Benha Journal of Applied Sciences (BJAS) **print: ISSN 2356–9751**
Vol. (8) Issue (4) (2023), (81-89) **online: ISSN 2356–976x**
http://bjas.journals.ekb.eg

Effect of Deep Breathing and Kegel Exercises on Urinary Incontinence among Elderly Women

Samar.S. Mohamed[1], Amel.A.Omran[1], Hanan .E. Hassan[2] and Elham. A. Ramadan[2]
[1]maternal and newborn health nursing Dept, faculty of nursing, Beni-Suef university
[2]Obstetrics Gynecological Nursing Dept, Faculty of Nursing Benha University
E-mail: samarshaban999@gmail.com

Abstract

Background Urinary incontinence considers the most common and distressing health problem among the aging population especially elder women, associated with a profound negative impact on their life. Aim of the study: The study was conducted to evaluate effect of deep breathing and kegel exercises on urinary incontinence among elderly women. Design: A quasi-experimental study design was utilized in this study (one group pre and post-test). Sample: A purposive sample was selected and this study was performed on 100 Menopausal women diagnosed with stress urinary incontinence. Setting: gynecological and urological outpatient clinics at Beni-Suef university hospital. Tools: Data was collected using 1) a structure interviewing questionnaire schedule, 2) The International Consultation on Incontinence Modular Questionnaire, 3) Pelvic floor muscles exercises checklist. Results: There were highly statistical significant differences in the frequency of urinary incontinence (p-value 0.000), and the amount of urine loss (p-value 0.004) among the studied women before and after practicing deep breathing and Kegel exercises. Also, there were as highly statistical significant improvement in physical condition and psychological condition of the studied women (p-value 0.000) after intervention than pre-intervention. Conclusion: Deep breathing and kegel exercise had positive effect on physical and psychological conditions as well as performing daily activities without stress, feeling of confidence and satisfied from sexual relation. Recommendations: Developing awareness program regarding importance and benefits of practicing deep breathing and kegel exercises to reduce stress urinary incontinence symptoms among elderly women.

Key words: Deep breathing, Elderly women, Kegel exercise, Stress urinary incontinence.

1. Introduction

Elder women refer to women age 50 and older. The more traditional Africans definitions of an elderly person correlate with chronological age of 50 to 65 years, depending on the setting, the region and the country [1.[

Elderly women have many problems that affect their health, special problems with incontinence because of many changes may occur in the lower urinary tract due to aging, physical limitation and the environments in which they live [2,3].

Urinary incontinence (UI) is one of the most common problems in menopausal women; it is defined by the International Continence Society (ICS) as the complaint of any involuntary loss of urine [4].According to the Standardization Committee of ICS, there are three main types of urinary incontinence: Stress Urinary Incontinence (SUI), Urge Urinary Incontinence (UUI) and Mixed Urinary Incontinence (MUI) [5]. Stress urinary incontinence is the most common type of UI in 50% of women between 15 and 64 years. It is defined by the International Uro-gynecological Association and the ICS as a complaint of involuntary loss of urine on physical exertion such as (e.g. sporting activities, on sneezing or coughing) [6]

Many risk factors have role in the occurrence of urinary incontinence, these factors are: weak pelvic floor muscles supporting the proximal urethra, obesity, pregnancy and
childbirth, menopause and old age, hysterectomy, constipation [7]

Menopause is a stage when the menstrual cycle stops for longer than 12 months. With the onset of the menopause, the ovaries stop producing considerable quantities of estrogen; hence the symptoms and problems associated with estrogen deficiency occur gradually. Among the changes is reduction in the integrity of the pelvic floor, changes in the rate of different types of collagen and the preferential atrophy of type II muscle fibers, atrophy of urinary-genital tract which may be associated with problems such as urinary urgency, urinary frequency, nocturia, stress incontinence, urge incontinence, burning upon urination and an increased prevalence of urinary tract infections. Also fragile vaginal mucosa leads to dyspareunia [8]

The International Continence Society recommends conservative treatment as the first line of treatment for incontinent women with a focus on increasing strength and correcting activating patterns of the pelvic floor muscles [9].The aim of the conservative treatment is to stabilize the urethra by increasing pelvic floor muscle strength. They include Kegel's exercise, lifestyle changes, urinary control devices and medications [10]. Kegel's exercise is the cornerstone of noninvasive treatment for UI as it strengthens the muscular components of urethral supports by employs a small number of isometric repetitions at maximal exertion [11]

In light of the fact that urinary incontinence is a core nursing care issue, nurses must be more innovative, creative while coming up with innovative strategies to prevent and treat UI [12].Continued nursing research is required to investigate and evaluate nursing treatments in order to pinpoint the most effective ways to manage urinary incontinence. Nurses may be the most affordable health care provider to treat urinary incontinence, and they are crucial resources for incontinent women in helping with the diagnosis and treatment of urinary incontinence [13]. As one of the key responsibilities of nurses is to teach an incontinent woman in order to maintain health, restore regular functions, and avoid difficulties. By instructing women in the Kegel exercise, this can be accomplished [14]

Significance of the study

Urinary incontinence is a major global health problem. The prevalence of UI increases with age, though the prevalence rate in women between 15 and 64 is from 10% to 30% and only a quarter of all women with this problem seek help. It is estimated that 20% to 40% of the older women present involuntary loss of urine. [15]. Also, World Health Organization (WHO) mentioned that around 200 million people worldwide experience urinary incontinence [11.[

In Egypt UI prevalence is difficult to estimate because of most Egyptian women are refused to seek help regarding UI, they do not report incontinence when visiting their health care providers, the belief that UI is a natural consequence of ageing & childbirth and embarrassment so more studies should be carry out to estimate the exact prevalence of UI in Egypt [16]. There are a few studies which scrutinized the prevalence rate of UI in some Egyptian districts. A study conducted by [17] in Assiut reported that, the overall prevalence of UI was 22.2% and the prevalence of stress UI, urge UI and mixed UI was 5.7%, 5.1% and 11.4% respectively. Also, [18] reported the prevalence of urinary incontinence in Egypt was 54.8% for all cases, and 14.8% of them suffer from stress urinary incontinence (SUI)

Despite urinary incontinence isn't being a life-threatening condition; it has a major impact on physical, psychological and social health and wellbeing, including sleep problems, low self-esteem, depression, and psychological distress. In addition to restrictions in physical activity, relationships, feelings of helplessness, increased risk of urinary tract infections (UTIs), pressure ulcers, falls, and fractures, all of which may lead to functional impairment and decline in overall health status. The restricted activities not only interfere with interpersonal relationships, but also it can damage self-esteem as a result of

the shame and embarrassment some older adults feel, and those afflicted women

health and quality of life [19]. So this study was conducted to evaluate the effect of deep breathing and kegel exercises on reducing stress urinary incontinence among elderly women.

Aim of the study

The study was conducted to evaluate effect of deep breathing and kegel exercises on urinary incontinence among elderly women.

Research Hypothesis

[1] Urinary incontinence symptoms would be reduced in elderly women after practicing deep breathing and Kegel exercises regularly .

[2] Remarkable improvement in physical, psychological, and sexual conditions will be achieved among elderly women after practicing deep breathing and Kegel exercises regularly.

Subjects and method

Research design:

A quasi experimental study design was used in this study (pre and post-test.(

Research setting:

The study was carried out in Beni-Suef University Hospital gynecological and urology outpatient clinics .

Research Sample:

A purposive sample composed of 100 menopausal women attended to the previous mentioned setting according to the following criteria:

Inclusion criteria:

[1] Women in menopausal age (menopause and late menopause)

[2] Menopausal women diagnosed with stress urinary incontinence.

[3] Free from any chronic disease that may aggravate the condition.

[4] Not consume any treatment for urinary incontinence (UI).

[5] Available phone number or whats app for communication

Exclusion criteria :

[1] Pelvic organ prolapsed (POP)

[2] Women having surgical/medical history around pelvic floor muscle as (Congenital Urological Disease, and Tumors of the Bladder)

Tools of data collection:

Data was collected by using the following tools:

Tool (I): A structured interviewing questionnaire sheet:

It was developed by the researcher in the Arabic language based on a review of recent literatures, under guidance of supervisors. It was consisted of three parts:

[1] Socio-demographic characteristics, as age, height, weight, etc.…

[2] Obstetrics history as gravidity, parity, and abortion, etc.…

[3] Urinary incontinence history which included duration of illness, frequency, amount of leakage of urine, etc.…

Tool (II): The International Consultation on Incontinence Modular Questionnaire ICIQ-SF: It is a self-reported survey and screening tool for assessing urinary incontinence frequency and severity .

Tool (III): Pelvic floor muscles exercises checklist:

It included check list for exercise technique. This check-list was adapted from [20]. It contained 8 items to assess the accuracy of applying the Kegel and deep breathing exercise. This checklist contained step by step of deep breathing and Kegel exercises procedure .

Scoring of pelvic floor muscles exercises checklist:

Score (0) indicated not done, score (1) indicated done but not accurate, and score (2) indicated done and accurate .

The total score was16 points:

- Poor application for deep breathing and Kegel exercise (women scored less than 4 points ,(
- Fair application (score from 4-8 points.(
- Good application (score from 9-12 points .(
- Excellent application (13-16 points). These scores recorded after each follow up.

Validity and Reliability:

Validity of tools of data collection was investigated for their content validity by three experts in the field of

Obstetric and Gynecological Nursing from Faculty of Nursing, Benha University .

Reliability was done by using Cronbach‟s alpha test. Reliability of knowledge equal 77.1, reliability for practice equal 87.2, this indicates high degree of reliability of the study tools.

Ethical considerations:

The researcher explained the aim, nature and expected outcomes of the study to the studied women. They were informed that the study is harmless. The researcher secured that all of the gathered data are confidential and are used for the research purpose only. The studied women were informed that they are optionally allowed either to participate or not in the study and they have the right to withdraw from the participation at any time. An oral consent was taken from the studied women.

Pilot study:

A pilot study was conducted during July 2021 on 10% (10 women) to evaluate the applicability, efficiency, clarity of tools, and assess of feasibility of field work.

Fieldwork :

The field work included preparatory phase, administrative design, implementation phase, pilot study and follow-up phase. These phases were carried from the beginning of July 2021 until the end of March 2022 covering 9 months. The researcher visited the previous mentioned setting three days per week from 9 am to 12 pm.

1. Preparaory phase:

It was included reviewing of local and international related literatures and theoretical knowledge about various aspects of the study problem, and guided the researcher to prepare the required data collection tools. Also the researcher prepared the instructional brochure which included data about urinary incontinence (definition, causes, symptoms, complications, and management), Kegel exercise (benefits, technique, duration, frequency). Deep breathing exercise (benefit, technique, duration, frequency.(

2. Data collection phase

The data was collected through a period of nine months, from the beginning of July 2021 until the end of March 2022. The researcher attended at the previous mentioned setting till all the pre-mentioned sample size collected. The researcher introduced herself to the women and explained the aim of the study prior to data collection. The sample was collected 3 days per-week from 9 Am to 12 Pm. The approval of women was obtained orally before data collection.

The data was collected through the following phases:

Assessment phase

Firstly the researcher introduced herself to the studied women and explained the aim of the study and explained the benefits of performing Kegel and deep breathing exercises on stress urinary incontinence to encourage them in the participation in the study and maintain their cooperation. All women interviewed individually using the previously mentioned tools. Then the researcher started to fill the interviewing questionnaire to assess women's personal characteristics, obstetric history, and urinary incontinence history. After that the researcher assessed the frequency, severity of urinary incontinence and its effect on physical and psychological women's life by using the International Consultation on Incontinence Modular Questionnaire ICIQ-SF as a pretest assessment. These assessments took about 15 minutes for each studied women .

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 instructional session, This session included information about urinary incontinence causes and risk factors, possible ways of management, what are the pelvic floor muscles and their functions, definition of Kegel exercise and its benefits on improving the strength and elasticity of pelvic floor muscles and reducing symptoms of stress urinary incontinence . It took about 10 minutes.

The 2nd session included instructions about how to detect the right muscle group for applying Kegel exercises by instructing the studied women to try to stop the urine flow in the middle of urination , and must experience a feeling of squeezing and lifting in the same time. If she could do this, she was using the right muscles; it took 20 minutes[21.[

Also the researcher provided the instructions to women such as take deep breathing during the exercises as(Breathe normally to prepare and during breathe out, contract and do a gentle kegel exercise at the same time before relaxing pelvic floor muscles. and then time keep doing Kegel exercise as breathe shallow and soft, not deep. Keep breathing and keep holding Kegel exercise for the determined time) [22,23] ,don't try to move legs, buttock, or abdominal muscles during the exercises, also the researcher instructed the studied women to relax for a period equal to the period of holding [21.[

The researcher instructed the studied women to contract the muscle as she is trying to stop the urine follow and count for 3 (3 seconds) and relax for another 3 seconds , contract and relax 5 times (each exercise group consisted of 5 contractions and relaxations , the duration of each contraction and relaxation is 3 seconds) and repeat this exercise group 5 times per day (25contractions per day) during the first month, these contractions increased gradually every month [20.[

Moreover the researcher instructed the women that they can do these exercises at any position at any time also may be done during sexual intercourse. Also, each studied women received brochure about urinary incontinence, breathing exercise and Kegel exercises to remind them with the procedure at home .

During the 1st month: the researcher assessed the accuracy of practicing of deep breathing and Kegel exercises at the end of every week during the first month by using check list tool , through contacting them by their

phone number. At the end of the fourth week the researcher instructed the studied women to increase the duration of holding to 6 seconds and increase the number of contractions and relaxations to 10 times (each exercise group consisted of 10 contractions and relaxations, the duration of each contraction and relaxation is 6 seconds) and repeat this exercise group 5 times per day (50 contractions per day) during the second month .

During the 2nd month the researcher assessed the accuracy of practicing of deep breathing and Kegel exercises at the end of every week during the 2nd month by using check list tool through contacting them by their phone number. After that the researcher instructed the studied women to increase the duration of holding to 9 seconds and increase the number of contractions and relaxations to 15 times (1st exercise group) and repeat this exercise group 5 times per day (75 contractions per day) during the 3rd month .

During the 3rd month the researcher assessed the accuracy of practicing of deep breathing and Kegel exercises for the last week by using check list tool through contacting them by their phone number .

Evaluation phase:

The researcher evaluated effect of practicing deep breathing and Kegel exercises on stress urinary incontinence among elderly women as posttest by reassessing the frequency and severity of urinary incontinence and its effect on women's physical and psychological conditions by using the same tool of pretest and evaluate whether the frequency and severity and the effect of urinary incontinence decreased or not .this tool took about 5-10 minutes .

Statistical design

Result were presented in tables and analyzed by using the statistical package for social sciences (SPSS) program version (22). Numerical qualitative data were expressed as frequencies and percentages. As well mean, standard deviation (SD), Chi-square and probability of errors (P-value) test were used to examine the relation between qualitative variables. Significance of result was considered as the following: there is no statistical significance difference when $p>0.05$ and there is statistical significance difference when $p<0.05$, Person correlation coefficient (r) was used for correlation analysis and degree of significance was identified.

Limitation of study

1. It took a lot of time and effort to make sure that the elder women (post-menopausal women) understood the technique of the Kegel exercise and could identify the proper muscles.

Results

Table (1): Reveals that 49% of the studied sample was in the menopausal stage and 51% were in the late-menopausal stage and 71% were from rural areas, also, 60% were illiterate and 87% were married and 52% of them were working .

Table (2): demonstrates positive correlation between number of gravidity and parity and frequency of urinary incontinence with statistical significant association .

Table (3): Indicates that there were highly statistical significant differences in the frequency of urine leakage of the studied sample after intervention than pre intervention, also there were statistical significant differences in the amount of urine leakaged per day.

Figure (1): Demonstrates that there was decrease in the severity of urinary incontinence from pre and post application of deep breathing and kegel exercise among the studied women .

Table (4): Shows positive correlation between deep breathing and Kegel exercises adherence and physical condition of the studied sample as well as with highly statistical significant improvement at the end of the 3rd month of intervention. Regarding psychological condition, there was positive correlation between deep breathing and Kegel exercises adherence and psychological as well as (Practicing worship (prayers) in the desire manner and Sexual relationship) while there was negative correlation with Feeling negative feelings as (loss of self-confidence, nervousness or anxiety, embarrassed, fear and frustration) with statistical significant improvement at the end of the 3rd month of intervention.

Table (5): Reveals negative correlation between deep breathing and kegel exercises adherence and severity of stress urinary incontinence with highly statistical significant improvement

Table (1) Distribution of studied sample according to personal characteristics (n=100).

Personal Characteristics	No	%
Age (in years)		
50-55 years	49	49.0
> 55-60 years	38	38.0
>60 years	13	13.0
Mean ±SD 45.37±6.21		
Residence		
Rural	71	71. 0
Urban	29	29.0
Education		
Illiterate	60	60.0
Primary education	30	30.0
Secondary education	8	8.0

University education	2	2.0
Marital status		
Married	87	87.0
widower	13	13.0
Occupation		
House wife	48	48.0
Working	52	52.0

Table (2) Relationship between obstetrics history and frequency of urinary incontinence (N=100)

obstetrics history	frequency of urinary incontinence	
	r	p-value
Number of gravidity	.294	.003*
Number of parity	.303	.002*

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

Table (3) Distribution of studied sample according to their ICIQ-SF scale (pre and post intervention) (n=100)

ICIQ-SF scale	Pre		Post		X^2	p-value
	No	%	No	%		
Frequency of urine leakage						
About once a week or less often	20	20.0	44	44.0	23.785	.000**
Two or three times a week	30	30.0	24	24.0		
About once a day	5	5.0	13	13.0		
Several times a day	45	45.0	19	19.0		
The amount of urine leakage						
A small amount (under wear or pad is damp)	61	61.0	83	83.0	13.318	0.004*
A moderate amount (under wear or pad is wet)	32	32.0	12	12.0		
A large amount (under wear or pad is very wet	7	7.0	5	5.0		
*Time of urine leakage						
Leaks before getting to the toilet	24	24.0	23	23.0	4.382	.357
Leaks during cough or sneeze	100	100.0	100	100.0		
Leaks during sleeping	2	2.0	1	1.0		

*results not mutually exclusive

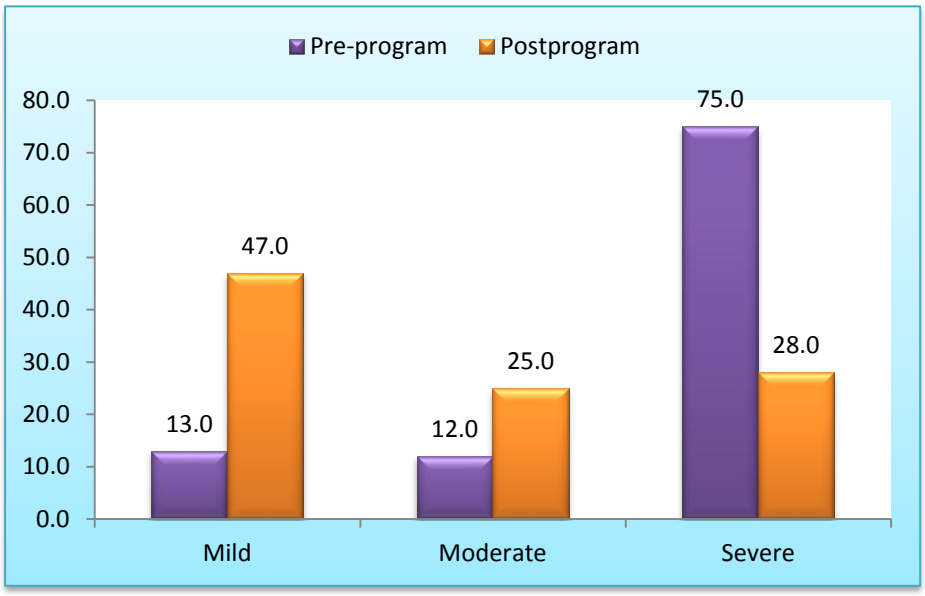

Fig. (1) Distribution of studied women regarding their severity of urinary incontinence (n=100)

Table (4) Correlation between deep breathing and kegel exercises adherence, physical, psychological, and sexual condition of the studied sample through the program (N=100)

Physical, psychological. and Sexual condition	Deep breathing and kegel exercises adherence							
	1st week of the 1st month	p-value	At the end of the 1st month	p-value	At the end of the 2nd month	p-value	At the end of the 3rd month	p-value
	r		r		r		r	
Carrying heavy objects	-.308	.002*	-.466	.000**	-.338	.001*	-.366	.000**
Doing daily activities as (shopping, cooking, cleaning…)	-.259	.009	.400	.000**	.329	.000**	.403	.000**
Practicing any type of sport	-.243	.015*	-.397	.000**	-.289	.004*	-.301	.002*
Travelling	-.294	.003*	-.475	.000**	.345	.000**	.431	.000**
Sleeping	-.329	.001*	-.407	.000**	.373	.000**	.489	.000**
Wear any kind or color of clothes	-.298	.003*	-.304	.002*	-.157	.119	.255	.010*
Participating in social activities outside the home	-.243	.015*	-.347	.000**	.136	.178	-.184	.066
Feeling negative feelings as (loss of self-confidence, nervousness or anxiety, embarrassed, fear and frustration)	-.245	.014*	-.225	.025*	.157	.118	-.185	0.05*
Practicing worship (prayers) in the desire manner	-.146	.176	-.231	.006	.165	.056	.198	.045*
Sexual relationship	-.134	.183	-.260	.009	-.178	.076	.199	.048*

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

Table (5) 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**
At the end of the 1st month	-.709	.000**
At the end of the 2nd month	-.478	.000**
At the end of the 3rd month	-.556	.000**

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

Discussion

As regard to age of the studied women as a part of personal characteristics of the studied women , the present study indicated that slightly less than half of the studied women were in the menopausal stage (50-55yrs) and slightly more than half were in the post-menopausal stage (>55yrs), the same results reported by [2] who studied Self-care model management of urinary incontinence for elderly women attending Ain Shams hospital and mentioned that near half of the studied sample their age was 50yrs and above .

From the researcher point of view the aging process is associated with many changes in the body include the urinary tract system especially in women due to pregnancy and delivery that weakens the pelvic floor muscles this is the physiological explanation of increasing incidence of urinary incontinence among elderly women .

The studied women were in menopausal stages with their aging adverse effects necessarily occur. Besides a sizable proportion of them go through pregnancy and delivered vaginally for more than three times [24] who studied age at the onset of menopause and its influencing factors in Turkish women in a rural area and supported the idea that age and menopausal state are attribution factors interfering with Kegel's effect and added that age was statistically correlated to SUI. From the researcher point of view the older age; more the problem is confronted especially in menopausal women due to decreased levels of estrogen hormone which weaken pelvic floor muscles.

Regarding the amount of urine loss before intervention, the present study demonstrated that there were statistical significant differences in the amount of urine leakage per day (the amount of urine leakage decreased after intervention than pre intervention). This was in the same line with [25] who studied the Effect of Kegel Exercise Training Program On Improving Quality Of Life Among Women With Urinary Incontinence and reported that about one third of the study group and forty of the control group had loss of urine so much that it wets their protection or cloths. After intervention; the amount of urine leakage decreased among the study group, while it remained the same among the control group.

Concerning, frequency of involuntary loss of urine before practicing deep breathing and kegel exercises, the current study clarified that more than forty of the studied women had involuntary loss of urine several times per day specially in winter season, while one third of them had loss of urine from two to three times per week and twenty of them had loss of urine once a weak or less often. After twelve weeks of practicing deep breathing and kegel exercises , it decreased to less than one quarter of them had loss of urine several times per day and one quarter of them had loss of urine from two to three times per day while slightly less than half of them had loss of urine once per week or less often after intervention .

This come in agreement with [4]who studied the Effect of Kegel's Exercise on Severity of Urinary Incontinence and Quality of Life among Menopausal Women and reported that (more than half and slightly less than half) in the study and control groups respectively had loss of urine from more than once but less than three times a week. After twelve weeks of intervention, it decreased dramatically from more than half to five among the study group, while it remained the same among the control group .

Concerning the correlation between deep breathing and Kegel exercises adherence, physical and psychological conditions, the current study reported positive correlation between deep breathing and Kegel exercises adherence and physical condition of the studied sample as well as (performing daily activities, Sleeping, travelling and Wearing any kind or color of clothes) with highly statistical significant improvement at the end of the 3rd month of intervention. Regarding psychological condition, there was positive correlation between deep breathing and Kegel exercises adherence and psychological as well as in the desire manner and Sexual relationship; while there was negative correlation with negative feelings as (loss of self-confidence, nervousness or anxiety, embarrassed, fear and frustration) with statistical significant improvement at the end of the 3rd month of intervention.

These findings were in congruent with [26] who studied the Evaluation of the pelvic floor muscles training in older women with urinary incontinence and revealed that limitations of daily activities, physical limitations, social limitations, personal relationships, emotions, sleep, coping measures, and symptom severity significantly improved in the study group than in control group .

Also, [27] who studied that The Effect of Pelvic Floor Muscles Exercise on Quality of Life in Women with Stress Urinary Incontinence and Its Relationship with Vaginal Deliveries and concluded that pelvic floor muscle exercises improve physical, psychological, social, sexual conditions of women with stress urinary incontinence. In addition [12] who studied Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women found those women with stress and all types of urinary incontinence their patterns of life were improved in the pelvic floor muscle training groups.

Moreover, the present finding is in accordance with that of [28] who studied the Effect of electromyographic biofeedback as an add on to pelvic floor muscle exercises on neuromuscular outcomes and quality of life in postmenopausal women with stress urinary incontinence and concluded that pelvic floor muscle training, with and without biofeedback, is associated with improved physical , psychological and social conditions in postmenopausal women with stress urinary incontinence .

Dissimilar to, [27] who studied The Effect of Pelvic Floor Muscles Exercise on Quality of Life in Women with Stress Urinary Incontinence and Its Relationship with Vaginal Deliveries and [29]who assessed The Impact of Nursing Interventions on the Control of Urinary Incontinence among Women both studies reported that there was significant improvement was only observed in (daily activities , sleeping and the domains of emotions)in their studied sample.

From the researcher point of view, although incontinence is not a life-threatening disease, the loss of bladder control can affect social, psychological, familial, occupational, physical and sexual aspects on patients' lives, So this result suggests a possible positive effect of deep breathing and Kegel's exercises on improving the physical and psychological conditions among menopausal women with urinary incontinence.

Regarding the severity of urinary incontinence symptoms , the current study showed that there was negative correlation between deep breathing and kegel exercise adherence and severity and frequency of urinary incontinence , this result in consistent with [30]who assessed the Exercise Adherence to Pelvic Floor Muscle Strengthening is not a Significant Predictor of Symptom Reduction for Women With Urinary Incontinence , [10] who assessed Pelvic floor muscle strength and response to pelvic floor muscle training for stress urinary incontinence and [31] who studied Path analysis for adherence to pelvic floor muscle exercise among women with urinary incontinence, all of them reported that the more adherence to pelvic floor muscle training exercise , the more improvement in urinary incontinence symptoms and decrease in frequency of urinary incontinence.

Concerning correlation between number of parity and frequency of urinary incontinence, the current study revealed that there was positive correlation between number of parity and frequency of urinary incontinence pre and post intervention with statistical significant difference (p value =0.002), this was similar to [32] who studied the Urinary Incontinence in Healthy Saudi Women and revealed that multi-parity was related to the urinary incontinence prevalence. Also, [33,34] who studied the Urinary Incontinence in The United States Women and reported that urinary incontinence prevalence was more common in females who had three or more births.

Regarding correlation between number of gravidity and frequency of urinary incontinence, the present study reported that there was positive correlation with statistical significant (p value = 0.003), this result was in accordance with [35] who studied Hospital extra: urinary incontinence and depression. On the other hand [36]who studied The

Impact of Nursing Interventions on the Control of Urinary Incontinence among Women and mentioned that there was no significant relationship between gravidity and frequency of urinary incontinence .

Conclusion

Deep breathing and kegel exercises had positive effect on physical and psychological conditions as well as "performing daily activities without stress, feeling of confidence and satisfied from sexual relation". Also regular practicing of deep breathing and kegel exercises over a period of three months had a positive effect on reducing symptoms of stress urinary incontinence among elderly women.

Recommendation

In the light of the current study findings, the following recommendations are suggested-:

[1] n service training programs for women in outpatient clinics about the utilization of deep breathing and kegel exercises for management of urinary incontinence.

[2] Developing awareness program regarding importance and benefits of practicing deep breathing and kegel exercises to reduce stress urinary incontinence symptoms among elderly women .

[3] Health education about the correction of misconceptions about urinary incontinence ,which can be an effective means of bringing incontinent women into contact with health care center for early appropriate intervention.

[4] Develop nursing care standards included deep breathing and kegel exercises for incontinent patients .

Further research:

[1] Replication of the present study under different circumstances (sampling, setting, measurement, duration of management) is recommended to validate its results.

Reference

[1] WHO (2019): WHO -` Definition of An Older or Elderly Person available at https://www.scribd.com/document/190077600/WHO-Definition-of-an-Older-or-Elderly-Person#.com.

[2] El-Sayed H.A. (2020): Self-care model management of urinary incontinence for elderly women attending Ain Shams hospital. Thesis submitted for partial fulfillment of doctorate degree in department of community health, postgraduate .Faculty of health nursing Ain Shams University Cairo.2001; P. 46.

[3] Fahmy M., Hassan H., Alsherbieny E. (2023): Coping Strategies among Elderly Women Suffering From Knee Osteoarthritis Pain At Beni-Suef City. Nile journal for geriatric and gerontology; 6(1): 148-166. DOI: 10.21608/NILES.2023.279733.

[4] Ismail,N., Ibrahim,H., Rady,S Habiba, A (2019): Effect of Kegel's Exercise on Severity of Urinary Incontinence and Quality of Life among Menopausal Women. International Journal of Novel Research in Healthcare and Nursing, 6(3): 1288-1308.

[5] Bo, K., Frawley, H.C., & Haylen, B.T (2019): An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for the conservative and non-pharmacological management of female pelvic floor dysfunction. Neuro-urology Urodynamic.; 36:1–23 .

[6] Haylen, B.T., Ridder, D., Freeman ,R.M, et al., (2020): An International Uro-gynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. International Urogynecological Journal; 21(8):5–26.

[7] Gallas, S., Frioui, S.,, Rabeh H & Rejeb, M. (2019): Prevalence and risk factors for urinary and anal incontinence in Tunisian middle aged women. African Journal of Urology; 24(7): 368–373.

[8] Khanjani, S& Khanjani, S. (2020): Effect of Conjugated Estrogen in Stress Urinary Incontinence in Women with Menopause. International Journal of Clinical Medicine, , 8, 375-385.

[9] Balk, E., Rofeberg, V., Adam ,G., Kimmel ,H., Trikalinos, T., Jeppson P. (2019): Pharmacologic and Nonpharmacologic Treatments for Urinary Incontinence in Women: A Systematic Review and Network Meta-analysis of Clinical Outcomes. Annals Internal Medicine 2019; 170(7):465-479 .

[10] Bø, K. (2020):Pelvic floor muscle training in treatment of female stress urinary incontinence, pelvic organ prolapse and sexual dysfunction. World Journal Urology; 12(3): 437–43.

[11] Elbana H., Salama A., Barakat M. (2020): Effect of Urinary Incontinence on Quality of Life and Self Esteem of Postmenopausal Women. American Journal of Nursing Science; 7(5): 182-191.

[12] Dumoulin, C., Cacciari, L.P., Hay-Smith, E.J.C. (2018): Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. Cochrane Database of Systematic Reviews:30 (10):123-145.

[13] Brink, C.A., Sampselle, C.M., Wells, T.J., Diokno, A.C., Gillis, G.L. (2018):A digital test for pelvic muscle strength in older women with urinary incontinence. Nurs Res; 38(4):196-199.

[14] Weber-Rajek, M., Mieszkowski, J., Podhorecka, M., Radzimińska, A., Goch, A., Kędziora-Kornatowska, K. (2019): Pelvic floor muscle training in the treatment of postmenopausal urinary incontinence – a review of studies. Gerontologia polska; 3(1): 143-5.

[15] Vyas R, Hande D, Nishad P, Barot H. (2018): Effects of pelvic floor muscle training vs an assisted pelvic floor muscle training among rural perimenopausal women with urinary incontinence: A comparative study. International Journal of

Yoga, Physiotherapy and Physical Education; 3(1):121-124.

[16] Kamel, D.M., Thabet, A.A & Tantawy, S.A. (2018): Effect of abdominal versus pelvic floor muscle exercises in obese women with mild stress urinary incontinence. Hong Kong Physiotherapy Journal. 31(1): 12-18.

[17] Bahloul, M., Abbas A, Abo-Elhagag M, Elsnosy E. and Youssef A. (2019): Prevalence of overactive bladder symptoms and urinary incontinence in a tertiary care hospital in Egypt. International Journal Contraceptive Obstetrics and Gynecological; 6(6):2132-36.

[18] Mohamed, AE., Mohamed,M., Taha, S., Mohammed, R. (2021): Effect of Educational Interventions on Reducing Stress Urinary Incontinence Episodes among elderly Women. Minia Scientific Nursing Journal, 9(1.(

[19] Felde G., Bjelland I & Hunskaar S. (2020): Anxiety and depression associated with incontinence in middle-aged women: a large Norwegian cross sectional study. International Uro-gynecological Journal 2020; 23(3):299–306.

[20] Goda AA., Fawaz MA., Ghonem J., Mostafa, MI., Metawea H. (2015): Effect of Pelvic Floor Muscle Exercise Training Protocol for Pregnant Woman during 3rd Trimester on Labor Duration. Journal of Health, Medicine and Nursing www.iiste.org ISSN 2422-8419 An International Peer-reviewed Journal .15(20)p.p 234-256 .

[21] El-Deen, A.N. (2020): Efeect of Kegel's Exercises on First Degree Pelvic Organ Prolapse Among Women, Nursing Practice, 33rd World Congress on Advanced Nursing Practice.5(5.(

[22] Kenway M.(2020): How to do Kegels Breathing (kegel and breath at the same time) .pelvic exercise physiotherapy available at:https://www.pelvicexercises.com.au/kegels_breathing/?v=fbe46383db39&c=22783a5940ef

[23] Olson,A (2023):Proper Kegel Breathing Techniques for Kegel Exercises. Intimate Rose. Available at https://www.intimaterose.com/blogs/videos/kegel-breathing#.com.

[24] Edibe P., Ayse O & Rabia T. (2019): Age at the onset of menopause and its influencing factors in Turkish women in a rural area. Journal of Women & Aging; 28 (3): 17-21.

[25] Abd El-Aty,E.M & Hassan, M.E (2021):Effect of Kegel Exercise Training ProgramOn ImprovingQualityOf Life Among Women With Urinary Incontinence . Egyptian Journal of Health Care, 2021 EJHvol. 12 no. 2946.

[26] Rocha, F., Carvalho, J., Natal, RJ et al., (2018: Evaluation of the pelvic floor muscles training in older women with urinary incontinence: a systematic review . Porto Biomedical Journal, 3(2): 3.5.

[27] Ptak M., Ciecwiez S., Brodowska A., Starczewski A., Nawrocka-Rutkowska J., Diaz-Mohedo E., Rotter I. (2019): The Effect of Pelvic Floor Muscles Exercise on Quality of Life in Women with Stress Urinary Incontinence and Its Relationship with Vaginal Deliveries: A Randomized Trial. Hindawi BioMed Research International.20(6)p.p 123-134.

[28] Bertotto A., Schvartzman R., Uchôa S, (2019): Effect of electromyographic biofeedback as an add-on to pelvic floor muscle exercises on neuromuscular outcomes and quality of life in postmenopausal women with stress urinary incontinence: A randomized controlled trial. Neurourology and Urodynamics; 36: 2142–7 .

[29] Sharaf, A-Y, El Sebai N-A, EwiedaS-M, Shokry, M & SalemM-A. (2020): The Impact of Nursing Interventions on the Control of Urinary Incontinence among Women . Journal of American Science. 6(10): 1256:1274.

[30] Hung H C., Chih S-Y, Lin H-H, Tsauo J-Y. (2019): Exercise adherence to pelvic floor muscle strengthening is not a significant predictor of symptom reduction for women with urinary incontinence. Arch Phys Med Rehabil,; 93:1795-1800.

[31] [31] Chen SY, Tzeng YL. (2019): Path analysis for adherence to pelvic floor muscle exercise among women with urinary incontinence. J Nurs Res. 17: 83-92.

[32] Ahmed, D., Mohammed,S., Mohammed R, Ahmed A, et al., (2019): Urinary Incontinence in Healthy Saudi Women . The Egyptian Journal of Hospital Medicine. 69 (7), 2890-2896.

[33] Rizk DE, Shaheen H, Thomas L, Dunn E and Hassan MY. (2019): The prevalence and determinants of health care-seeking behavior for urinary incontinence in United Arab Emirates women. Int. Urogynecol. J. Pelvic Floor Dysfunct., 10(3):160–165 .

[34] Melville JL, Katon W, Delaney K and Newton K. (2019): Urinary Incontinence in US Women: a population-based study. Arch Intern. Med., 165(5):537–542 .

[35] Contillo C. (2019): Hospital extra: urinary incontinence and depression. American Journal of Nursing, 2019; 107 (1): 72C – 72 H.

[36] Wyman J., Fanti A., McClish D., Bump R. (2018): Comparative efficacy of behavioral interventions in the management of female urinary incontinence. Journal of obstetrics and Gynecology. 179(4):999-1004.