

Effects of Modified Pilates on Incontinence Severity and Quality of Life in Females with Urinary Incontinence

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ABSTRACT

Background: Urinary Incontinence is a state in which an individual is unable to control urine and may leak it out without reaching to the toilet. The urgency of urine becomes out of control in such patients.

Aim: To determine the effects of modified Pilates on incontinence severity and quality of life in females with urinary incontinence.

Study Design: Randomized Controlled Trial.

Methodology: Patients (n=50) were analyzed. The Group A received modified Pilates along with standard physical therapy while group B received standard physical therapy exercises only. Baseline treatment that was standard physical therapy (pelvic floor muscle training, home exercises plan and life style advice) was given to both groups. Outcome measures were calculated by Symptom Severity Index and Incontinence Quality of Life questionnaire.

Results: The mean value of Symptoms Severity Index score of group A before intervention was 21.04 which was more than 16.04, the value obtained after the treatment. This value was less than the post Symptoms Severity Index mean of group B (standard physical therapy only). The Symptoms Severity Index score between both groups has massive difference with P value <0.05.

Conclusion: It was concluded that modified Pilates combined with standard physical therapy improves urinary incontinence severity and quality of life in females with urinary incontinence.

Keywords: Modified Pilates, Quality of Life, Standard Physical Therapy and Urinary Incontinence.

INTRODUCTION

Hardly any years prior, the International Continence Society characterized this infection as unconscious release of urine. The meaning of urinary incontinence remains continually being worked on to characterize the issue from the urethra, which leads to sterile issues in an individual with this condition, or blocks contact with others and avoids them from public activity. Although the definition doesn't straightforwardly narrate the event of urinary incontinence to community issues, it is essential to recall that this issue grounds extraordinary distress, subsequently individuals with urinary incontinence stay away from contact with others. An ever increasing numbers of specialists call attention to that the issue of UI influences ladies, yet additionally their relatives or guardians. The World Health Organization (WHO) gauges that nearly in excess of 200 million people experiencing this infection around the world¹.

Urinary Incontinence is a troubling, informally humiliating disorder affecting somewhere around 5 million ladies in England and Wales. Sensations of little confidence, shame and defenselessness are usually revealed, along with withdrawal from social life. Likewise, UI is a significant obstruction to ordinary physical and wellness exercises and this extraction might undermine females overall wellbeing².

Urinary Incontinence is a typical issue, with the ratio of twenty to thirty among grown-up ladies populace worldwide of all ages with various seriousness and symptoms. The prevalence of urinary incontinence shifts in various examinations, relying upon age, clinical consideration conditions and the meaning of loss of urine. A few people don't think about urinary incontinence as an extraordinary issue, so they view it as a typical maturing process. Urinary incontinence can be ordered as given: (i) Urge incontinence (leakage of urine without having desire to urinate). (ii) Stress incontinence (leakage of urine due to exercises like jumping and jogging) (iii) Mixed incontinence (combination of both stress and urge incontinence e.g. while coughing, sneezing, laughing etc)³.

Physical therapy is one of the most effective treatments for urine leakage. A large number of females intend to stay away from invasive surgeries and physiotherapy might give a less expensive and less stressful treatment answer for public. The typical physical therapy treatment for UI is pelvic floor muscle training (PFMT). Considering expansion to standard UI treatment, Modified Pilates (MP) is a mind body approach including slow, controlled movements zeroing in on posture with breathing exercises that plays an important role towards

recovery. Pilates is a type of activity, including a range of movements that both reinforce and increment adaptability of the entire body, rather than having a particular muscle center. Modified Pilates stays away from exceptional abdominal contractions, breath holding or stressing that could put pressure on the pelvic floor while simultaneously consolidating practices that can unexpectedly train the pelvic floor. Nevertheless, the adequacy of this methodology is simply narrative with an absence of observational proof².

Investigations have uncovered the likely reasons for urinary incontinence that includes weakness of the detrusor muscle or muscles of the pelvic floor and weakness of the neural controls inside the bladder. A full analytic assessment of such condition requires a clinical history, actual assessment, urinalysis and appraisal of personal satisfaction. Upon failure of preliminary treatments, invasive urodynamic is encouraged. Non-invasive treatments may comprise of changes in lifestyle, pelvic floor muscles training and some drugs. The Invasive treatment options are either to support the urethra or enhance the bladder capacity⁴.

Pelvic floor muscle practices have been considered as the essential and dependable treatment choice of stress urinary incontinence and its adequacy has been demonstrated in various randomized controlled trials. Pilates focuses on synchronizing body and brain through controlled movements. Dr. Bruce Crawford named 10 essential mat based Pilates practices noticing the electromyographic accounts which showed the well contracting pelvic floor during every one of these activities and named them as Pilates⁵.

In older people, urinary incontinence is a typical issue specifically because of the weak control on muscles and lesser responsive nerves. Similarly, the ratio shows increasing trends of disease in females as compared to males. In particular, menopause and gynecological medical procedures and problems are accounted for as huge contributing elements. The urinary incontinence issue in old people also results in reasons of depression and isolation. Besides, the urinary incontinence issue additionally influences the personal satisfaction of the individual as well. This could be because of the upset neurophysiological framework related with self-restraint system. Extra factors, for example, diabetes and hypertension are likewise surveyed, and the outcomes are viewed as huge⁶.

The examination of Urinary leakage can be based on multiple factors. The danger of urinary incontinence increases with age, yet it can happen after delivery just as in youthful nulliparous females. UI treatment incorporates careful and moderate techniques, among which physiotherapy is suggested as the primary line of treatment. Briefly, stress urinary incontinence is portrayed with urine leakage as an outcome of an expansion in intra-abdominal pressure, which brings

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about an increment in intravesical pressure that surpasses the maximum urethral closure pressure. The present circumstance happens, for instance, during coughing, sneezing, or bouncing. In urge based urinary incontinence, loss of urine happens with abrupt urgency that is insufficient to the degree of full bladder. Mixed urinary incontinence joins the indications of the above mentioned two kinds, and the urge based incontinence is associated with the increased intra-abdominal pressure that results in overflow of the bladder⁷.

Increasing number of patients with medical problems like pelvic floor abnormalities, urine loss and pelvic organ prolapse needs redressal through physiotherapy. For instance epidemiological review of people in Japan revealed that individuals with age of more than forty years have a percentage of 41.7 with urine leakage in comparison to other disease. In spite of the fact that urinary incontinence is so prevalent in comparison to other diseases, yet, numerous patients are hesitant to talk about their urinary incontinence issues.⁸

The objective of the study was to determine the effects of modified Pilates on incontinence severity and quality of life in females with urinary incontinence.

METHODOLOGY

The study was conducted at Qasim Sandhu Hospital, Lahore-Pakistan following approval from ethical committee. Subjects (n=50) were equally divided into 2 groups. The Group A received modified Pilates along with standard physical therapy while group B received standard physical therapy (pelvic floor muscle training, home exercises plan and life style advice) was given to both groups. Outcome measures were calculated by Symptom Severity Index and Incontinence Quality of Life questionnaire. Females having age (20-45yrs) with stress, urge or mixed Urinary Incontinence, Scoring Symptoms Severity Index more than 4 and Body Mass Index more than 25 were enrolled. Participants having history of pelvic malignancy, fecal incontinence, CNS disorders e.g. bell's palsy, Alzheimer's disease, previous gynecological surgery in six months like hysterectomy, tubal ligation etc or had given birth in previous three months were excluded.

Statistical analysis: Data was evaluated by using SPSS version 23. All qualitative data was presented in frequency form and quantitative data was in the form of mean standard deviation. Independent t-test were used to find out whether there was any significant difference on incontinence severity between the two groups. Normality of data was assessed by Shapiro Wilk test. Paired sample t-test was used to find the significance of the interventions performed within the both groups. A p-value ≤ 0.05 was considered significant.

RESULTS

Results revealed that there was no significant difference in mean age and BMI of patients in both groups as shown in Table-1.

Table-1: Comparison of mean age and BMI of the patients of both groups

Variables	Group	Mean	SD	p-value
Age	SCPI+MP	32.2	7.3	0.947
	SPI	30.8	7.4	
BMI	SCPI+MP	28.9	3.1	0.878
	SPI	28.9	3.2	

Symptoms Severity Index (SSI): There was no significant difference in baseline symptoms severity index score between the both groups. After treatment, there was significant reduction in mean symptoms severity index score in both groups. However, independent sample t test revealed that the mean reduction in symptoms severity index score in intervention group (SCPI+MP) was higher as compared to control group (SPI) (Table-2).

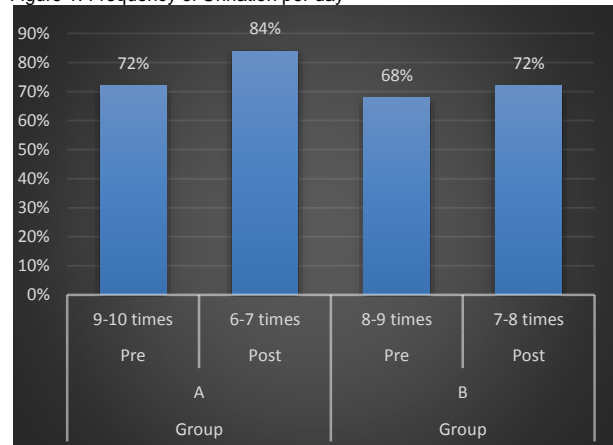
Table-2: Comparison of mean SSI score of both groups

Group	Pre SSI score Mean ± SD	Post SSI score Mean ± SD	Difference Mean ± SD	p-value
SCPI+MP	21.0 ± 4.7	16.0 ± 3.6	5.0 ± 2.0	<0.001*
SPI	22.2 ± 5.0	19.1 ± 4.8	3.2 ± 1.1	<0.001*

*Significant

Urination per day in group A before treatment was 72% and after treatment was 84%, whereas in group B before treatment was 68% and after treatment was 72% as shown in figure-1.

Figure 1: Frequency of Urination per day



Values of urinary urgency in group A pretreatment value was 64% and after treatment was 48% while in group B pretreatment was 60% and post treatment was 52% as shown in figure-2.

Figure-2: Frequency of Urinary Urgency

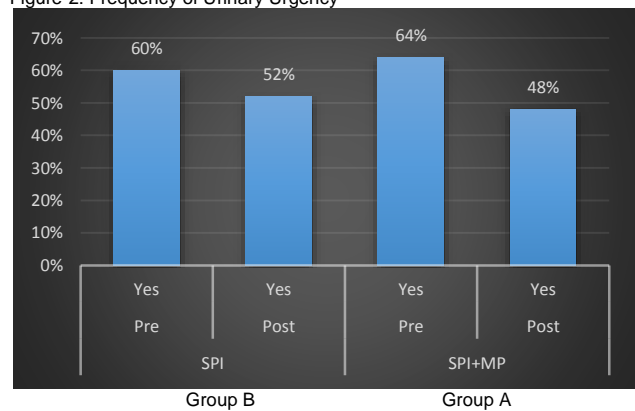


Figure-3 showed statistics of overactive bladder in group A before intervention was 68% and after that was 52%, in group B before intervention was 64% while after that was 56%.

Figure-3: Descriptive statistics of Overactive Bladder

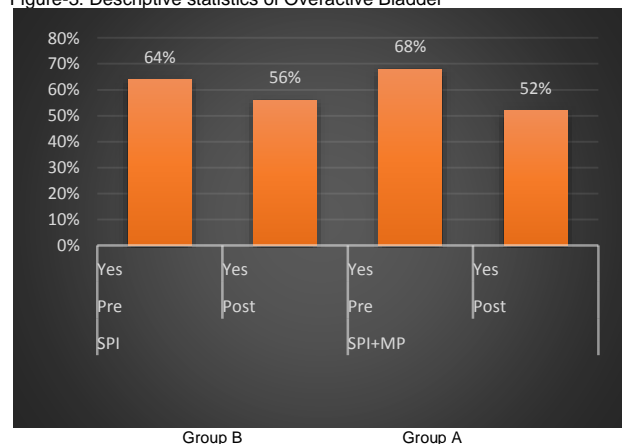
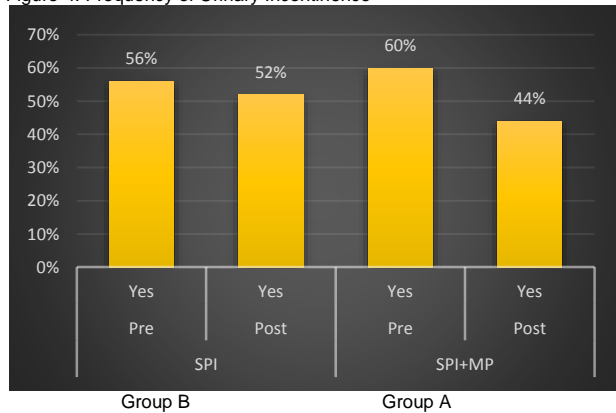


Figure-4 showed frequency of urinary incontinence in group A was 60% before treatment and 44% after treatment while in group B it was 56% before treatment and 52% after treatment.

Figure-4: Frequency of Urinary Incontinence



DISCUSSION

The current study found that modified Pilates in incontinence patients increased quality of life. The study comprised 58 participants. Two participants were excluded from allocation as they were not meeting the inclusion criteria. The rest of 56 individuals were subdivided into two groups; group A performed modified Pilates (MP) along with standard physical therapy and group B performed standard physical therapy only, each containing 28 participants. Baseline treatment (PFMT, a home exercise strategy and life style guidance) to both groups was given. Modified Pilates along with standard physical therapy were performed on group A for 6 weeks whereas only Standard Physical Therapy exercises were performed on group B for 6 weeks. Three patients in each group discontinued intervention at the follow up stage. Therefore, 25 patients in each group were analyzed. The pretreatment and post treatment tests were measured using the scales of Symptoms Severity Index (SSI) and Incontinence QOL Questionnaire. Both groups showed the improvement on incontinence severity and an improved Quality of life (QOL). The Modified Pilates have more significant improvement on Incontinence severity and QOL in females with urinary incontinence.

Fabiha et al (2021) conducted study on Pilate's strategy likewise assisted by further developing pelvic floor muscle strength and generally capacity, equilibrium and every day movements. It was done as a rule multiple times in week and prolonged up to four months. In females, Pilates uniquely assisted with improving general wellbeing, strength and mental health. The pelvic floor work-out also assisted them in improving intimate life. Hence it coincides with this study as Pilates was effective for the well-being of females and improving their mental as well as physical health however current study only prolonged for the period of six weeks⁹.

Doreen et al (2016) studied that stress urinary incontinence impacts daily living and it had been considered to affect the physical, mental and social life of females, reducing general wellbeing, contentment and personal satisfaction. In current study the results were same, as according to this study urinary leakage causes loss of confidence and also affects the quality of life, and pelvic floor muscle exercises helped in improvement of symptoms¹⁰.

Pavithralochania et al (2019) conducted a study in which he compared kegel's exercises with Pilates and observed the effects of both for the dealing of urine leakage. He concluded in his study that there was reduction in the urinary incontinence with kegels as well as Pilates but the effectiveness of Pilates was much more than that of the kegels. The results correlated with this study that Pilates were more effective in treating the urinary incontinence as compared to standard physical therapy only. The study discussed above only included subjects who were pregnant while in current study pregnant ladies were excluded¹¹⁻¹⁴.

In this study the comparison of SSI among both groups was noteworthy (p value < 0.05). The ability to perform activities of daily living may be affected due to incontinence and quality of life suffers to a great extent. The patients having urinary incontinence experienced

difficulty in maintaining quality of life due to severity but the modified Pilates exercises along with standard physical therapy had its role in treating such patients. The mean value for group A SSI score before intervention was 21.04 and after intervention was 16.04 which was less than the post SSI value of group B (19.08). The value of P was less than <0.05. There was a substantial change in SSI total on effects of modified Pilates along with standard physical therapy on incontinence severity between pre and post. The mean value of modified Pilates of group B SSI before mediation was 22.23 which was greater than the mean afterwards intervention, the value being 19.08. The P value was <0.05. There was a significant change in SSI score on effects of standard physical therapy only on incontinence severity between pre and post. The post-test SSI mean value for Group A was 16.04 which was slightly less than the post-test SSI mean value for Group B 19.08. The p value was < 0.05. There was a significant variance in SSI scores between Group A and B.

Limitations: Sample size was too small for the study. Long term follow up could not be completed. Patients unwilling to participate due to Covid-19 Pandemic.

CONCLUSION

It is concluded that modified Pilates along with standard physical therapy have been found to be more effective for treatment of incontinence severity and improvement of quality of life in females with urinary incontinence.

Author's contribution: MS&ZH: Conceptualized the study, analyzed the data, and formulated the initial draft., K&MK: Contributed to the proof reading., WL: Analyzed data.

Running head: Modified pilates as a treatment option in addition to standard therapy for urinary incontinence.

Conflict of interest: None

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