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Original Article

Elderly Women Urinary Incontinence: Impact of Nurse-Based Kegel and Deep Breathing Exercise Intervention

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Abstract: *Since urinary incontinence is a fundamental nursing care concern, nurses need to be more imaginative, brave, and creative when coming up with fresh ideas for managing and preventing urinary incontinence. Aim of the study: The study's objective was to assess how deep breathing exercises and nurse-based kegel exercises affected elderly women's urinary incontinence. Design: Pre- and post-testing were given to one group in this quasi-experimental study design. Sampling strategy: Purposive sampling was used to include 100 menopausal women diagnosed with stress urine incontinence in the study. Setting: Beni-Suef University Hospital's gynecological and urology outpatient clinics. Tools: Data was collected using a structure interviewing questionnaire schedule. Results: It reveals 30% done exercises regularly at the 1st week of the 1st month; it reaches to 92% at the end of the 3rd month. It reveals that severe incontinence decreased from 75% preprogram to 28% post program. By the conclusion of the third month of the intervention, there had been a highly statistically significant improvement in the frequency of urine incontinence, which was inversely correlated with the regularity of deep breathing exercises and Kegel exercises. Conclusion: it shows that women's practices have improved over the course of three months. The women in the study experienced a reduction in the intensity of their urine incontinence both before and after applying deep breathing and kegel exercises. Deep breathing, kegel exercise adherence, and the degree of stress urine incontinence were found to be negatively correlated. Recommendations: programs for in-service training that teach nurses how to manage urine incontinence with Kegel's exercise.*

Key words: *Deep Breathing, Elderly Women, Kegel Exercise, Stress Urinary Incontinence.*

I. INTRODUCTION

It is believed that the most common and distressing health problem impacting the aged population, especially older women, is stress urinary incontinence (SUI). It has a significant detrimental influence on their quality of life. Its frequency among elderly persons living in the community is estimated to be between 30% and 50%, and it rises with age. Among residents of nursing homes, it is between 50% and 60%. Due to factors such as anatomical, social, and cultural standing, as well as the impacts of pregnancy, childbirth, and menopause, women are three times more likely than males to experience SUI [1-7].

Since urine incontinence is a fundamental nursing care concern, nurses need to be more imaginative, brave, and creative when coming up with fresh ideas for managing and preventing urinary incontinence [8-10]. In order to determine the most effective ways to control continence in women who have urine incontinence, nursing research must be conducted to investigate and validate nursing treatments. Incontinent women might benefit greatly from the assistance of nurses in the selection and administration of UI, as they are perhaps the most cost-effective healthcare provider when it comes to UI [11-13]. Teaching an incontinent lady is one of a nurse's essential responsibilities in order to preserve her health, restore her regular functions, and avoid difficulties. Women can be taught the Kegel exercise to do this [14].

One potential treatment for urine incontinence is Kgel exercise. When it comes to treating female urine incontinence, conservative therapy is a good option because it doesn't seem to have any serious side effects and helps with symptom relief. The primary treatment for urine stress incontinence should involve a minimum three-month regimen of pelvic floor muscle training (see to National Institute of Clinical Excellence recommendation No. 40 on the management of urinary incontinence in women). According to the recommendation, more than 50% of female patients' incontinence was successfully treated with pelvic floor exercises. The motivation and capacity of women suffering from urine incontinence to participate in these initial interventions varies; yet, substantial symptom improvements can be attained for those women who are able to collaborate closely with their professional team. Interventions aimed at improving medication use, hydration intake, and pelvic muscle functions are beneficial for patients with mixed urine incontinence [15].

Using the abdominal muscles to indirectly train the pelvic floor muscles; the abdominal and pelvic floor muscles can both be contracted at the same time. There is mounting evidence that the pelvic floor muscle is also activated when the transverse abdominal muscle contracts actively. Studies using magnetic resonance imaging, ultrasonography, and electromyography have proven this. However, it appears that not all women's transverse abdominal contractions will cause the pelvic floor muscle to rise, and even when they do, the effect is not as great as if the pelvic floor muscle were contracted directly [16].

Daily pelvic floor muscle exercise is a great short-term treatment for mixed or stress urine incontinence as compared to no treatment at all. There have been no further negative effects documented, except from occasional episodes of soreness or discomfort. This data is based on two systematic reviews and numerous large-scale randomized controlled trials that were published in the Cochrane library [17].

A. Aim of the Study

1. Evaluate the impact of deep breathing exercises and nurse-based kegel on older women's urine incontinence.

B. Hypothesis

1. An intervention using kegel and deep breathing exercises administered by nurses will influence and lessen urine incontinence in older women.

II. SUBJECT AND METHODS

A. Study Design:

A quasi-experimental one group (pre-post) test research design was used in this investigation.

a) Study Location:

Beni-Suef University Hospital's gynecological and urology outpatient clinics served as the study's location.

b) Sampling:

From the previously described situation, a purposeful sample was taken.

c) Sample Size:

The sample consisted of 100 women who worked in the previously indicated setting for nine months, starting in July 2021 and ending in March 2022.

d) Instruments used to Gather Data:

i) Tool I:

With the help of supervisors, the researcher created a structured interviewing questionnaire sheet in Arabic based on a survey of recent literature. It included:

Urinary incontinence history included duration of illness, frequency, amount of leakage of urine, timing (day and night), and predisposing factors as coughing, sneezing, laughing, using sanitary towels for urine leakage, frequency of change the towels.

ii) Validity of the Tools:

Three experts in obstetric and gynecological nursing from Benha University's Faculty of Nursing examined the content validity of the data collection tools. They were chosen to assess the instruments' clarity, comprehensiveness, relevance, simplicity, and accuracy as well as their content validity. All of their feedback was taken into account, and some points were reworded to create the final set of tools. As far as the specialists were concerned, the tools worked.

iii) Reliability of the Tools:

The reliability of the study instruments was ascertained by the researcher through the use of the Cronbach's alpha test, which assessed the internal consistency of the instruments by giving the same tool to the same subjects under the same circumstances. The study tools demonstrate high levels of reliability, with practice reliability of 87.2 and knowledge reliability of 77.1.

B. Administrative Design:

The dean of Benha University's college of nursing submitted a formal written consent letter to the director of Beni-Suef University Hospital, explaining the purpose of the study and approving the gathering of data.

Operational design (field work)

a) Implementation Phase:

The researcher provided the instructions to studied women about Kegel and breathing exercise through three months. At the beginning of the first month; that started immediately after assessment and included two instructional sessions.

The first meeting, Participants in this session gained knowledge about the anatomy and functions of the pelvic floor muscles, the definition and benefits of Kegel exercises for improving the strength and elasticity of the pelvic floor muscles, the causes and risk factors of stress urinary incontinence, and possible management strategies. It takes roughly ten minutes.

In the second session, the women under study were taught to try to stop the flow of pee mid-urination and to feel as though they were simultaneously being lifted and squeezed. This would help identify which muscle area was best for applying Kegel exercises. It took her twenty minutes, but if she could do this, she was using the appropriate muscles. In addition, the researcher gave the ladies instructions to breathe deeply while performing the exercises, to avoid moving their legs, buttocks, or abdominal muscles, and to relax for a duration equivalent to the holding period [18].

The women in the study were advised by the researcher to contract their muscles while attempting to stop peeing, count for three seconds, relax for an additional three seconds, repeat this exercise group five times a day (a total of 25 contractions per day), and repeat this exercise group five times. These spasms became more frequent [19].

By using a check list tool, the researcher evaluated at the conclusion of the second month how accurately deep breathing and Kegel exercises had been practiced over the previous week. The researcher then gave the study's female participants instructions to increase the number of contractions and the holding period to nine seconds (for the first workout group) and to fifteen times for the number of contractions and relaxations. This exercise group was then to be repeated five times a day, for a total of 75 contractions each day.

By using a check list tool, the researcher evaluated at the conclusion of the third month how accurately deep breathing and Kegel exercises had been practiced over the previous week. The women under study were then given instructions by the researcher to increase the number of contractions and the holding period to 12 seconds, as well as to increase the number of contractions and relaxations to 20 times (the first exercise group). This exercise group was then directed to repeat five times a day, for a total of 100 contractions per day.

b) Evaluation Phase:

Using the same pretest tool, the researcher reassessed the frequency and severity of urine incontinence as well as its impact on the physical and psychological conditions of the women. The goal of this assessment was to determine whether or not the frequency, severity, and effect of urine incontinence decreased. The impact of deep breathing and Kegel exercises on stress urine incontinence in older women was also evaluated by the researcher. It takes five to ten minutes to use this tool.

C. Statistical Design:

The collected information was updated, coded, tabulated, and input into a computer using IBM SPSS, a social science statistical program. Data were shown, and relevant analysis was done based on the type of data found for each parameter.

III. RESULTS

A. Figure (1):

Demonstrated that the studied women's compliance to perform deep breathing and Kegel exercise increased gradually throughout the study. It reveals improvement in women's practices throughout 3 months; 30% done exercises regularly at the 1st week of the 1st month, then increases to 70% at the end of the 1st month; then enhanced to 87% at the end of the 2nd month; finally, it reach to 92% at the end of the 3rd month.

B. Figure (2):

Showed how the study sample was distributed based on the degree of urine incontinence pre and post implementation of program. It reveals that severe incontinence decreased from 75% preprogram to 28% post program. There was decrease in the severity of urinary incontinence from pre and post application of deep breathing and kegel exercise among the studied women.

C. Table (1):

Demonstrates that there was a negative correlation between the frequency of urine incontinence and the regularity of Kegel exercises and deep breathing exercises. At the conclusion of the third month of the intervention, the frequency of urine incontinence had also dramatically decreased.

D. Table (2):

Demonstrates a negative association between the degree of stress urine incontinence and the adherence to kegel exercises and deep breathing.

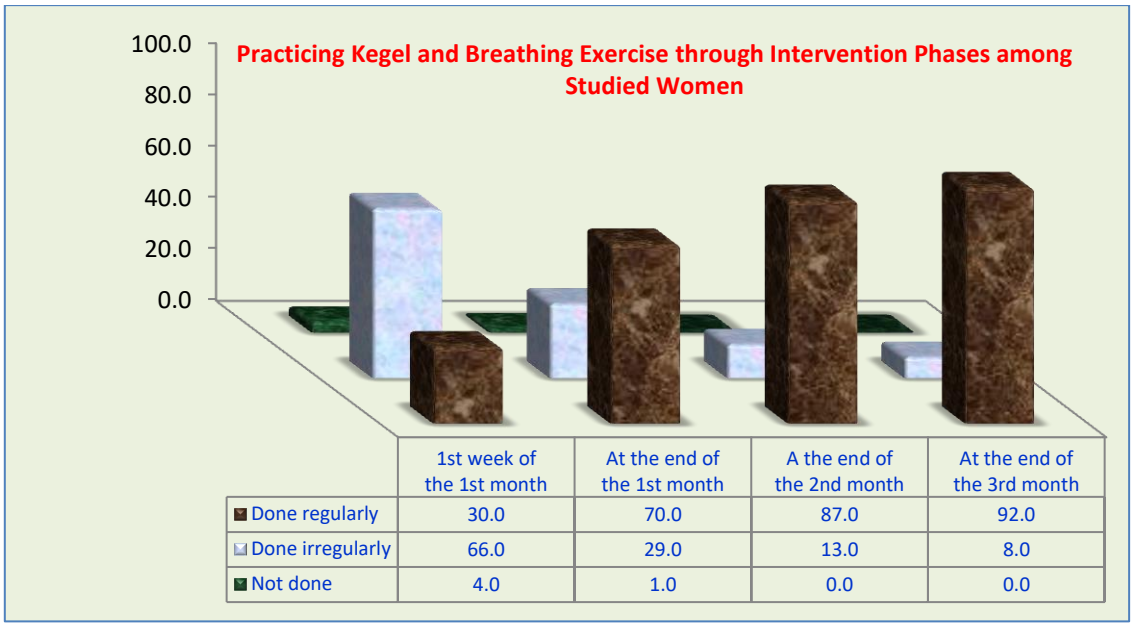

Figure 1: Distribution of the research sample (N=100) based on Kegel and Breathing Exercises Performed during Intervention Phases

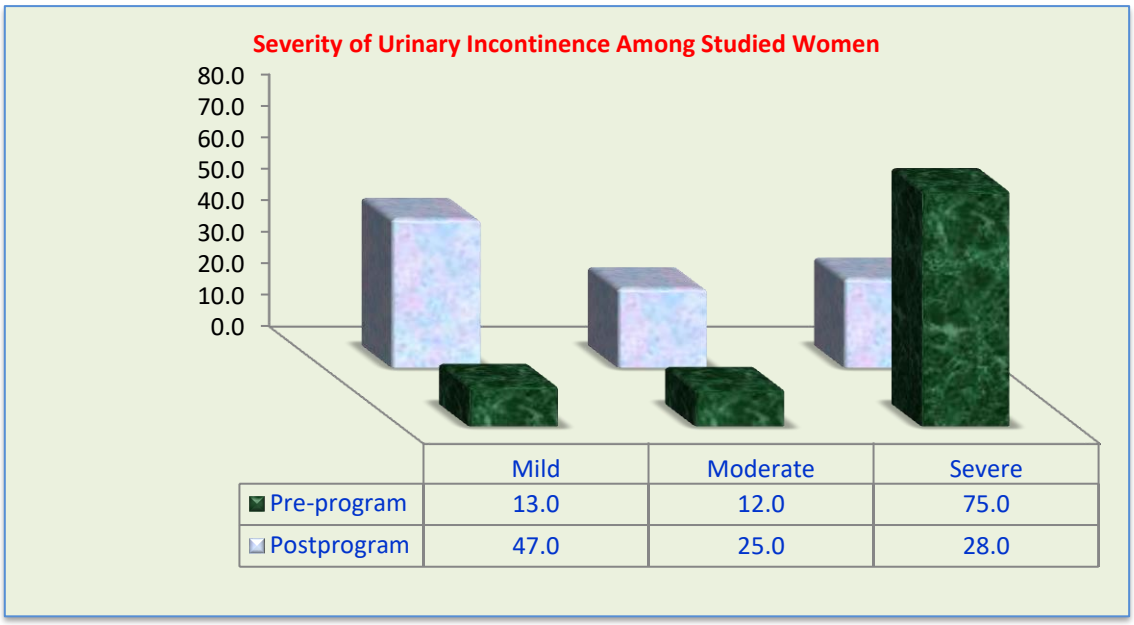

Figure 2: Distribution of Studied Sample According to the Severity of Urinary Incontinence (N=100)

Table 1: Correlation between Practicing Kegel and Breathing Exercise and Frequency of Urinary Incontinence through the Study (N=100)

Kegel and Deep Breathing Exercise Adherence	Frequency Of Urinary Incontinence	
	r	p-value
1st week of the 1st month	-0.209	0.037*
After the first month ended	-0.394	0.000**
At month's conclusion of the second	-0.423	0.000**
After the third month ended	-0.511	0.000**

Person correlation coefficient test **significant at p≤ 0.05* ***highly significant at p≤0.01*

Table 2: Correlation between Deep Breathing and Kegel Exercises Adherence and Severity of Incontinence through the Intervention Phases

Deep Breathing and Kegel Exercise Adherence	Post Intervention Severity of Incontinence	
	r	p-value
1st week of the 1st month	-.369	.000**
After the first month ended	-.709	.000**
At month's conclusion of the second	-.478	.000**
After the third month ended	-.556	.000**

Person correlation coefficient test **significant at p≤ 0.05* ***highly significant at p≤0.01*

IV. DISCUSSION

Results of the presented women's compliance to perform deep breathing and Kegel exercise increased gradually throughout the study. It reveals improvement in women's practices throughout 3 months; 30% done exercises regularly at the 1st week of the 1st month, then it reach to 92% at the end of the 3rd month. This improvement can be attributable to participation in the implemented program and the distribution of Arabic pamphlets, which were essential in helping people learn and remember breathing exercises and kegal. This is in line with Edgar Dale's Pyramid of Learning (commonly known as the NTL's), which Masters cited and which demonstrated that humans can retain 20.0% of what they see and hear (visual) and 10.0% of what they read. The same author claims that engaging in a debate can aid in memory retention of 50.0% of what is taught [20–25].

The frequency and severity of urine incontinence were found to be negatively correlated with the adherence to deep breathing and kegel exercises in the current study. According to Hung et al. (2019), for women with urine incontinence, exercise adherence to pelvic floor muscle strengthening is not a significant predictor of symptom decrease. This conclusion is consistent with their assessment. The more adherence to pelvic floor muscle training exercises among women with urinary incontinence, the more improvement in urinary incontinence symptoms and decrease in frequency of urinary incontinence, according to Bo (2020), who assessed pelvic floor muscle strength and response to pelvic floor muscle training for stress urinary incontinence, and Chen & Tzeng (2019), who studied Path analysis for adherence to pelvic floor muscle exercise among women with urinary incontinence [26–28].

The results of the ongoing study demonstrated that doing deep breathing exercises and Kegel exercises for twelve weeks led to a statistically significant improvement in the symptoms of stress urine incontinence. This finding is corroborated by Chitra, J. (2019), who evaluated the effectiveness of postpartum Kegel exercises in the management and prevention of stress incontinence and discovered that significant improvements require over fifteen weeks of consistent practice [29]. The current study's female participants may have additional contributing factors, such as age, menopause, or the number of pregnancies they had, which could postpone Kegel's beneficial effects. From the perspective of the researcher, "regularly" is crucial because merely performing Kegel exercises sometimes or improbable is insufficient to demonstrate advancements.

Additionally, Hartini et al. (2018) evaluated the impact of kegel exercises on the reduction of urine incontinence in the elderly and found that the exercises should be performed twice a day for four weeks, under the supervision of a facilitator and an instructor twice a week. According to the researcher, aging is a normal process that is accompanied by a deterioration in social, psychological, and physical conditions that permit senility or the forgetfulness of novel information. Because of this, in order to ensure that the elderly continue performing Kegel exercises consistently and correctly, they must be performed on a regular basis over a considerable amount of time with inconsistent supervision [30].

Fitz et al.'s (2019) study on the effects of pelvic floor muscle training on the quality of life in women with urinary incontinence was consistent with the findings of Mohamed et al. (2018), who evaluated the effects of kegel exercises on the severity of stress urinary incontinence and women's quality of life [31]. Women with the disorder showed a significant improvement in stress urine incontinence symptoms and pelvic floor muscle strength after eight weeks of performing Kegel exercises [32-35].

V. CONCLUSION AND RECOMMENDATION

It shows that over the course of three months, women's practices have improved. The women in the study experienced a reduction in the intensity of their urine incontinence both before and after applying deep breathing and kegel exercises. Deep breathing, kegel exercise adherence, and the degree of stress urine incontinence were found to be negatively correlated. Based on the findings, it was suggested that nurses should be trained in-service on the use of Kegel's exercise as a management strategy for urine incontinence.

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