



INFLUENCING SYMPTOMS OF URINARY STRESS INCONTINENCE THROUGH PHYSIOTHERAPY

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ABSTRACT:

Purpose: Urinary incontinence leads to adverse life changes and psychological stress among patients. The purpose of this report is to follow the effect of implementing a specific exercise program in women with urinary stress incontinence.

Material: The study included 30 women who completed a specialized kinesitherapy program over 16 weeks. It included exercises to strengthen the back, abdominal and gluteal muscles, Kegel exercises and balance exercises.

Results: A one-hour Pad test was used to monitor the effect of applied kinesitherapy. Results are reported as means with standard deviations with 95% confidence intervals.

Conclusions: The obtained results show that specialized exercises have a beneficial effect on the tone of the pelvic floor muscles and reduce the symptoms of urinary stress incontinence.

Keywords: urinary stress- incontinence, Kegel exercises, Pad-test,

INTRODUCTION

Pelvic floor muscle dysfunctions (urinary incontinence, pelvic organ prolapse, sexual dysfunctions, chronic pain syndrome, and lower urinary tract problems) are common disorders in older women [1]. Urinary incontinence is a serious urogynaecology problem [2]. Barbosa, 2020 [3] in his study shows the significant burden of pelvic floor disorders, as well as their impact on women's quality of life and the associated personal and societal financial costs.

The purpose of this report is to follow the effect of implementing a specific exercise program in women with urinary stress incontinence.

The pelvic floor is formed by many muscles and fascia that make up the perineum. The pelvic floor muscles form a dome-shaped striated muscle sheet that surrounds the bladder, uterus, rectum, and anal sphincters. The main function of these muscles is to hold the pelvic organs, including the bladder, uterus and rectum. Their coordinated contraction and relaxation allow the bowels and bladder to function normally.

Various traumas and injuries, as well as complications after vaginal birth or after operations, can create conditions for loss of muscle control and, accordingly, disorders in the functions of the pelvic floor [4]).

According to the International Continence Society, urinary incontinence (UI) is any involuntary loss of urine. According to Whooley J et al., 2020 [5], about 33% of women suffer from urinary incontinence, and 50% of these women have urinary stress incontinence. Stress urinary incontinence occurs during physical activity (running, coughing, squatting, etc.) in which the bladder pressure exceeds the pressure at which the urethra remains closed [6]. It is the most common incontinence in women [7].

Khandelwal C, Kistler C., 2013 [8] divide urinary incontinence into:

- Stress- incontinence occurs during coughing, sneezing, laughing, lifting heavy objects or performing other movements that put pressure or stress on the bladder. This is a result of weakness of the pelvic muscula-

ture or fascia. Weight loss can be due to pregnancy, vaginal birth, weight gain, sports injuries, or due to lower levels of the hormone oestrogen during the menstrual cycle or after menopause. The most common mechanisms for stress urinary incontinence are: hypermobility of the urethra as a result of loss of support of the bladder neck and urethra (so they move during peaks of abdominal pressure) and weakness of the urinary sphincter itself.

- Urge incontinence (overactive bladder) is the involuntary release of urine accompanied or preceded by an irresistible urge to urinate due to detrusor overactivity. Contractions can be caused by bladder irritation or loss of neurological control. The main cause of this type of incontinence is recurrent lower urinary tract infections, bladder muscle or nerve damage, bladder tumours, bladder stones, etc. Sometimes, urge incontinence can also be caused by neurogenic bladder dysfunction.

- Overflow incontinence - due to disorders in the contractile ability of the detrusor or its obstruction. As a result, the bladder overflows. This leads to overdistension of the urine-filled bladder, eventually progressing to overflow incontinence.

- Functional urinary incontinence is the involuntary leakage of urine due to impossibility to reach the toilet in time due to physical disability, age and living environment. She has no excretory system pathology. In this case, conditions such as dementia, difficulty moving, impaired vision or severe forms of depression do not allow the patient to realize the urge and reach the toilet

- Mixed urinary incontinence occurs when there is a clinical picture of several of the mentioned types.

The treatment of urinary incontinence is conservative, pharmacological and surgical [9].

Conservative treatment includes: lifestyle changes (control of fluid intake, forced emptying of the bladder, treatment of constipation, etc.), electrical stimulation, mechanical devices (cones, pessaries, urethral plugs), pelvic floor muscle strengthening and weight reduction.

Physiotherapy is the mainstay of treatment for mild to moderate incontinence. The main advantages are the high degree of effectiveness, the low price and the absence of side effects. Along with the advantages, physiotherapy treatment has some disadvantages: it requires the active participation of the patient, duration of application of specialized exercises and limited effectiveness in more severe cases of urinary incontinence.

MATERIALS AND METHODS:

In connection with the implementation of the project "Creation of an action algorithm for prevention and functional recovery in women with stress urinary incontinence" of the "Angel Kanchev" University of Ruse, a specialized program of exercises was prepared and implemented in practice to influence the symptoms of urinary stress incontinence in women.

The study covers 30 women diagnosed with urinary stress incontinence from the city of Rouse and the region. Women who met the following criteria were included in the study:

Inclusion criteria: Be between the ages of 30 and 60; have urinary disturbances and have given birth no earlier than 6 months before the study (without complications).

Exclusion criteria: undergone abdominal surgery in the last 1 year; malignant disease; benign formations of the bladder; acute infectious process; aggravated cardiovascular diseases; pelvic organ prolapse and haemorrhoids.

The physiotherapy program included: general developing exercises; pelvic floor muscle exercises; exercises for abdominal, back and gluteal muscles, and exercises for balance and coordination.

The Incontinence Impact Questionnaire (IIQ-7) and Short Pad Test (SPT) were used at the beginning and end of the three-month period to assess the effect of the applied specialized kinesitherapy.

The IIQ-7 is a 7-item questionnaire that assesses the impact of urinary incontinence on physical activity, travel, social relationships, and emotional health. Each item is scored between 0 (activities not affected at all) to 3 (activities strongly affected). The average of all 7 items is multiplied by 33 1/3 for a total score of 100.

Short Pad Test - we applied a one-hour SPT according to a standardized protocol. The test begins by placing a pre-weighed pad without the patients urinating, then drinking 500 ml of fluid and resting within 15 minutes. This is followed by walking for 30 minutes, including going down and upstairs. They then perform the following physical activities: standing up from a sitting position (10 times), coughing vigorously (10 times), running in place for 1 minute, bending to pick up an object from the floor (5 times), and washing hands in running water for 1 minute. At the end of the study, the pad is measured again, and the amount of urine leaked is determined (10).

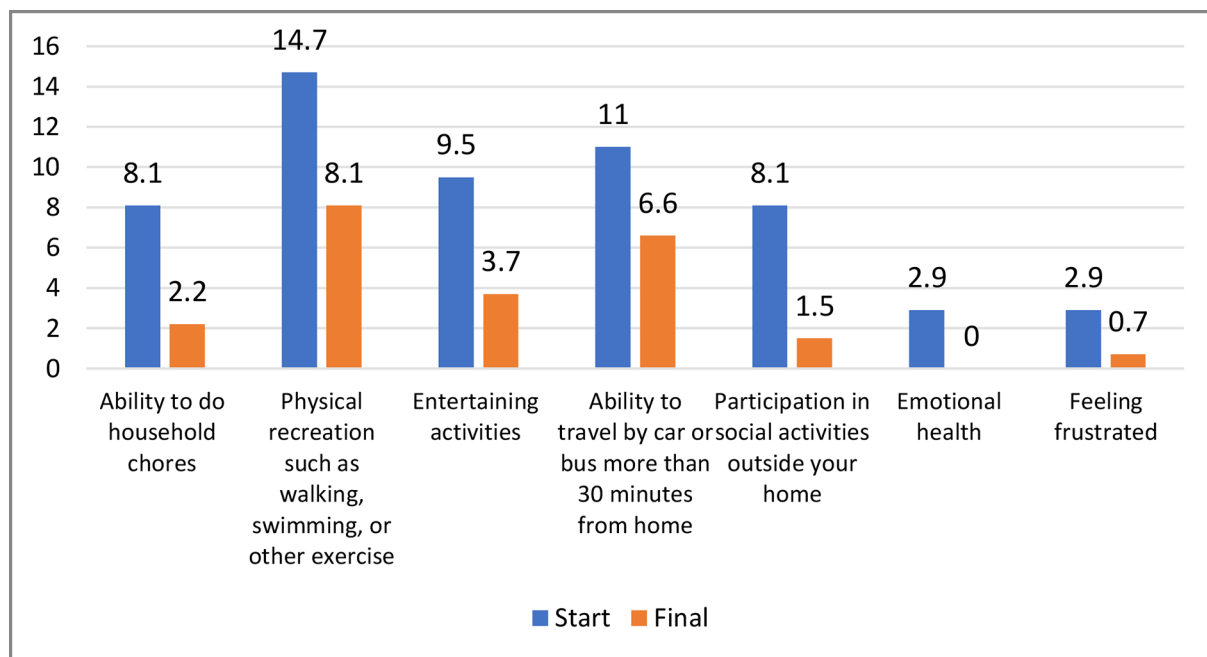
Results are reported as means with standard deviations with 95% confidence intervals.

RESULTS:

The research participants were divided into 2 working groups of 15 women each. The first group included women with an active lifestyle (exercising 2-3 times a week), and the second included women leading a sedentary lifestyle. Each group performed exercises under the supervision of a physical therapist for 3 months (12 weeks), twice a week. During the remaining days of the week, the exercises were performed independently by the women at home.

Figures 1, 2 and 3 show the results of the administered IIQ-7.

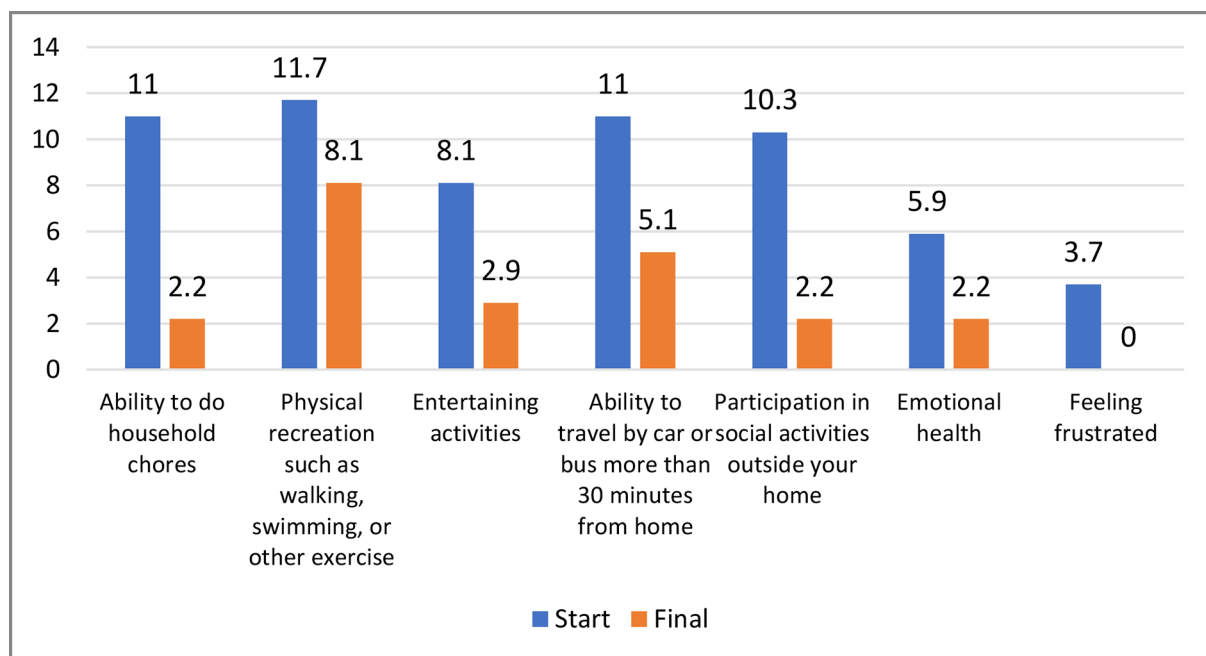
Fig. 1. IIQ-7 Individual Item Scores for Group 1



According to the surveyed contingent from the first group, urinary incontinence has the most negative impact on various types of sports - 14.7 points, followed by traveling by car at a distance of more than 30 minutes from home - 11 points. Less affected are the performance of household activities and social activities outside the home (8.1 items). The data show the weak-

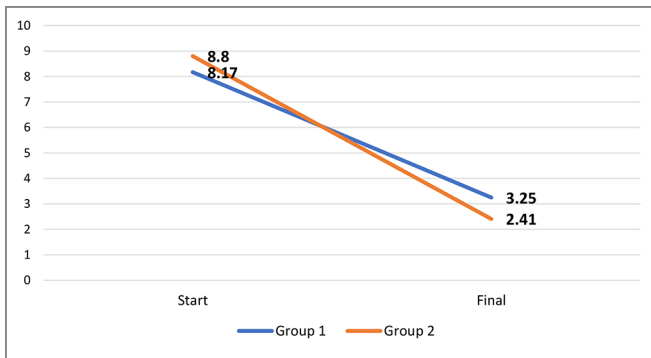
est adverse influence of urinary incontinence on emotional health (2.9 points). At the end of the observed period, the results showed a reduction in the negative impact of urinary incontinence symptoms (by an average of 4.9 points). Physical exercise had the most favorable effect on the possibility of sports and social activities outside the home.

Fig. 2. IIQ-7 Individual Item Scores for Group 2



Data from the questionnaire survey of the women included in the second group show similar results. The most affected are sports activities (11.7 points), performing household activities and traveling more than 30 minutes from home (11 points) and social activities outside the home (10.3 points). Participation in recreational activities is moderately affected (8.1 points). The data on the impact of urinary incontinence on emotional health show the lowest result. The final results reflect the positive impact on the symptoms of urinary incontinence and, from there, a reduction in the negative and impact on the women's daily domestic and social activities (5.6 points on average). The most positive change is in the performance of household activities (8.8 points) and social activities outside the home (8.1 points).

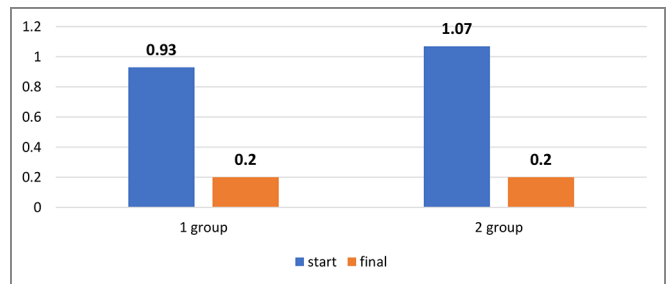
Fig. 3. Dynamics of IIQ-7 scores between the two groups



The curve of the dynamics of changes shows the same rate of decrease in both groups. The initial values of the IIQ-7 questionnaire were similar for both cohorts. The final data reflect a significant improvement in both surveyed contingents - 6.39 points for the second group and 5.45 points for the first. The better final results in the second group show that targeted physical exercises for the muscles of the pelvic floor have a more pronounced positive effect in women leading a sedentary lifestyle.

Initial data showed that all of the women in the study had a mild form of urinary stress incontinence. In the first studied group, the average arithmetic value of the excreted urine was 0.93 g, and in the second 1.07 g. At the end of the three-month period, the results were the same for both groups - 0.2 g. These results reflect the positive impact of the specialized exercises for the pelvic floor muscles. Involuntary leakage of urine has decreased significantly (fig.4).

Fig.4. Short Pad Test results



CONCLUSIONS:

Urinary stress incontinence is a pathological condition that reduces the quality of life and causes mental stress. This is a serious medico-social problem as it affects many women of active working age. Ignoring the problem and the "discomfort" that women feel in sharing further aggravates the condition.

Based on the results of the applied methodology, it can be said that the developed kinesitherapy program of special exercises has a beneficial effect on improving the tone of the pelvic floor muscles and reducing the symptoms of urinary stress incontinence. This helps to reduce stress and restore normal social and work contacts for women suffering from stress incontinence.

Timely detection of the problem and timely and effective treatment (including kinesitherapy) will lead to an improvement in the quality of life and a reduction in the negative consequences on the emotional state of the affected women.

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