

Research Article

Effect of Kegel exercises on distress symptom and quality of life in elderly Pakistani female with urinary incontinence- A randomized control trial

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ABSTRACT

Background: The stress urinary incontinence was the reason the affected women experienced anxiety and depression. the more severe the symptoms of stress urinary incontinence were, the more negative impact to aspects of quality of life was seen.

Objective: To determine the effects of Kegel exercises on distress symptom and quality of life in elderly Pakistani female patients with stress urinary incontinence.

Methodology: A single-blinded, randomized control trial was conducted on n=50 female patients having stress urinary incontinence at department of physiotherapy, Haleema Siraj Hospital Rawalpindi from January 2021 to June 2022. The participants with the age above 55 years were recruited through non-probability convenient sampling technique and divided into experimental and control group; n=25 participants in each group. The experimental group received Kegel exercise as an intervention for three months and 3-4 time/day. While control groups didn't received any intervention but continue the regular medicines. Both groups were evaluated pre and post interventional (after 3-months) by using urinary distress inventory (UDI) for distress symptoms and incontinence impact questionnaire (IIQ) for quality of life. SPSS version 21 was used for data analysis. Independent t-test was used for between group comparisons of mean differences.

Results: The mean age of the study participants was 65.00±8.90 years. Between group analysis, showed that symptom distress {MD=16.21, 95%CI (3.10 to 14.55)} on urinary distress inventory (short Form), and life quality {MD=8.83, 95%CI (3.10 to 14.55)} on incontinence impact questionnaire significantly greater in experimental group as compared to the control group.

Conclusion: Kegel exercises significantly improved distress symptoms and quality of life in females with stress incontinence.

Keywords: Elderly, incontinence, kegel exercises, stress incontinence.

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INTRODUCTION

Urinary incontinence (UI) is defined as involuntary loss of urine that leads to social or hygienic problem which can occur in children, men, and women, but females are more commonly affected [1]. According to a recent literature, UI affected women twice as often as men. The UI in young women is 20-30%, the percentage in middle aged women is 30-40% and up to 50% in elderly female[2]. Studies reported that the most important factors affecting the incidence of UI in females are age, obesity, diabetes, education, delivery rank, hypertension, urinary tract infection, and smoking[3].

Stress incontinence (SI), over active bladder (OAB) or urgency incontinence (UI), and mixed urinary incontinence (MUI) are common types of urinary incontinence. The prevalence of SI is 74.19%, while OAB and MUI is 12 to 56% [4]. The SI is a complaint of involuntary leakage on effort or exertion i.e. sneezing or coughing, UI is involuntary leakage along with urgency while MUI is a complaint of involuntary leakage associated with urgency, and also with effort, exertion, sneezing and coughing. Also, nocturnal enuresis is any involuntary loss of urine occurring during sleep. Post-micturition dribble and continuous urinary leakage indicates other symptomatic forms of incontinence [1].

According to 6th International Consultation on Incontinence, any pelvic organ prolapse or urogenital atrophy, vaginal or rectal prolapse, pelvic floor muscle weakness, estrogen deficiency, comorbidities, and UTI are the possible causes of urinary incontinence [1] Urinary incontinence is associated with poor quality of life because of depression, anxiety, psychological distressed, emotionally disturbed, and poor life satisfaction contributes to poor quality of life [5]. Different treatment approaches including pharmacological, surgical procedures and behavioral therapy has been used for the UI treatment[6]. Use of medicines including alpha adrenergic antagonist, bladder training, anti-muscarinic, and beta 3 agonist is found very helpful for management of UI [1]. Conservative management was first line of treatment due to significant results. Previous studies found that pelvic floor exercises significantly improve UI [6].

Furthermore, Kegel exercises reported 30-90% success rates in females with SI. In Kegel exercises, the number of contractions and duration of holding time is decided according to the need of patient. No specific protocol has been designed for Kegel exercises but some points should be considered for better results which include identification of muscle to slow urine, contraction of muscle in a correct manner, and repetition of cycle. Also, a study was

conducted to determine the effectiveness of Kegel exercises in pregnant females, before menopause and post-menopausal age and significant improvement was found in treating UI [7].

A very few literature was found which compare the effects of Kegel exercises with regular medicine and in the recent study Kegel exercises were compared with the regular medicines in Pakistani population. Though many studies have been conducted to determine the effectiveness of Kegel exercises however in this study the effects of Kegel exercises on distress symptom and quality of life in elderly Pakistani female patients with stress urinary incontinence was determined.

METHODOLOGY

A single blinded, randomized control trial study was conducted from January 2021 to June 2022 in the department of physiotherapy, Haleema Siraj Hospital Rawalpindi (Ref no: IRB2021-12/034). The study was initiated after taking approval from the authorities. The informed consent was taken from all the participants and assurance concerning the confidentiality of the data was also taken prior to conducting research.

The female participants with the age > 55 years, had stress incontinence and showed willingness to participate in the study was included in the study. However, participants with any diagnosed neurological condition, cognitive issues, not able to understand and respond, and who had hearing issues were excluded from the study. The participants were recruited through non-probability convenient sampling technique.

Sealed envelope method was used to randomly allocate the participants in the study groups through computer generated random sequence table. Randomly assigned index cards having consecutive numbers were prepared and put in thick sealed envelopes before the study commencement. Envelope was only opened when participants signed the informed consent and were thus provided by the assigned treatment. The study was single blinded, since patient wasn't aware of the other treatment being provided.

A total of n=107 participants were evaluated, of which n=50 participants fulfilled the inclusion criteria and were thus recruited for the study. However, 57 out of 107 participants didn't fulfilled the inclusion criteria or showed unwillingness to participate in the study. The recruited n=50 participants were then divided in to experimental and control group, n=25 in each group. Experimental group received intervention of Kegel exercises while control group was on regular medication as prescribed by their doctor. (Figure 1)

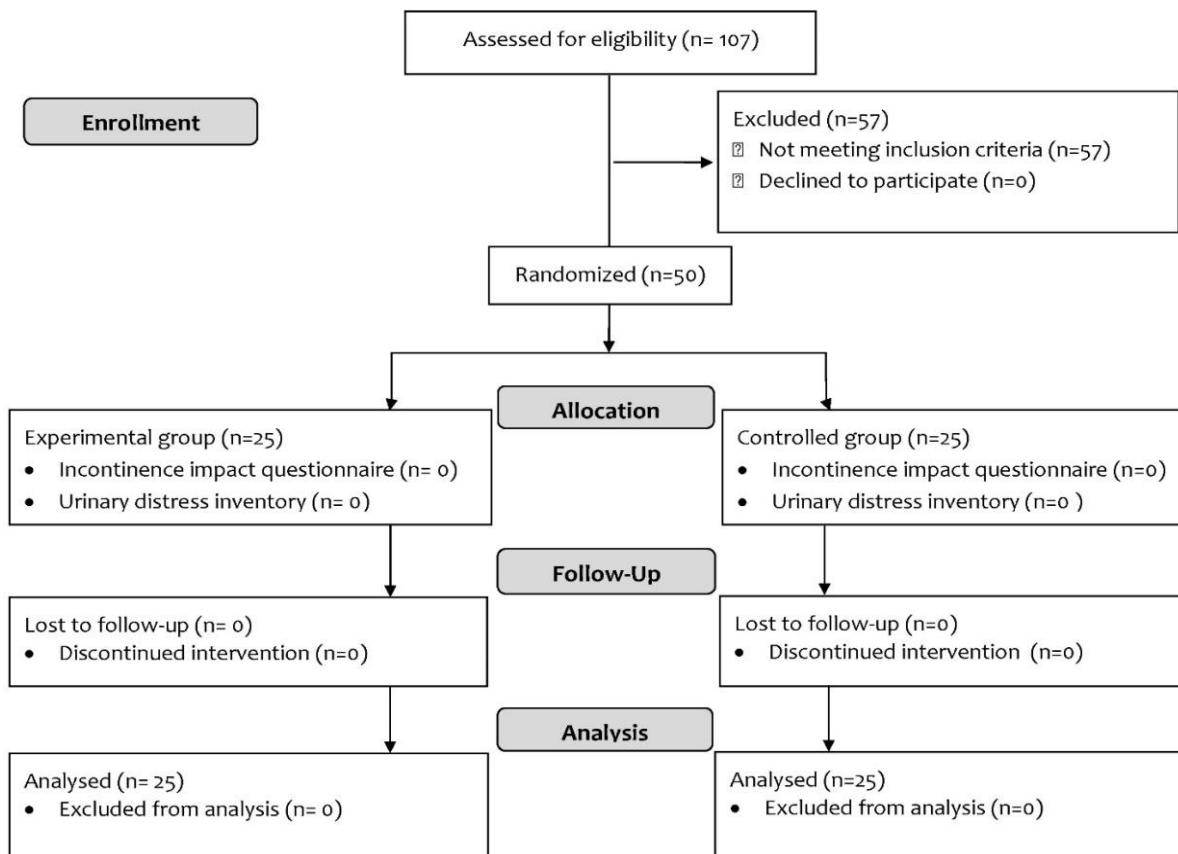


Figure 1: CONSORT diagram

The duration of intervention was three months and 3-4 times a day. The participants were called on follow-up after ever week to check either the intervention i.e. KE been performed accurately and confirm timely medications. The procedure of Kegel exercises were thoroughly explained to the study participants [8].

The demographic data including age, and BMI was obtained at baseline. The urinary distress inventory scale has constructed validity and reliability, and was used to determine urinary distress. While quality of life was measured through incontinence impact questionnaire which is a valid and reliable tool [9]. The pre and post data was obtained at baseline and 3 months of intervention. Independent t-test was used for between group

comparisons. The data described in terms of mean±SD, mean difference (MD), and confidence interval (CI). SPSS version 21 was used to analyze the data.

RESULTS

The mean age of the n=50 female study participants was 65.00±8.90 years. The mean BMI was 29.54±5.24 kg/m².

In the between group analysis, mean difference showed that symptom distress {MD=16.21, 95%CI (3.10 to 14.55) on Urinary distress inventory (short Form), and life quality on Incontinence Impact Questionnaire {MD=8.83, 95%CI (3.10 to 14.55) significantly greater in experimental group as compare to control group. (Table 1)

Table 1: Between-group comparison (UDI & IIQ)

	Groups	Mean	SD	MD	95%CI of difference	
Incontinence Impact Questionnaire	Experimental	33.56	12.34	16.21***	10.66	21.77
	Control	17.34	6.19			
Urinary Distress Inventory	Experimental	18.66	9.63	8.83**	3.10	14.55
	Control	9.83	10.47			

Significance Level: $p < 0.05^*$, $p < 0.01^{**}$, $p < 0.001^{***}$

DISCUSSION

The purpose of the study was to determine the effects of Kegel exercises on distress symptom and quality of life in elderly Pakistani female patients with stress urinary incontinence. The results of the

study showed significant improvement in experimental group presented with urinary incontinence.

According to the results of the study distress symptoms assessed on urinary distress inventory

scale and life quality on incontinence impact questionnaire significantly greater in the group who were performing Kegel exercises after 3-months of intervention. The results of current study corresponds with the previous study which concluded that Kegel exercise is an effective therapy which shows improvement in distress symptoms and quality of life in patients with urinary incontinence and thus improves healthy life style [10]. Also, previous studies determine the effectiveness of Kegel exercises in female patients with comorbidities [10], pain and backache [11].

The common causes of UI is pelvic floor muscle weakness and Kegel exercises have been playing an important role in strengthening pelvic floor muscles which may prevent urinary incontinence [12]. During pelvic floor exercises the voluntary contraction of pelvic floor muscles causes inward movement and squeeze of pelvic floor muscle which stabilizes, and helps in urethral closure and downward movement resistance. This voluntary contraction of pelvic floor muscle also contracts the gluteal, hip adductor and abdominal muscles. Due to weakness, muscles aren't in anatomical position to support urethral and bladder neck descent [13] and repetitive contractions strengthen the muscles [14]. Therefore, strengthening of pelvic floor muscle build-up the structural support and levator plate may elevated upward in pelvis because of hypertrophy and increased stiffness of pelvic floor muscles and connective tissues. Thus automatic unit firing is improved which prevent descent when abdominal pressure is increased [13]. Furthermore, the strengthening of pelvic floor muscle enhance physical activities among women and thus improve quality of life and functioning of women even during and after pregnancy [12]. Strengthening of the pelvic floor muscles is beneficial and prevents pelvic floor dysfunctions in females with stress urinary incontinence. It was single-centered study and sample size was not large enough which limits the generalizability of the study.

CONCLUSION

It was concluded that Kegel exercises in females with stress urinary incontinence is more effective which not only improved urinary incontinence but also quality of life. Future studies should incorporate with multicentre and large sample size. Also, a study on effects of Kegel exercises in urgency and mixed urinary incontinence in Pakistani population should be conducted.

Author's Contribution

AA: substantial contributions to the conception and design of the study.

AA and SA: acquisition of data for the study.

MR: interpretation of data for the study.

AO: analysis of the data for the study.

NA: drafted the work.

AA, SA, MR, AO, NA and HA: revised it critically for important intellectual content.

AA, SA, MR, AO, NA and HA: final approval of the version to be published and agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. All authors contributed to the article and approved the submitted version.

Ethical Statement

The study was conducted from January 2021 to June 2022 in the department of physiotherapy, Haleema Siraj Hospital Rawalpindi (Ref No: IRB2021-12/034).

Consent Statement

Informed consent was obtained from all subjects involved in the study.

Data Availability Statement

The data presented in this study are available on request from the corresponding author.

Acknowledgments

None to declare.

Conflicts of Interest

The authors declare no conflict of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript; or in the decision to publish the results.

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