



Assessment of Efficacy of Pelvic Floor Muscle Exercise (PFME) on Urinary Incontinence among Middle Aged Women

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Background: Urinary incontinence (UI) is a familiar manifestation that can affect women of all ages, with a wide range of severity and nature. While rarely life-threatening, incontinence may seriously influence the physical, psychological and social wellbeing of affected individuals.

Objective: The main objective of the study is to assess the effectiveness of pelvic floor muscle exercises (PFME) or Kegel's exercise on urinary incontinence among middle aged women of selected urban community of Raipur (C.G).

Methodology: A community based quasi - experimental study was conducted among 60 middle aged women having mild to moderate degree of urinary incontinence. The sample were selected by nonrandomised purposive technique The baseline data were collected from 60 samples (30 in experimental group and 30 in control group) by standardised tool - Questionnaire for urinary incontinence diagnosis (QUID) on urinary incontinence. The experimental group was taught to practise Kegel's exercise for 4 week followed by post- test of both control & experimental group to compare the data for effectiveness.

Results: Comparison of mean and SD of pre-test and post-test level of urinary incontinence among

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middle aged women in experimental group & control group (un paired t -test) showed that the calculated value (2.1) of t was higher than the table value (2) at 0.05 level which shows that PFME is effective in improving symptoms of urinary incontinence if practised on regular basis. Factors positively associated with urinary incontinence were parity, type of delivery and nature of work.
Conclusion: Middle aged women with urinary incontinence will be greatly benefitted with regular pelvic floor muscle exercise. Health care practitioner should train & educate them on correct ways of performing Kegel's exercise at community level.

Keywords: Urinary incontinence; pelvic floor muscle exercise (PFME); Kegel's exercise; middle aged women.

1. INTRODUCTION AND BACKGROUND

Urinary incontinence is a multifarious ailment characterised by involuntary leakage of urine, a global and extensive disorder affecting millions of people worldwide [1].

Urinary incontinence affects women more than men although the accurate prevalence is not known every quarter (25%) out of four person could be affected by urinary incontinence in their life span [2].

The personal and social well-being of a person is severely affected by the negative consequences of urinary incontinence specially among middle aged women [3].

Owing to the people's perception of urinary incontinence as a natural consequence of aging and matter of shame & guilt it often remains underreported [4-5].

The causative factors of chronic urinary incontinence is classified in 5 subgroups namely stress, functional, overflow, urgency and mixed type [5].

Urinary incontinence has severe impact on self-confidence, social isolation and quality of life along with multifaceted undesirable effect such as depression, anxiety, deterioration in sexual life and decrease in physical activities [6].

Pelvic floor muscle exercises (PFME) popularly known as Kegels exercise designed for tightening of pelvic floor muscle strengthening was first described by Arnold Kegel is considered as exclusive & most preferred treatment for management of urinary incontinence along with wide range of medical & surgical treatment [7].

The milestone work of Arnold Kegel in the field of management of urinary incontinence emphasised that patient with urinary incontinence treated with

functional therapy/Kegels exercise shows better symptom relief & in a proportionately higher ratio comparing to surgery alone [8].

An RCT to assess the effectiveness of PFMC to reverse pelvic organ prolapse and symptoms of pelvic muscle dysfunction revealed that PFMC has no adverse effect and can be used to minimise the pelvic muscle dysfunction symptoms & pelvic organ prolapsed [9-10].

Many studies revealed that PFMT plays very important role in improving sexual health of women and also the sexual satisfaction among partner [6,11].

Given this background the aim of the study was to assess the effect of Kegel's exercises on urinary incontinence among middle aged women in community setting.

2. MATERIALS AND METHODS

A community based Quasi experimental study was conducted to assess the effect of Pelvic floor muscle exercise (Kegel's) on urinary incontinence among middle aged women of selected area of Rajendra Nagar, Raipur. The study design used was Non-randomized control group design. The calculated sample size for the study was 60 middle aged women between age group of 40 -65 years. The exclusion criteria for the study was as follows – women who has had prior surgery for in continence, prolapse or vaginal tightening, had more than 3 urinary tract infections in the past 12 months, Has any conditions of the bladder that effect continence, suffering from vaginal /vulvar/ pelvic pain, is currently taking any medication for incontinence and has a history of neurological conditions- Parkinson's, multiple sclerosis etc. We're not taken as sample.

Samples were selected by using purposive sampling technique, having age between 40-65

years with complaints of urinary incontinence. Samples were divided non-randomly into experimental group (30 participants) and control group (30 participants). The tool for data collection consisted of two sections, section I consist of sociodemographic variable and section II consist of standardized tool that is self-reporting Questionnaire for urinary incontinence diagnosis (QUID). It consists of 06 questions to identify Urinary Incontinence. Each questions consist of score in which 0 score is given to client when marks none of the time, when rarely occurs 1 score is given, when once in a while occurs 2 score is given, when of ten occurs 3 score is given, when most of the time occurs 4 score is given, when all of the time occurs 5 score is given. when the total score is (≤ 5) it is Nourinary incontinence, [6-13] is Mild urinary Incontinence, [14-21] is moderate urinary Incontinence, [22-30] is severe urinary incontinence

Base line data of urinary incontinence was collected from the participants of both the

groups using QUID tool. Experimental group was trained for correct ways of performing Kegel's exercise. They had been instructed to tighten the pelvic floor muscle and hold it for a count of 10 and advised to empty the bladder every time before performing Kegels exercise. Also to do 20 repetitions' 3 times a day for 4 weeks whereas control group was instructed to follow their daily routine. Posttest data was collected after 30 days for both the groups with QUID tool.

2.1 Statistical Analysis

The quantitative data is presented as mean, mean%, standard deviation while qualitative data is presented as frequency and percentage. Paired T test was applied to assess the significance of Kegel's exercise on urinary incontinence at the level of significance 0.05. Chi square test was also applied to find the association between urinary incontinence and their sociodemographic variables.

Table 1 frequencies and percentage distribution of subjects according to age, education all level, type of work, parity, type of delivery

N=60

| AGE IN YEARS | Experimental group | | Control group | |
|---------------------------|--------------------|----------------|---------------|----------------|
| | Frequency (n) | Percentage (%) | Frequency (n) | Percentage (%) |
| 40-45 | 8 | 26.66% | 9 | 30.00% |
| 46-50 | 6 | 20.00% | 6 | 20.00% |
| 51-55 | 6 | 20.00% | 8 | 26.66% |
| 56-60 | 5 | 16.67% | 5 | 16.67% |
| 61-65 | 5 | 16.67% | 2 | 6.67% |
| Education | | | | |
| Illiterate | 2 | 6.67% | 1 | 3.33% |
| Primary | 3 | 10.00% | 4 | 13.33% |
| Secondary | 7 | 23.33% | 5 | 16.67% |
| Graduation | 13 | 43.33% | 16 | 53.34% |
| Post graduation and above | 5 | 16.67% | 4 | 13.33% |
| Type of Work | | | | |
| Sedentary | 12 | 40.00% | 16 | 53.33% |
| Labourious | 18 | 60.00% | 14 | 46.67% |
| Parity | | | | |
| Nullipara | 0 | 0.00% | 0 | 0.00% |
| Primipara | 4 | 13.33% | 2 | 6.67% |
| Multipara | 26 | 86.67% | 28 | 93.33% |
| Type of Delivery | | | | |
| Normal | 18 | 60.00% | 20 | 66.67% |
| Cesarean | 12 | 40.00% | 9 | 30.00% |
| Home | 0 | 0.00% | 1 | 3.33% |
| Instrumental | 0 | 0.00% | 0 | 0.00% |

Out of 60 participants, in relation to age in years in experimental group the maximum n= 8(26.66%) belongs to 40-45 yrs. of age, whereas the minimum n=5 (16.67%) belongs to 56-60 and 61-65 yrs. of age and in control group the maximum n=9 (30.00%) belongs to 40-45 yrs. of age, whereas the minimum n=2 (6.67%) belongs to 61-65 yrs. of age. In relation to the level of education it depicts that in experimental group the maximum n=13(43.33%) has completed their Graduation, whereas the minimum n=2 (6.67%) are illiterate and in control group the n= 16(53.34%) has completed graduation level, where as the minimum n=1(3.33%) are illiterate.

As per type of work it depicts that in experimental group n=18(60.00%) does laborious work, whereas the minimum n=12 (40.00%) does sedentary work and in control group the maximum n=16(53.33%) does sedentary work, whereas the minimum n=14 (46.67%) does laborious work. In terms of parity it depicts that in experimental group n=26(86.67%)

are multipara, whereas the minimum n=0 (0%) are nulliparous and in control group the n= 28 (93.33%) are also multipara, whereas the minimum n=0 (0%) are nulliparous. In relation to type of delivery it depicts that in experimental group then= 18(60.00%) had normal delivery, whereas the minimum n=0 (0%) had instrumental delivery and in control group the n= 20(66.67%) had normal delivery, whereas the minimum n=0 (0%) had instrumental delivery.

It is observed that out of 30 samples in experimental group in pre-test the maximum n=24(80%) had moderate level of urinary incontinence but after intervention when post-test was taken n=25(83%) were having mild level of urinary incontinence.

It depicts that out of 30 samples in control group in pre-test as well as post-test the maximum n=22 had mild level of urinary incontinence and in post-test n=17 were having mild level of urinary incontinence.

Table 2 analysis of level of urinary incontinence before and after Kegel's exercise among middle-aged women in experimental group

N=30

| Experimental group | Pretest | | Posttest | |
|-------------------------------|--------------|----------------|--------------|---------------|
| | Frequency(n) | Percentage (%) | Frequency(n) | Percentage(%) |
| Level of urinary incontinence | | | | |
| No Urinary Incontinence | 0 | 0% | 0 | 0% |
| Mild | 0 | 0% | 25 | 83% |
| Moderate | 24 | 80% | 5 | 17% |
| Severe | 06 | 20% | 0 | 0% |
| Total | 30 | 100% | 30 | 100% |

Table 3 analysis of level of urinary incontinence before and after Kegel's exercise among middle aged women in control group

N=30

| Control group | Pretest | | Posttest | |
|-------------------------------|--------------|---------------|--------------|---------------|
| | Frequency(n) | Percentage(%) | Frequency(n) | Percentage(%) |
| Level of urinary incontinence | | | | |
| No Urinary Incontinence | 0 | 0% | 0 | 0% |
| Mild | 22 | 73% | 17 | 57% |
| Moderate | 08 | 27% | 13 | 43% |
| Severe | 00 | 0% | 0 | 0% |
| Total | 30 | 100% | 30 | 100% |

Table 4. Comparison of mean and SD of post-test of urinary incontinence among middle aged women in control and experimental group

| Posttest | Mean | SD | SE | Df | Unpaired T calculated | Unpaired T table |
|--------------------|-------|------|-----|----|-----------------------|------------------|
| Control group | 12.17 | 2.58 | | | 2.1(at | |
| Experimental group | 10.9 | 2.05 | 0.6 | 58 | the level 0.05) | 2 |

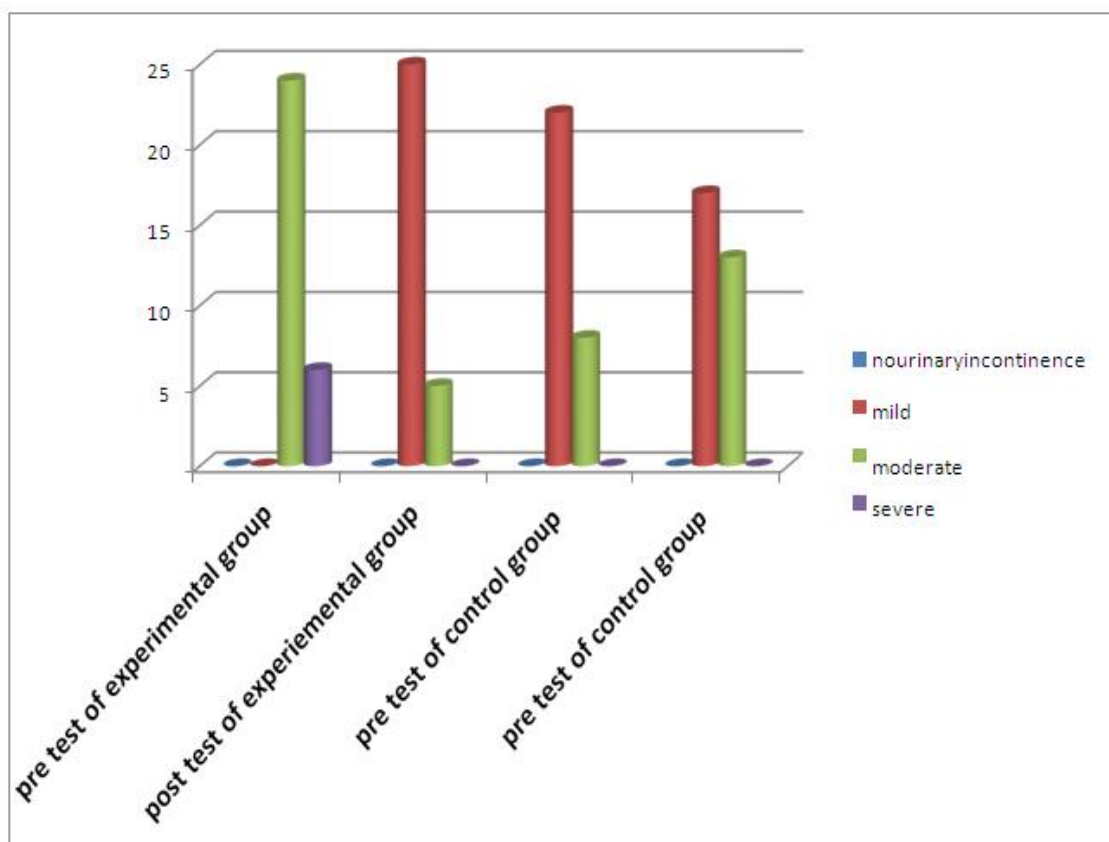


Fig. 1. Bardigram showing pre-test and posttest scores of subjects in experimental group and control group

It depicts that mean is 12.17 and SD is 2.58 of post test score of control group and mean is 10.9 and SD is 2.05 of post test score of experimental group. At degree of freedom 58, the unpaired tabulated t test value 2.00 which is less than the calculated value 2.1 at 0.05% level of significance. Hence it is significant.

Analysis of association between selected sociodemographic variables and urinary incontinence among middle aged women.

Chi square test was used to find out the association between urinary incontinence among middle aged women and their selected socio demographic variables. It was observed that there is significant association between urinary incontinence among middle aged women and their selected sociodemographic variable such as religion, educational level, occupation, parity, type of delivery, source of information, while age and type of work had no association with urinary incontinence.

3. RESULTS AND DISCUSSION

An RCT done on 97 Iranian post-menopausal women to assess the effect of PFME on sexual dysfunction reported that the scores of arousal, orgasm & satisfaction were significantly higher in interventional group in comparison with control group. The study concluded that PFME should be included in health care package designed for post-menopausal women as it has potential to improve urinary incontinence & sexual function [12].

A two group longitudinal experimental study was conducted among perimenopause women (n=75) with pelvic floor dysfunction to evaluate the effectiveness of PFME. The intervention group was trained for 3 months combining Kegel with yoga exercises and control received only Kegel exercises. The result showed that combined training decreases pelvic floor dysfunction symptoms and improved quality of life [13].

In this study 24 (80%) were having moderate & 6 (20%) were having severe urinary incontinence in pre-test which improved to 25 (83%) mild & 5(17%) moderate urinary incontinence. no body reported having severe degree of urinary incontinence. Thus supporting the fact that PFME plays very important role in improving urinary incontinence if practised on regular basis.

A cross sectional analysis of data collected from nurses (n=83,355) via mailed questionnaire on urinary incontinence reported that 43% women reported urinary incontinence. The factors associated positively with urinary incontinence were increasing age, BMI, Parity and vaginal delivery [7]. Similarly present study showed significant association with factors like parity, occupation, type of work .

Another prospective multicentre study on 759 women to assess the teaching & practicing of PFME before & after delivery showed that among the women who received training 68% performed PFME after delivery and 63% were continued practising it after 6 months of delivery. The study concluded that targeted PFME education to high risk women strongly needed [14].

4. CONCLUSION

The study concluded that Kegels exercise plays very important role in building pelvic muscle strength and there by reduces urinary incontinence among middle aged women.

ETHICAL APPROVAL

Ethical clearance was taken from institute ethical committee before data collection.

CONSENT

All participants gave their written informed consent.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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