J. Univ. Med. Dent. Coll., Vol.13(2), 377-381;2022
ISSN (Print) 2221-7827, ISSN (Online) 2310-5542
DOI: 10.37723/jumdc.v13i2.686
http://www.jumdc.com/

Original Article

Open Access

Effects of Physical therapy Management of Stress Urinary Incontinence among Postnatal Women-A quasi experimental study

Sabiha Arshad[a], Iqra Waseem [b], Tahir Mahmood[c], Farwah Batool[d], Abdulsalam[e]

[a]Senior Lecturer, Riphah International University, College of Rehabillitation and Allied Health Sciences, Lahore.
[b] Assistant Professor, University Institute of Physical Therapy, The University of Lahore.
[c]Senior Lecturer/Physical Therapist, Department of Physical Therapy, Imran Idrees Institute of Rehabilitation Sciences, Sialkot Medical College, Sialkot.
[d]Lecturer /Physical Therapist, Department of Physical Therapy Aqsa Institute of Professional Studies, Faisalabad.
[e]HOD/Assistant Professor, Department of Physical Therapy Imran Idrees Institute of Rehabilitation Sciences, Sialkot Medical College, Sialkot.
*Corresponding author: iqra.waseem91@gmail.com

ABSTRACT

BACKGROUND & OBJECTIVE: During delivery, stress incontinence develops due to weakness of pelvic floor muscles. The objective of the current study was to determine the effects of physiotherapy among post-natal women having stress urinary incontinence.

METHODOLOGY: This Quasi-Experimental study was conducted on 40 post-natal women in the age of 25-40 years. The data was collected using a convenient sampling technique. After an informed consent, participants were assessed on the day of the visit, and pelvic floor muscle exercises [kegel exercise] were performed. First, they were assessed on 1st visit and the final assessment was made at end of treatment by using the same physical examination. The assessment was done on 1st visit and after 12 weeks, with 3-5 sessions/week. SPSS version 20.0 was used for analysis of data and paired–t test was used for comparing pre and post intervention.

RESULTS: The current study comprised 22 (55%) participants with 25-32 years of age group and 18(45%) in 32-40 years of age. The results showed that 2 (5%) had no urine leakage, while 20(50%) had 3-4 times leakage, 25(62.5%) left their pads /garments during the treatment period. Of them 18(45%) had no restriction and 15(37.5%) had some restriction in daily activities and 19 (47.5%) have fair squeeze, 12 (30%) had a weak squeeze, p-value had shown statistically significant difference at $p<0.05$, stating that Kegel exercise were found effective than routine interventions for the management of Stress Urinary Incontinence (SUI).

CONCLUSION: Kegel exercise (Pelvic floor muscle exercises) appeared to be an effective treatment protocol for postnatal women presenting with stress urinary incontinence with statistically significant differences on pre and post intervention analysis.

KEYWORDS: Stress urinary incontinence, Kegel Exercise, Pelvic Floor Muscle Exercise, Urine Leakage, Urine Loss, Pads.

INTRODUCTION

The involuntary leakage of urine is due to any pressure, including cough, sneeze or exercise, is called as stress urinary incontinence, effecting almost 4-35% post-natal woman [1]. In a recent study, this statistic was reported to be 15.6% [2] figures vary from 5%-70% in different countries with an average range of 25%-40% prevalence [3]. In another study, prevalence of stress incontinence [64.1%] was seen more compared to urge incontinence [18.1%] at single center in Lahore [4].

Despite of the fact it is not lethal, but leads to social isolation due to involuntary leakage of urine following exertion [5].

The normal micturition cycle, with its alternating urinary storage and voiding phases, requires coordination but any disturbance can lead to insufficient closure in the urethra. The sphincter muscle, fails to maintain complete closure of the bladder neck under pressure, allowing the leakage of urine [6]. The etiology of stress urinary incontinence can be any neurological, lifestyle, age factor, mode of delivery, and childbirth, leading increase in incidences [7].

It is commonly postulated that stress incontinence develops

Arshad S, Waseem I, Mahmood T, Batool F, Abdulsalam. Effects of Physical therapy Management of Stress Urinary Incontinence among Postnatal Women-A quasi experimental study. Journal of University Medical & Dental College. 2022; 13(2):377-381.

as the consequence of trauma to the pelvic floor muscles during vaginal delivery [8]. Vaginal delivery is strongly related with later surgery for stress incontinence, but the association is modified by maternal conditions and intervention/procedure during delivery [9]. Other factors can be obesity, episiotomy, and weight of the baby, smoking, and diabetes [10]. Vaginal delivery may commence damage to the urinary continence mechanism either by direct injury to the muscles of pelvic floor or by damaging their motor innervations during a surgical procedure or by combination of both [11]. Behavioral techniques and lifestyle changes work well for certain types of stress urinary incontinence [12].

Scheduled or timed urination, usually afterevery two to four hours, fluid and nutrition management, smoking cessation and chronic cough management can help to reduce the likelihood of incontinence and improvement in the symptoms [13]. Absorbent pads can used for the reducing discomfort and inconvenience during urine leakage [14]. Kegel exercises strengthen the urinary sphincter and pelvic floor muscles which help to control urination [15].

Physiotherapist may recommend patients to perform these exercises frequently. The effectiveness of Kegel Exercise for the management of stress incontinence among both genders is evident but the participants were in above 55 years of age [16]. Previous studies have measured pelvic floor muscle strength and Kegel exercise effectiveness as an outcome after episiotomy but there was a need of study that can address post-natal stress incontinence management along with the strength of pelvic floor muscles among woman because previous studies were lacking on the target population with specific outcomes.

The objective of the study was to find out the effects of Kegel exercises on pelvic floor muscles and stress urinary incontinence. It will relieve the symptoms of Stress Urinary Incontinence and improve and will maintain functional independence among women. This will be beneficial for decreasing post-natal complications and improvement in their self-confidence as well as mobility in and out of the home.

METHODOLOGY

After ethical approval, a quasi-experimental study design was used, and data was collected from post-natal females from Faisal Hospital, Faisalabad and Bashir Medical and Kidney, Lahore Center .The study was conducted from June 2019 to February 2020 after receiving ethical approval letter bearing no. IIIRS/DPT/IERC-355. Convenient sampling technique was used to collect the data from participants. The study was conducted in physical therapy departments of both settings. Total 40 females were enrolled in this study, and sample size was taken from previous studies [14,15].

After the complete history, post-natal females diagnosed with stress urinary incontinence in 25 to 40 years of age were included, while stress urinary incontinence due to any other cause and females under the age of 25 and above the age of 40 were excluded. After informed consent, the participants were enrolled and permission was also taken from their respective departments. After complete history, frequency and amount of urine, loss of urine, pad usage, and muscle grading, the baseline was measured.

Muscle Strength evaluation was done in half-lying with the knees crooked and apart, where physiotherapist, wearing disposable gloves and using a lubricant jelly, gently and slowly inserts the index and middle fingers into the vagina. The therapist palpates the posterior vaginal wall with the distal two phalanges and then judges the strength of the muscles by withdrawing the fingers gently while the patient is asked to hold the fingers there. Strong muscles squeeze the fingers firmly, grading was used as 0=nill, 1=flicker squeeze, 2=weak squeeze, 3=fair squeeze, 4=good squeeze, 5=strong squeeze (Modified Oxford Scale) [17]. In the Pad test first, the patient voids, then wears a pre-weighed sanitary pad.

After drinking 1000ml of fluid and 45 min, then exercise for 30 min [which includes walking, climbing stairs, coughing, jumping and hand washing under running water]. The pad is then re-weighed, the resulting measurement was taken in grams of urine lost, empty the bladder and adopting the comfortable position again tighten the pelvic floor muscles, holding the contraction for 8-10 seconds, and then relaxing for 8-10 seconds. The subjects had tried it four or five times in a row. Work up to keeping the muscles contracted for 8-10 seconds at a time, relaxing for equal time that is 8-10 seconds between contractions. Care was taken, not to contract the muscles in the abdomen, thighs or buttocks, these muscles must be relaxed. Avoiding holding the breath, instead, breathing freely during the exercises. Repeating it 3-4 times a day and aim for at least three or four sets of 10 repetitions a day [18]. The subjects were treated for 12 weeks, and assessment was done after 12 weeks again for Pad Test, oxford muscle strength modified scale, and history of urine frequency and Activities they used to perform.

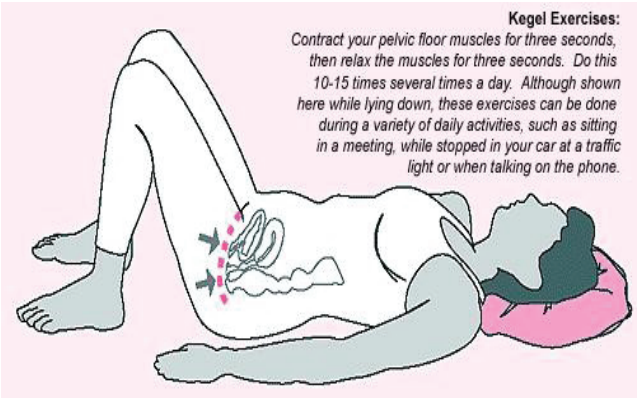

Figure-I: Method of Kegel Exercise[19].

All data of the participants were kept confidential and the privacy of participants was well protected. A self-made performa was generated for each participant and noted on each visit to the hospital. The data was analyzed using the SPSS version 20. The data was presented in frequency tables and percentages, while paired t-test was used to measure the association between the outcomes for pre and post intervention effects at level of statistical significance $p<0.05$.

RESULTS

In the current study, 22 (55%) females enrolled in the study were in 25-32 years of age group and 18 (45%) were in 32-40 years of age group. The socioeconomic status of 25% of subjects enrolled in the study was upper, 50% middle, and 25% lower class.

Table-I: Participants Details.

		n (%)
Age in years	25 to 32	22(55)
	33 to 40	18(45)
Socioeconomic Status	Upper	10(25)
	Middle	20(50)
	Lower	10(25)

Table-II: Frequency of Urine Loss and Use of Pads pre and post Intervention.

		Frequency of urine loss (after treatment)				
		No leak-age(cure)	**Three or four times a month**	**A few times a week**	**Daily**	**Total**
Frequency of urine loss (before treatment)	Three or four times a month	2(8.0%)	10 (40.0%)	11(44.0%)	2 (8.0%)	25 (100.0%)
	A few times a week	0	10(71.4%)	3 (21.4%)	1(7.1%)	14(100.0%)
	Daily	0	0	0	1(100.0%)	1(100.0%)
	Total	2(5.0%)	20(50.0%)	14 (35.0%)	4 (10.0%)	40 (100.0%)
	Use of protective pads or garments (after treatment)					
	No leak-age(cure)	None	Only on occasion	Most of time		
Use of protective pads or garments (before treatment)	None	1(4.3%)	19 (82.6%)	2(8.7%)	1 (4.3%)	23 (100.0%)
	Only on occa-sion	1(6.3%)	6(37.5%)	9 (56.3%)	0	16(100.0%)
	Most of time	0	0	0	1(100.0%)	1 (100.0%)
	Total	2 (5.0%)	25(62.5%)	11(27.5%)	1 (5.0%)	4(100.0%)
	Restriction in daily activities due to incontinence (after treatment)					
Restriction in daily activities due to incontinence (before treatment)		No leak-age(cure)	None	Some	Many	
	None	2 (9.5%)	15(71.4%)	1(4.8%)	3(14.3%)	21(100.0%)
	some	0	0	14(93.3%)	1(6.7%)	15(100.0%)
	Many	0	3(75.0%)	0	1(25.0%)	4(100.0%)
	Total	2(5.0%)	18(45.0%)	15(37.5%)	5(12.5%)	40(100.0%)
	Muscle Grading (after treatment)					
Muscle Grading (before treatment)	Flicker	Weak squeeze, no lift	Fair squeeze, definite lift	Good squeeze with lift	Strong squeeze with a lift	
	2 (15.4%)	8(61.5%)	3(23.1%)	0	0	13(100.0%)
	0	4 (16.0%)	16 (64.0%)	5 (20.0%)	0	25 (100.0%)
	0	0	0	0	2 (100.0%)	2 (100.0%)
	2 (5.0%)	12 (30.0%)	19 (47.5%)	5 (12.5%)	2 (5.0%)	40(100.0%)

In the current study, post intervention 2 women (5%) have no leakage and 20 (50%) have a frequency of urine loss three or four times a month. 25 women (62.5%) use no protective pads or garments and 11 women (27.5%) use protective pads or garments only on occasion. After the intervention, 2 (5%) had no leakage, 18 women (45%) have no restriction in daily activities due to incontinence and 15 women (37.5%) have some restriction in daily activities. After the intervention 19 women (47.5%) have fair squeeze, definite lift of pelvic floor muscles, and 12 (30%) with weak squeeze movement of pelvic floor muscles (Table-II).

The p-value was 0.000 for frequency of urine loss pre and post-treatment and p=0.000 for pre and post treatment leakage of urine, while p=0.001 for protective pads or garments, p=0.000 for restriction in daily activities due to incontinence, p=0.001 for a category of incontinence, and p=0.000 for muscle squeeze, of pelvic floor muscles before and after treatment (Table-III).

DISCUSSION

The use of pelvic floor muscle training during management of stress urinary incontinence is considered as first line management, as it is less invasive method of management with no any related complications. It used to cure almost 80-85% of cases of incontinence, but it depends upon the type that it will be cured, complete or partial [19]. These strength training not only improve symptoms, but also leads to

improvement in strength of the muscles without depending upon the pattern induced like Kegel exercise regimen or PNF spirals with dynamics [20]. The one-hour pad test showed that all postmenopausal women exhibited stress urinary incontinence, including those without urine loss on effort. Urine loss was correlated with time since menopause and body mass index [21]. The current stated that Kegel exercise and PFM strengthening is key factor that can reduce incontinence among post natal females, with a decrease in frequency and amount of urine loss with p value=0.001. There is a significant effect of pelvic floor muscle training [PFMT] or Kegel exercises on urinary incontinence, particularly in women either with assistance or without assistance by a resistance device [Kegel master device]. The pelvic floor muscle strength measured using Pearson correlation [p=0.001], social activities participation [p=0.001], urinary incontinence severity [p=0.001] and the number of involuntary urine passage [p=0.001]. Pelvic floor muscle training with or without Kegel master had no difference to each other, however, both of these methods are efficient for the improvement of stress urinary incontinence, particularly in women [22].

It was seen that patients having middle socioeconomic status, are high in number who came to physiotherapist in compare to those patients, having upper and lower socioeconomic status. This is because upper-class family people may feel guilt to tell that they are suffering from this condition and lower-class family people have little or lack of knowledge about this condition. The participants became functionally independent; their physical performance was much better after having treatment, including their self-confidence and feelings during other life tasks. Postpartum PFEs seems to be more efficient in decreasing postpartum urinary incontinence. Statics regarding the effect of PFEs on the prevention of anal incontinence are lacking, as well as on its prevention of prolapse [23]. The study has shown that there was a significant improvement in Stress Urinary Incontinence before and after physical therapy treatment. Kegel Exercises, are designed according to the patient muscle strength and endurance which make them more feasible and specific. Kegel exercises were found to be the most effective conservative intervention for SUI when compared with trigger point release [24]. The women took the Kegel exercise, consisting of 10 sets of contractions/day; each set included 10 repetitions for at least 8 weeks [25].

CONCLUSION

Pelvic floor muscle exercises appeared to be an effective treatment for postnatal women with stress urinary incontinence. Patient's conditions got better and improved if they do Pelvic floor muscle exercise (Kegel exercises) regularly and properly with empty bladder. So, hence, it is equally effective for all postnatal women suffering from Stress Urinary Incontinence due to pelvic floor muscle weakness.

ACKNOWLEDGEMENT: None.
CONFLICT OF INTEREST: None.
GRANT SUPPORT AND FINANCIAL DISCLOSURE: None.

REFERENCES:

1. Dufour S, Wu M. No. 397–Conservative Care of Urinary Incontinence in Women. Journal of Obstetrics and Gynaecology Canada. 2020;42(4):510-522. Doi:10.1016/j.jogc.2019.04.009
2. Jawad Z, Malik A, Khan S. Prevalence of Urinary Incontinence in Women in Lahore: severity, associated factors and impact on daily life. Age. 2021;50(29):5-5.
3. Milsom I, Gyhagen M. The prevalence of urinary incontinence. Climacteric. 2019;22(3):217-222. Doi:10 .1080/13697137.2018.1543263
4. Mumtaz A, Saif N, Salahuddin N, Siddique U, Nauman D, Farooq F. Frequency and associated risk factors of urinary incontinence and it's impact on life of women. Journal of Akhtar Saeed Medical & Dental College.2020:19-23.
5. Jain S, Mathur S, Choudhary P, Choudhary S. Prevalence of Urinary Incontinence according to its type [Stress, Urge Or Mixed] in females and its association with age and parity: A hospital based study. International Journal of Advanced Scientific Research and Management. 2020;5(1):32-37.
6. Falah-Hassani K, Reeves J, Shiri R, Hickling D, McLean L. The pathophysiology of stress urinary incontinence: a systematic review and meta-analysis. International Urogynecology Journal. 2021:1-52. Doi:10.1007/ s00192-020-04622-9
7. Lin YH, Chang SD, Hsieh WC, Chang YL, Chueh HY, Chao AS, et al. Persistent stress urinary incontinence during pregnancy and one year after delivery; its prevalence, risk factors and impact on quality of life in Taiwanese women: An observational cohort study. Taiwanese Journal of Obstetrics and Gynecology. 2018;57(3):340-345. Doi:10.1016/j.tjog.2018.04.003
8. Verbeek M, Hayward L. Pelvic floor dysfunction and its effect on quality of sexual life. Sexual Medicine Reviews. 2019;7(4):559-564. Doi:10.1016/j.sxmr.2019.05.007
9. Pansota MS, Iftikhar A, Ahmed A, Ahmad I, Tariq HM, Saleem MS. Factors for urinary incontinence in females presenting in tertiary care hospital. Journal of University Medical & Dental College. 2019;10(3):9-13
10. Patel DA, Xu X, Thomason AD, Ransom SB, Ivy JS, DeLancey JO. Childbirth and pelvic floor dysfunction: an epidemiologic approach to the assessment of prevention opportunities at delivery. American Journal of Obstetrics and Gynecology. 2006;195(1):23-28.
11. Ashton-Miller JA, DeLancey JO. Mechanisms of Pelvic Floor Trauma During Vaginal Delivery. InPelvic Floor Disorders. Springer, Cham. 2021:189-209. Doi:10.1007/978-3-030-40862-6_12

12. Gonzales AL, Barnes KL, Qualls CR, Jeppson PC. Prevalence and treatment of postpartum stress urinary incontinence: a systematic review. Female Pelvic Medicine & Reconstructive Surgery. 2021;27(1):e139-145. Doi: 10.1097/SPV.0000000000000866
13. Wyman JF, Burgio KL, Newman DK. Practical aspects of lifestyle modifications and behavioural interventions in the treatment of overactive bladder and urgency urinary incontinence. International Journal of Clinical Practice. 2009;63(8):1177-1191.
14. Knifton C, Bell K, Padley W, Brown J. An exploration of the experience of using the TENA Pants product compared to usual continence products as perceived by carers of people with dementia in care homes. ESSITY UK Ltd; 2018.
15. Nilsen I, Rebolledo G, Acharya G, Leivseth G. Mechanical oscillations superimposed on the pelvic floor muscles during Kegel exercises reduce urine leakage in women suffering from stress urinary incontinence: A prospective cohort study with a 2-year follow up. Acta Obstetricia et Gynecologica Scandinavica. 2018;97(10):1185-1191.
16. Bhutto AS, Karim S, Akram MJ, Farheen H, Shah S, Mehreen Z. Effectiveness of kegel's exercises in elderly male and female with urinary incontinence. The Rehabilitation Journal. 2020;4(02):183-186. Doi: 21-2017/re-trjvol04iss02p183
17. Talasz H, Himmer-Perschak G, Marth E, Fischer-Colbrie J, Hoefner E, Lechleitner M. Evaluation of pelvic floor muscle function in a random group of adult women in Austria. International Urogynecology Journal. 2008;19(1):131-135. Doi:10.1007/s00192-007-0404-y
18. Soave I, Scarani S, Mallozzi M, Nobili F, Marci R, Caserta D. Pelvic floor muscle training for prevention and treatment of urinary incontinence during pregnancy and after childbirth and its effect on urinary system and supportive structures assessed by objective measurement techniques. Archives of Gynecology and Obstetrics. 2019;299(3):609-623.
19. Quantified Health 28 July 2014 Available at: https://quantified health. blogspot.com/2014/07/kegels-and-premature-ejaculation.html [Access Date 11 February 2022]
20. Pal M. Pelvic floor exercises-a clinical study. Asian Journal of Medical Sciences. 2014;5(3):95-98.
21. Parezanović-Ilić K, Jeremić B, Mladenović-Segedi L, Arsenijević S, Jevtić M. Physical therapy in the treatment of stress urinary incontinence. Srpski arhiv za celokupno lekarstvo. 2011;139(9-10):638-644. Doi:10.2298/SARH1110638P
22. Albuquerque MT, Micussi BC, Soares EM, Lemos TM, Brito TN, Silva JB, et al. Correlation between complaints of stress urinary incontinence and the one-hour pad test in postmenopausal women. Revista Brasileira de Ginecologia e Obstetrícia. 2011;33:70-74. Doi:10.1590/S0100-72032011000200003
23. Mourão S, Ferreira R, Drago S, Fonseca C, Nobre S. Women with Stress Urinary Incontinence: The Impact of a Rehabilitation Nursing Program on Quality of Life. International Workshop on Gerontechnology Springer, Cham. 2020:277-290. Doi:10.1007/978-3-030-72567-9_26
24. Ryhtä I, Axelin A, Hamari L. Effectiveness of Exercise Interventions on Pelvic Floor Muscle Function of Pregnant and Postpartum Women: A Systematic Review of Reviews.2021. Doi:10.21203/rs.3.rs-930063/v1
25. Boram J. Treatment of stress urinary incontinence in young adult females (Doctoral dissertation, Azusa Pacific University). Available at :https://www.proquest.com/openview/2dd02e65960dd39a930d711e8733b5b6/1?pq-origsite=gscholar&cbl=18750

Author's Contribution:

Sabiha Arshad: Conception and design, collection and assembly of data

Iqra Waseem: Analysis and interpretation of the data, drafting of the article.

Tahir Mahmood: Analysis and interpretation of the data and critical revision of the article for important intellectual content: Statistical expertise.

Farwah Batool: Literature search, assembly of data, drafting of the article:

Abdulsalam: Critical revision of the article for important intellectual content: Statistical expertise.

Submitted for publication: 25-10-2021
Accepted after revision: 18-05-2022