

† THE EFFICACY OF A COMPREHENSIVE PELVIC FLOOR MUSCLE REHABILITATION PROGRAM OF STRESS URINARY INCONTINENCE IN WOMEN

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Abstract :

This study aimed to determine the efficacy of a Comprehensive Pelvic Floor Muscle Rehabilitation Program of Stress Urinary Incontinence in Women.

20 female subjects with Stress Urinary Incontinence were assigned randomly in Control and Experimental group (10 in each group).

They were evaluated using Modified Oxford Grading Scale to assess pelvic floor muscle strength, Sandvik Severity Scale to measure severity of incontinence and Incontinence Quality of Life (QOL) Questionnaire to record their QOL.

Control group received Pelvic Floor Muscle Exercise (PFME) once a week for 3 weeks. For Experimental group, A Comprehensive Pelvic Floor Muscle Rehabilitation Program (CPFMRP) was given once a week for 12 weeks, which included PFME, timed Voiding, Tanzberger exercise concept along with Functional activities.

RESULT: *Result shows significant reduction in severity of incontinence, increase in pelvic floor muscle strength and improvement in QOL in both groups. Also it shows that the CPFMRP is more effective than conventional PFME in improving QOL alone.*

CONCLUSION: *Comprehensive Pelvic Floor Muscle Rehabilitation Program is more effective than conventional pelvic floor muscle exercise in improving QOL alone, as there is no statistical significant difference between the interventions in reducing the severity of incontinence and in increasing the pelvic floor muscle strength.*

KEY WORDS : CPFMRP: Comprehensive Pelvic Floor Muscle Rehabilitation Program, IQOL: Incontinence Quality of Life, MOGS: Modified Oxford Grading Scale, PFM: Pelvic Floor Muscle, PFME: Pelvic Floor Muscle Exercise, SSS: Sandvik Severity Scale, SUI: Stress Urinary Incontinence

INTRODUCTION

Urinary Incontinence is an under diagnosed and underreported condition with major economical and psychosocial effects on the society (Patrick J Culligan, 2000).

Stress urinary incontinence is the involuntary loss of urine during an increase of intra-abdominal pressure produced from activities such as coughing, sneezing, laughing or exercising.¹⁰

The aim of the conservative rehabilitation therapy is to stabilize the urethra by increasing the PFM strength (force

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– generating capacity).

This study is conducted with similar field of interest to determine the efficacy of a Comprehensive Pelvic Floor Muscle Rehabilitation Program of Stress Urinary Incontinence in Women.

This study aims:

1. To determine the efficacy of Pelvic Floor Muscle exercise in Stress Urinary Incontinence in women in the control group.
2. To determine the efficacy of a Comprehensive Pelvic Floor Muscle Rehabilitation Program of Stress Urinary Incontinence in women in the experimental group.
3. To determine whether the Comprehensive Pelvic Floor Muscle Rehabilitation Program is more effective than PFM exercise in Stress Urinary Incontinence in women.

METHODOLOGY

This study included a total of 20 subjects with Stress Urinary

Incontinence within the age group of 30 to 45 years.

STUDY DURATION – 12 WEEKS (1 session per week)

INSTRUMENTS

Modified Oxford Grading Scale

Sandvik Severity Scale

Incontinence Quality of Life Questionnaire

STUDY PROCEDURE

As per the inclusion criteria, 20 female subjects were assigned randomly in control and experimental group (10 in each).

All subjects were evaluated on the following scales, both during the initial evaluation and after the completion of the 12 week intervention program.

1) MODIFIED OXFORD GRADING SCALE measures the strength of the pelvic floor

2) SANDVIK SEVERITY SCALE used to assess the severity of the urinary incontinence

3) INCONTINENCE QUALITY OF LIFE QUESTIONNAIRE

GROUPING

1. For the **Control group**, only Pelvic Floor Muscle Exercise (PFME) was given for 12 weeks (weekly once, 45 minutes session).

2. For the **Experimental Group**, A Comprehensive Pelvic Floor Muscle Rehabilitation Program was given for 12 weeks (weekly once, 45 minutes session) which included PFME, Timed Voiding, Tanzberger Exercise Concept which included Programming of Functional Activities.

DATA ANALYSIS

Paired t-test : To compare significance of pre and post therapy score difference for control group in all 3 test measure paired t- test was applied.

Table-1
Comparison of Pre and Post Therapy Scores in the Control Group on all three scales

Scales		N	Mean	S.D.	t value	p value	Result
SSS	Pre	10	4.2	1.3984	6.340	0.001	Highly significant
	Post	10	2.8	1.0327			
MOGS	Pre	10	2.5	0.5270	4.2690	0.01	Significant difference
	Post	10	3.7	0.4830			
IQOL	Pre	10	50.0	9.6401	4.020	0.01	Significant difference
	Post	10	63.6	8.5660			

Table-2
Comparison of Pre and Post Therapy Scores on the Experimental Groups in all three scales

Scales		N	Mean	S.D.	t value	p value	Result
SSS	Pre	10	3.9	1.9692	3.686	0.01	Significant
	Post	10	2.0	1.6329			
MOGS	Pre	10	2.8	0.6324	6.7294	0.001	Highly Significant
	Post	10	4.1	0.5676			
IQOL	Pre	10	54.6	12.0572	1.937	0.05	Significant difference
	Post	10	71.5	9.9336			

Un-paired t test

Table-3
Comparisons of Improvement between the Experimental and Control Groups for all 3 outcome measures

Scales		N	Mean	S.D.	t value	p value	Result
SSS	Cont	10	1.4	0.52	0.047	0.1	Not significant
	Exp	10	1.9	0.88			
MOGS	Cont	10	1.2	0.42	0.339	0.1	Not significant
	Exp	10	1.3	0.48			
IQOL	Cont	10	13	1.56	3.070	0.01	Significant
	Exp	10	22	4.12			

RESULTS

Among the control group those who received 6 women showed an improvement of 12.5% & 4 showed 25% accounting for an overall **17.5 %** reduction in severity of the incontinence measured on Sandvik Severity Scale. Mean score of pre therapy was 4.2 which had reduced to 2.8 post therapy showing reduction in severity of incontinence.

Whereas in the Exp. Group, 3 women had a reduction in the severity of incontinence by 37.5 %, 3 women by 25 % and the rest by 12.5 %, showing an overall **23.75 %** improvement among the 10 subjects. In them the pre therapy mean had reduced from 3.9 to 2.0 signifying mean reduction of 1.9 in severity of incontinence.

Concerning pelvic floor muscle strength 5 women had contractions classified as grade 2 (weak as measured on Modified Oxford Grading Scale) and 5 with grade 3 before the intervention in the control group. After the intervention all women had an upgrade of 1 grade. Their mean value had increased from 2.5 to 3.7 after intervention showing a mean of 1.2 increase in muscle strength.

In the Exp. Group, there was a significant improvement in pelvic floor muscle strength by 26% where in 2 women grade 2 & 3 improved up to grades 4 & 5, an upgrade by 2 grades. Whereas the rest showed 1 grade more. A mean increase of 1.3 (i.e. 2.8 to 4.1) was found post intervention in this group.

QOL was evaluated by IQOL questionnaire showed a significant improvement in all score items. 6 subjects in the control improved up to 18.8 % and 4 subjects by 21.7%, on an average a score of 13 had increased post intervention with **18.79 %** of overall improvement. And also pre therapy mean had reduced from 50.0 to 63.6 (a mean increase by 13.6) was found, signifying improvement in Quality of Life after intervention.

On the other hand 4 subjects improved by 37.5%, 2 by 28.9% and the remaining 4 between 20.2 % to 33.3 % in the Exp.group. An average score of 22 increase was found with **31.97%** of an average raise in QOL outcome. A mean increase of 16.9 (i.e. 54.6 to 71.5) was found post therapy proving improvement in QOL in experimental group.

When comparing both the Control & Exp. Group outcome in severity reduction of incontinence, though there was 6.25% of added reduction clinically in the Exp group, it was not supported by statistical significance.

When comparing both groups in increase of muscle strength, there is no statistical significance stating Exp. Group fared better than the control.

The probable reason why statistical significance of muscle strength and continence is not seen in the exp. group though

with improvement found clinically could be because of small sample size. And the duration of the intervention if prolonged for few more weeks, statistical significance could be made.

Comparing both groups on IQOL outcome measure, the Exp.group proves statistically significant improvement with 13. 18 % more than the control group.

Results show that there was a significant improvement in both the experimental and control group, pre and post intervention.

But when comparing the outcomes between both groups, statistical significance was seen only in QOL and not in reduction in severity of the incontinence and in pelvic floor muscle strength.

DISCUSSION

This study's hypotheses was that women who had SUI and who performed Comprehensive Pelvic Floor Muscle Rehabilitation Program would obtain better treatment outcome than women who practices Pelvic Floor Muscle exercise(Kegel's) alone.

This was supported with reference to the outcome measure in the Quality of Life. Whereas it was unsupported statistically by the outcome in muscle strength and urinary continence.

When comparing the effect of treatment outcome between the control and experimental group, statistical significance of muscle strength and severity of incontinence reduction is not seen to prove that experimental group has fared better than the control, though clinical improvement is seen more in experimental group.

The probable reason why statistical significance of muscle strength and continence is not seen in the exp. group though with clinical improvement could be because of small sample size. A larger sample size might show reliable statistical significance. And the duration of the intervention if prolonged for few more weeks, statistical significance could be made.

However, when comparing the effect of treatment in QOL outcome experimental group proves to be more effective than the control group, with statistical significance.

One probable reason for experimental group's effectiveness over the control group in QOL outcome could be because QOL is a subjective outcome, and as the experimental group subjects were incorporated program for functional activities in daily living tasks, the subjective sense of wellbeing could be more.

The present study's results add to the body of evidence that supports the use of pelvic floor muscle rehabilitation as an effective intervention for stress urinary incontinence.

CONCLUSION

The study shows that the Comprehensive Pelvic Floor Muscle Rehabilitation Program is more effective than the Conventional PFM exercise in improving the QOL alone, as there is no significant difference between both the interventions in reducing the severity of incontinence and in increasing the pelvic floor muscle strength.

The present study's data support the efficacy of using pelvic floor exercises as an intervention for management of SUI in women, thereby improving the quality of life.

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