

EFFECTIVENESS OF KNACK TECHNIQUE VERSUS CORE STABILIZATION ON SEVERITY OF STRESS URINARY INCONTINENCE AND PELVIC FLOOR STRENGTH AMONG POST MENOPAUSAL WOMENMahisreeBharathi.U.V (Ph.D)*¹, Akshaya P.², Dr. Sandhiya M. Ph.D³ and Dr. P. Senthil Selvam Ph.D⁴^{1,3}Assistant Professor, School of Physiotherapy, VISTAS, Chennai, India.²MPT, School of Physiotherapy, VISTAS, Chennai, India.⁴HOD and Professor, School of Physiotherapy, VISTAS, Chennai, India.

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ABSTRACT

Stress urinary incontinence (SUI) is a prevalent condition affecting a significant proportion of postmenopausal women, characterized by the involuntary leakage of urine during activities that increase intra-abdominal pressure, such as coughing, sneezing, or exercising. The aim of the study is to compare the effectiveness of Knack technique and core stability on stress urinary incontinence and pelvic floor strength among post menopausal women. In this experimental study 40 subjects were selected and divided into 2 groups with 20 on each. The intervention was given 45 minutes per day for 3 days per week for 6 weeks. Stress Urinary Incontinence was measured by ICIQ-SF and pelvic Floor Strength was measured by Oxford Grading Scale. On comparing mean values of ICIQ-SF and Oxford Grading Scale scores between pre test and post test within the Group A and Group B shows significant difference at $p < 0.001$. hence the null hypothesis is rejected. This study concluded that both Groups was performed to get an effective result for stress urinary incontinence but more significant improvement was observed in patients who underwent Knack maneuver technique than Core Stability Exercise. This will give adequate support to the patient to get recovery from the condition.

KEYWORDS: Knack technique, Core stability, Stress Urinary Incontinence, Pelvic Floor Muscle Strength, Post menopausal Women.

INTRODUCTION

Urinary incontinence is a common problem among adults living in the community. It is the major problem that have a negative impact on the women's daily life physically, socially, psychologically, sexually, and economically, its also one of the threatening factors that can cause withdraw from social situations and reduced quality of life. Urinary incontinence means involuntary leakage of urine and inability of the bladder to hold it because the voluntary control in the urinary sphincter is either weakened or lost. It is not a disease but a symptom; these symptoms vary according to types of urinary incontinence. Some women may lose a few drops of urine while running, coughing or even laughing. Others may feel a strong sudden urge to urinate just before losing a large amount of urine. The most recommended first-choice treatment methods, especially for stage 1 stress urinary incontinence, involve exercise for the pelvic floor muscle. This condition occurs in about 20% - 30% in middle age and up to 50% of women in old age.^[4] Recent scientific reports indicates that already before the onset of menopause, referred to as the climacteric, it causes many unpleasant symptoms that

worsen quality of life of many women. Loss of support from pelvic floor musculature and connective tissue and urethral hypermobility: This involves the loss of pelvic support, which can originate from connective tissue disorders; chronic cough; obesity; pelvic floor trauma; vaginal delivery, especially if traumatic; pregnancy; pelvic or vaginal surgery; genitourinary syndrome of menopause or other hypoestrogenic states; chronic constipation; heavy lifting; and smoking. This is the most common etiology of stress incontinence in women.

The prevalence of SUI among young females was found to be around 35% and confidence level was kept as 95% ($P < 0.05$). Current understanding mainly attributes stress urinary continence in women to the coordinated contraction of the levator ani muscle and the external urethral sphincter. The contraction results in the urethral bend angle and the closure of the urethra. Other essential factors contribute to the maintenance of continence, including the anatomical features of the periurethral tissues, the urethra, and the pelvic floor nerves. Therefore, the pathophysiology of stress urinary incontinence is multifactorial. Risk factors, such as age,

childbirth, menopause, obesity, multiple vaginal births, and others, induce alterations in the anatomical components responsible for continence. Pelvic floor muscle weakness is a critical factor, often resulting from childbirth, increased abdominal pressure, pelvic surgery, connective tissue disorders, or neurological conditions. Trunk control is relevant with the coordinated activity of muscles of abdominopelvic cavity. Dysfunction of these muscles (pelvic floor muscles, the rectus abdominis, transversus abdominis, and multifidus) might cause spinal instability, pain, and disability.^[7] Pelvic floor muscle (PFM) forms the base of core muscles. PFM and core muscles are interdependent with each other.^[5,6] Therefore, chronic low back pain (CLBP) is most often related with weakness of core muscles. The weakness of core muscle might lead to pelvic floor dysfunction resulting in Urinary Incontinence.

METHODOLOGY

40 subjects were selected based on inclusion and exclusion criteria and were divided into 2 groups. Group A consist of 20 subjects and group B consist of 20 subjects. The treatment was given 45 minutes per day for 3 days per week for 6 weeks. There were totally 18 sessions.

INCLUSION CRITERIA

- Age group above 50 years old
- Having stress urinary incontinence
- Patient report leakage during physical stress
- Not having any mental problems
- Women with mixed urinary incontinence whom referred by obstetrician

EXCLUSION CRITERIA

- Women who were suffering from musculoskeletal conditions other than
- Non-Specific Chronic Low Back Pain
- Neurogenic bladder symptoms
- Urinary tract infection
- Pelvic floor surgery
- Smokers and alcoholics

GROUP-A (KNACK MANEUVER TECHNIQUE)

- While the woman was supine, with knees bent and slightly apart.
- The physiotherapist (PT) placed her index and middle fingers intravaginally after necessary hygiene measures were taken.
- For slow contractions of the PFMs, the woman was asked to squeeze the PT's fingers as if holding her urine or stool and to continue this position for 5 s.
- For PFM relaxation, the instruction was given to "stop squeezing and pulling the PT's fingers upward and maintain the relaxation in your PFMs for 10 s".
- For rapid contractions of the PFMs, the PT's finger squeeze-pull-relax command was explained.

GROUP-B (CORE STABILITY EXERCISE)

- To do the core exercises, the participants were first told to lie on the floor.
- The exercise started with supine lying with knees and hips flexed.
- Then, the therapist placed 1 or 2 fingers on the abdomen, about 1 to 2 inches inside the hip bones. The respondents were instructed to imagine that they were trying to discontinue urine flow and contract to prevent passing gas.
- Then, the patients were instructed to slowly drop open the right knee to the right and keep the back and pelvis level. They had to then return to the centre and repeat the same action on the left.
- They were assured that if they did the exercise correctly, they would feel a slight contraction.
- Next, the patients were instructed to work on the transverse abdominis muscle (core muscle).
- They were instructed to contract the pelvic floor as above and keep the PFM relaxed.
- After that, they were suggested to slide the right foot along the floor and straighten the knee.
- Then, they had to slide the foot back towards the buttock and continue the exercise with the other leg as well.
- They were told to continue breathing.
- While breathing out, the patients were instructed to move the lower abdomen up and towards the spine with respect to the navel.
- Subsequently, the respondents were instructed to lift the right foot 6 inches off from the floor and keep the knees in a bending position.
- After that, they were asked to bring back the leg. The respondents had to perform the same exercise on the left side as well.

DATA ANALYSIS

The collected data were tabulated and analysed using both descriptive and inferential statistics. All the parameters were assessed using statistical package for social science (SPSS) version 26.0. Paired t-test was adopted to find the statistical difference within the groups & Independent t-test was adopted to find the statistical difference between the groups.

Table 1: Comparison Of Icq Questionnaire Score Between Group – A and Group – B In Pre Test And Post Test.

ICIQ	GROUP A		GROUP B		t-TEST	SIGNIFICANCE
	MEAN	SD	MEAN	SD		
PRE TEST	11.00	3.97	10.40	3.69	0.495	.624*
POST TEST	5.75	3.00	7.90	3.58	2.056	.000**

COMPARISON OF ICIQ QUESTIONNAIRE SCORE BETWEEN GROUP-A AND GROUP-B IN PRE TEST AND POST TEST

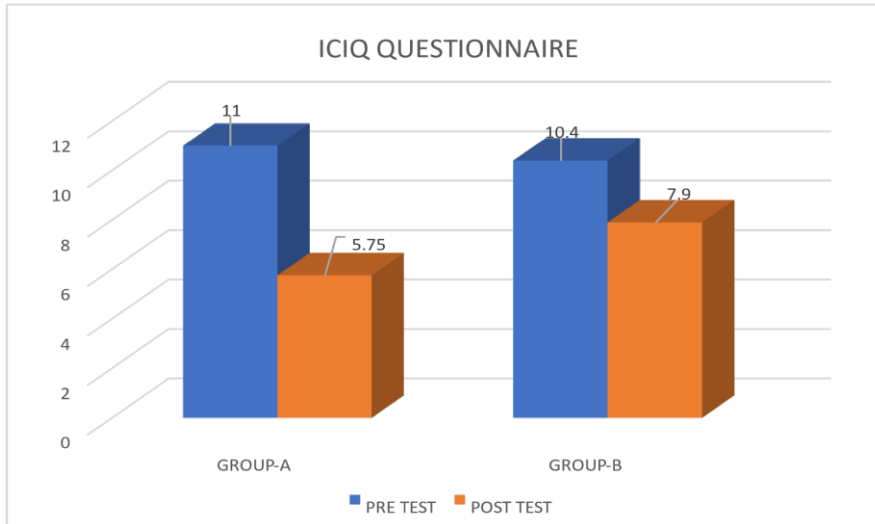
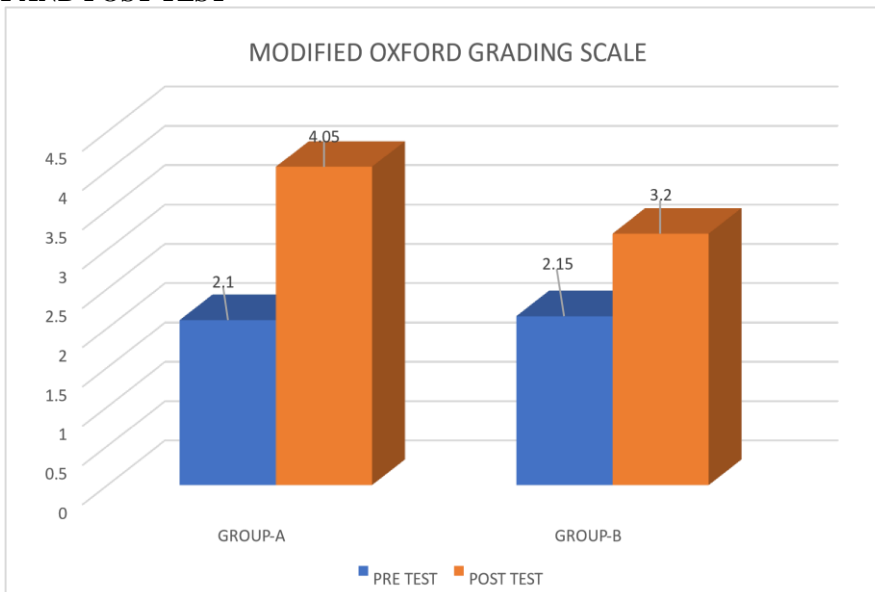


Table 2: Comparison of Modified Oxford Grading Scale Score Between Group- A And Group-B In Pre Test And Post Test.

MOG SCALE	GROUP A		GROUP B		t-TEST	SIGNIFICANCE
	MEAN	SD	MEAN	SD		
PRE TEST	2.10	0.64	2.15	0.74	0.447	.657*
POST TEST	4.05	0.82	3.20	0.77	3.372	.000**

COMPARISON OF MODIFIED OXFORD GRADING SCALE SCORE BETWEEN GROUP – A AND GROUP – B IN PRE TEST AND POST TEST



RESULTS

In Table 1, On comparing mean values of GROUP-A and GROUP-B on ICIQ Questionnaire shows highly significant improvement in the post test mean but GROUP-A shows (5.75) lesser mean value is more effective than GROUP-B (7.90) at $P \leq 0.001$, Hence the null hypothesis is rejected.

In Table 2, On comparing mean values of GROUP-A and GROUP-B on Modified Oxford Grading Scale score shows highly significant improvement in the post test mean but GROUP-A shows (4.05) higher mean value is more effective than GROUP-B (3.20) at $P \leq 0.001$, Hence the null hypothesis is rejected.

DISCUSSION

The purpose of this study is to compare the effects of Knack Maneuver technique and core stability exercise on reducing stress urinary incontinence among postmenopausal women. The major goal is to improve overall physical health and wellbeing through a combination of Knack maneuver technique and core stability exercise, by enhancing their strength, flexibility, mental health and overall quality of life. The present study was concluded to estimate the prevalence of stress urinary incontinence and to compare the prevalence and severity of stress urinary incontinence among postmenopausal women. Based on the finding, the prevalence of stress urinary incontinence was estimated to be higher among postmenopausal women with the mean of 11.00 on ICIQ and 2.10 on MOG Scale in Group-A and mean of 10.40 on ICIQ and 2.15 on MOG Scale in Group-B.

Recent studies indicate that stress urinary incontinence (SUI) remains a significant concern among postmenopausal women. In previous research the prevalence of stress urinary incontinence among postmenopausal women in the worldwide ranges 13.9% to 20.6%. In the present study, the overall prevalence of urinary incontinence was 39.5%; 20.6% SUI, 10.4% UUI, 8.5% MUI. The odds of UI increased with age and decreased in women with three childbirths than the ones with two childbirths or lower. In the study by Bardsley *et al.* (2016), the prevalence of UUI increased significantly with age. UI was a multifactorial condition associated with age; it was more common in women than men in all age groups. This meta-analysis study was performed on 518,465 older adults women and the prevalence of urinary incontinence in older adults women was 37.1%. however, in the study of the prevalence of incontinence in older adults women by continents, the highest prevalence of urinary incontinence was reported in older adults women in Asia with 45.1%.

The high prevalence obtained in this study shows the need to investigate and follow up this condition due to the significant impact of this disorder on depression and quality of life of older adults women, requires special attention and screening for urinary incontinence in

treatment and care programs in the country. Various studies have mentioned various factors in the incidence of urinary incontinence in women, such as age, menopause, delivery and number of deliveries, obesity, and diabetes are among the most important of these factors.

Age is one of the important factors in the prevalence of urinary incontinence. Changes related to aging in the lower urinary system include: decreased bladder capacity and feeling of fullness, decreased rate of detrusor muscle contraction, decreased pelvic floor muscle resistance and increased residual urine volume. Menopause, with a decrease in oestrogen and a decrease in collagen, reduces the elasticity of the detrusor muscle of the ductus arteriosus and atrophic changes in the pelvic floor muscles and increases urinary incontinence in women. Obesity is an exacerbating condition of urinary incontinence, which can be caused by the accumulation of excess weight on the urinary tract during life. Also, the level of education is considered as one of the components of individual and social development and its role in personal health and also a factor in increasing the quality of life.

Karpagam *et al.*, illustrated that the frequency and percentage distribution of pretest on severity of urinary incontinence among women's. this dated that 0(0%) had No contraction urinary incontinence, 0(0%) a flicker, 7(23.33%) weak urinary incontinence, 13. (43.33%) had moderate with some lift urinary incontinence, 10(33.3%) had good contraction with lift, against some resistance and 0(0%) ad good contraction with lift, against some resistance and 0(0%) id normal muscle contraction strong. the lower abdominal cavity formed by the PFMs. Therefore, coordinated activity of lower abdominal muscles along with PFMs helps to maintain the UI. **Shamima Islam Nipa *et al.***, illustrated that the findings of the study are in line with a previous study that indicated the amount of urine leakage significantly decreased in the training group ($p < 0.05$) performing the stabilization exercises. The study also mentioned that the median level of exercise attainment for the exercise group increased significantly from pretest to post test ($p = 0.01$). Consequently, there was a tendency for individuals in the exercise group to perform more complex exercises successfully than those in the non-exercise group ($p = 0.06$). Therefore, it would be considerable to assume that core stability exercise played a significant role in the reduction of UI as the strength and endurance of core muscles were significantly improved in the experimental group.

CONCLUSION

Both Groups had significant improvement in Stress Urinary incontinence among Post menopausal women, but more significant improvement was observed in patients who underwent Knack maneuver technique than Core Stability Exercise.

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