.2 in the biofeedback pelvic floor muscles training group & 8.5 in the pelvic floor muscle training group.(Neumann, Grimmer, Deenadayalan, 2006) In this present study, 14 (46.70 %) of women had grade I severity of stress urinary incontinence in pre assessment whereas, 12 (40%) of women had grade I severity of stress urinary incontinence in post assessment. 16 (53.3%) of women had grade II severity of stress urinary incontinence in pre assessment whereas, 6 (20%) of women had grade II severity of stress urinary incontinence in post assessment. 12 (40%) of women had a grade 0 severity of stress urinary incontinence in post assessment whereas, 0(0%) of women had a grade 0 severity of stress urinary incontinence in pre assessment.

The research were supported by a prospective longitudinal observational study which was carried out in Tertiary referral urogynecology center, France. This shows, 17 (20%) of women stress urinary incontinence grade 1 was cured whereas, 4 (20%) of women were not cured. 20 (24%) of women stress urinary incontinence grade 2 cured whereas, 4 (20%) of women was not cured. 36 (42%) of women stress urinary incontinence grade 3 cured whereas, 6 (30%) women were not cured.(Bokne, Sjöström, Samuelsson, 2019) In this present study, the history of mode of delivery of women in the first attempt was significantly associated with their stress urinary incontinence and severity of stress urinary incontinence is significantly associated with age, marital status, & history of mode of delivery of women in the second attempt. A supportive cross-sectional study were conducted in Iran. In this study, 90 married women were selected randomly. This study revealed that stress urinary incontinence is significantly associated with vaginal delivery ($p = 0.035$, $p<0.05$). (Langa, Fultz, Saint et al 2002)

CONCLUSION

Stress urinary incontinence is the main problem which may develop due to weak pelvic floor muscles. This research reveals that the assessment of stress urinary incontinence & severity among females is significantly associated with before & after pelvic floor exercise. This research has proven that pelvic floor exercise is beneficial for stress urinary incontinence. Association of severity of stress urinary incontinence found with age in years of women, marital status of women, and history of mode of delivery of women in the second attempt & association of stress urinary incontinence found with the history of mode of delivery of women in the first attempt.

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