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The Effect of Exercise Intervention on Improving Sexual Performance in Primiparous Women

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Abstract

Background: Sexual dysfunction and incontinence are of the most crucial health concerns in the postpartum period, especially in the case of normal childbirth. Exercise interventions can be effective to reduce the aforementioned disorders.

Aim: The present study was performed with aim to investigate the effect of exercise intervention on sexual performance in primiparous women.

Method: This prospective clinical trial study was performed on 176 women referred to Basra Children's Hospital in 2021. The subjects were randomly assigned to test and control groups. The control group received no intervention, while the test group received physical therapy and pelvic floor exercises for ten sessions. The intervention began in the tenth week after delivery. The pre-and post-test phases were evaluated 10 and 20 weeks after childbirth. The subjects were requested to complete the prolapse/urinary incontinence sexual questionnaire (PISQ-12and the pelvic floor distress inventory short form (PFDI-20).

Results: The pre-test and post-test levels of sexual performance in the test group were 33.47±3.62 and 37.16±3.93, respectively (p<0.001). In addition, the pre-test and post-test levels of pelvic floor irritation in the test group were 10.23±0.74 and 6.52±0.61, respectively (p<0.001); while, this difference was insignificant in the control group (p>0.05). Also, the sexual performance and pelvic floor irritation values in the post-test phase significantly differ between the two groups (p<0.001).

Implications for Practice: In terms of enhancing sexual performance and reducing pelvic floor irritation, the impact of pelvic floor exercise was superior to routine postpartum recommendations.

Keywords: Childbirth, Exercise, Physiotherapy, Sexual performance

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Introduction

Sexual dysfunction is characterized by a persistent or recurring decrease in sexual desire, sexual arousal, pain during intercourse, and difficulty or incapacity to achieve orgasm (1). Women's sexual disorders comprise a collection of sexual complaints and disorders affecting the women's performance at all ages (2). Women's sexual dysfunction refers to a disorder in their sexual interactions, orgasm, sexual satisfaction, and sexual enjoyment that greatly influences their sexual life and fertility (3-5). Many factors influence sexual performance, including biology, psychology, social and cultural norms, interpersonal communication, economics status, the external and internal reproductive systems, and hormones (6). Many hormonal, physiological, and psychological changes occur during the postpartum period, leading to sexual function disorders such as decreased sexual desire, decreased vaginal slipperiness, dyspareunia, and anorgasmia (7). According to the studies, sexual changes after childbirth include a decrease in the frequency of intercourse, a decrease in sexual desire, and sexual satisfaction, and inability to achieve orgasm (8,9). According to the researchers, 40% of women were dissatisfied with their sexual performance up to 3 months, 18% up to 6 months, and 8% up to one year after childbirth (10,11).

Urinary and fecal incontinence threaten an individual's life satisfaction. In most cases, the prevalence of stress urinary incontinence during gestation improves after delivery (12). In some cases, this issue persists for months after childbirth. Physiotherapy and pelvic floor exercises are more effective than other methods for treating mild to moderate stress incontinence and uncoordinated defecation disorder (13,14). Some other factors which influence women's sexual performance factors include pregnancy, type of delivery, menopause, mental health disorder, marriage age, exercise, intimate relationship with spouse, positive body image, and sexual education (15). Numerous researchers believe that the resistance and ability of the pelvic floor muscles is the most significant factor in enhancing sexual performance, controlling urine and feces, and minimizing pelvic floor irritations (16). Women's pelvic floor muscles are crucial in sexual stimulation and orgasm that is weakening during gestation and decreases blood circulation in the vaginal area and sensation in the vaginal and clitoral regions (17).

Several studies have been conducted to investigate the effect of biofeedback and pelvic floor exercises on primiparous women. Fine et al. (18) discovered that there is a great potential to improve the health of at risk pregnant women by training and performing pelvic floor muscle exercises during pregnancy and postpartum. El Nahas et al. (19) investigated the effect of aerobic and kegel exercises on postpartum rehabilitation of pelvic floor muscles in women and concluded that these methods can be very effective when combined with biofeedback. Wu and colleagues (20) investigated the effect of early postpartum biofeedback using pelvic floor muscle training in primiparous women with second-degree perineal tears. Their findings revealed that biofeedback improved sexual function and reduced urinary tract symptoms. Min et al. (21) studied the effect of intravaginal electrical stimulation combined with pelvic floor muscle exercises and biofeedback on symptomatic pelvic organ prolapse after childbirth. Their findings revealed that biofeedback is effective for improving the phasing of pelvic exercises and quality of life, and is also cost-effective.

Due to the importance of sexual performance in women's marital stability, the paucity of research in this area, and the contradictory factors influencing changes in sexual performance, particularly during postpartum in primiparous women, the present study was performed with aim to examine the impact of exercise intervention on sexual performance in primiparous women.

Methods

This prospective clinical trial study was conducted on primiparous women referred to Basra Children's Hospital in 2021. The statistical population included 508 women by using convenience sampling method. Then, considering to a 10% dropout rate, a 5% error rate and 80% test power, the sample size was calculated to be 88 people in each group, and a total of 176 subjects were examined. Figure 1 shows the Consort flow diagram of the study. Inclusion criteria were primiparous women with normal childbirth, age of <35 years, giving birth within recent ten weeks, full-term and healthy, no uterine prolapse or grade three cystocele or rectocele, and no use of forceps or vacuum devices during childbirth. Exclusion criteria were underlying diseases, mental illness in a couple, alcohol consumption, taking drugs affecting sexual performance, being an athlete, unwillingness to participate in the study, and incomplete completion of the questionnaire. Participants were assured that their identities would be kept private to comply with ethical considerations. In addition, participants were

free to leave the study at any time. Before beginning of the study, the objectives and general process of the research were explained to the participants.

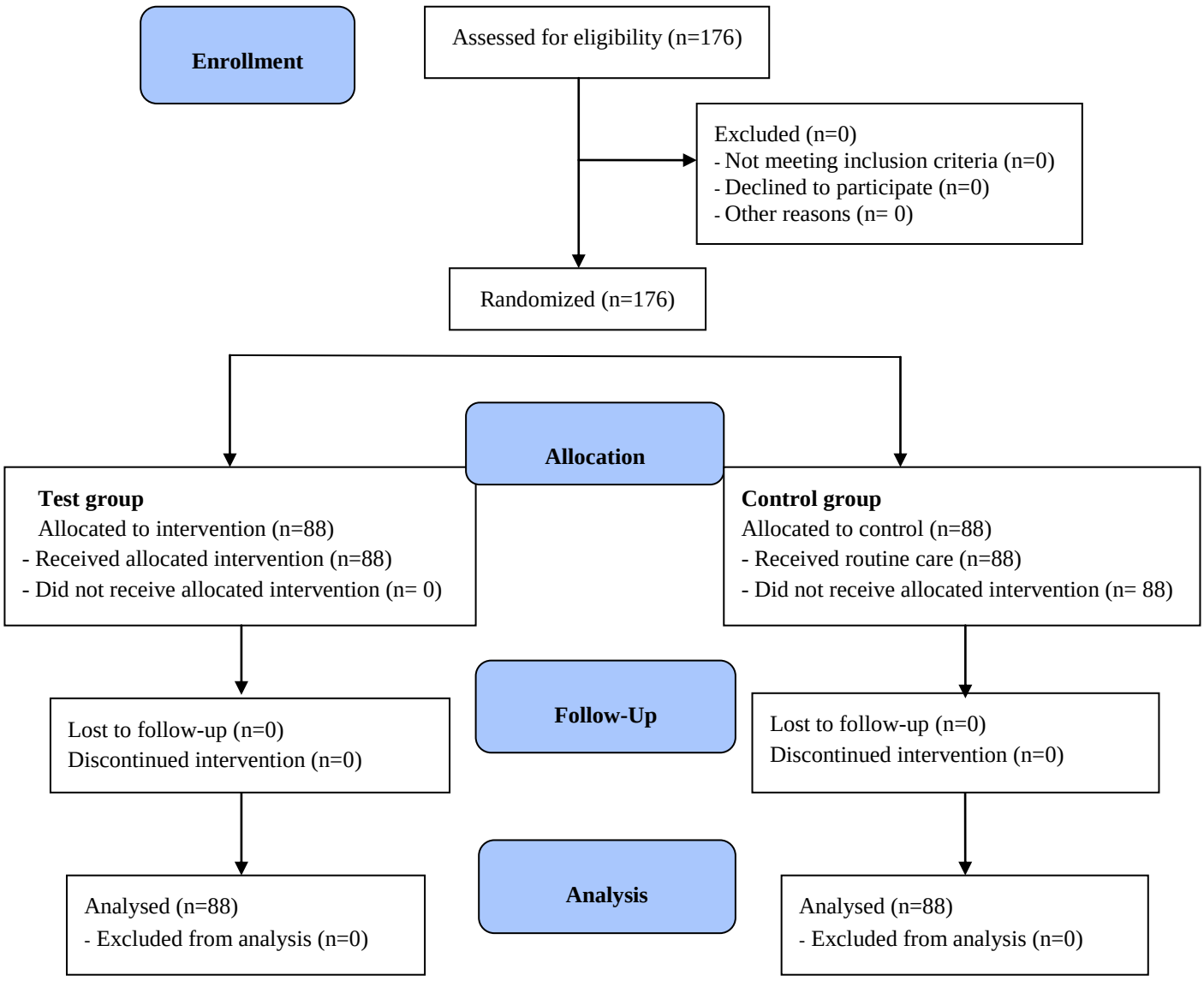

Figure 1. CONSORT flow diagram of the study

All the participants received postnatal care for ten weeks at Basra Children's Hospital before being divided into test and control groups. They were requested to complete two questionnaires, including the prolapse/urinary incontinence sexual questionnaire (PISQ-12; Rogers et al., 2003) and the pelvic floor distress inventory short form (PFDI-20; Barber et al., 2005). The PISQ-12 consists of 12 questions which assess various aspects of sexual performance and is scored on a 5-point Likert scale from 4 (always) to 0 (never). The maximum possible score of the questionnaire is 48, and higher scores indicate improved sexual performance (22). The PFDI-20 consists of three sections: the first consists of six questions for the discomfort caused by pelvic organ prolapse, the second consists of eight questions for the discomfort caused by stool problems, and the third consists of six questions regarding the irritation caused by urinary problems. Each question is answered with "yes" or "no," and if the response is "yes," the level of annoyance is scored on a 4-point Likert scale ranging from 4 (a lot) to 0 (not at all). A lower score indicates reduced symptoms (23).

There was no intervention in the control group, and only routine postpartum recommendations were administered. Notably, after the completion of the study, the intervention was also administered to the participants in the control group. The women in the test group participated in ten intervention sessions (one 30-minute session per week). The woman placed in a supine position and the vaginal probe was inserted into the vagina using vaginal gel. The woman was then instructed to contract her pelvic floor muscles without applying pressure to the surrounding muscles, press the probe, and after 10 seconds, relax without applying pressure. If the contraction around the probe is muscular enough, the device displays the contraction graph accurately and indicates that the contraction was performed correctly. Failure to register the contraction indicates that the pelvic floor exercise is not performed correctly; therefore, the patient is trained to correctly perform the exercise. The woman was then instructed to contract the pelvic floor muscles for three rounds at home (10 times each round and 10 seconds each time). After twenty weeks of childbirth, both test and control groups were evaluated by completing the questionnaires.

Biofeedback is a technique for controlling certain body functions like heart rate, breathing patterns, and muscle responses (24). Biofeedback assists to make subtle changes in the body, such as relaxing muscles, to relieve pain or tension. You may be able to reduce your heart rate and breathing rate, making you feel better. Biofeedback is used to control pelvic floor muscles in order to assist patients to strengthen or relax pelvic floor muscles in order to improve bowel or bladder function and reduce some types of pelvic floor pain. Biofeedback is a painless procedure in which special sensors display data about muscle activity. This information is used to increase sensitivity and control the function of the pelvic floor muscles through exercises. Continuous pelvic floor muscle training at home is an important part of pelvic floor biofeedback therapy. A person can learn to use the correct muscles with biofeedback. The exercises intended for at-home use are similar to those performed in the hospital without the use of physical therapy equipment.

The pre-test and post-test phases were conducted by completing the questionnaires 10 and 20 weeks after childbirth. After data collection, quantitative data were reported using the mean scores. To analyze the results based on the normality of the data distribution, the independent sample T-test was utilized to compare the two groups. The Paired T-test was utilized to compare the changes within each group. The data was analyzed using the statistical software SPSS (version 21). $P<0.05$ was considered statistically significant.

Results

The demographic variables of the research units including age, education, BMI, and neonate's birth weight were compared between the two groups (Table 1). There was no significant difference between the two groups regarding demographic variables ($p>0.05$). Table 1 indicated that 81 women (46%) are younger than 25 years old. The mean age of patients in the test group was 26.17±3.42 year compared to 27.34±3.86 year in the control group (p=052). Also, 100 women (56.8%) had secondary education. Eighty-two women (46.6%) had BMI 20-24 kg/m^2. The mean BMI of women in the test group was 25.31±3.24 kg/m^2, while it was 24.72±3.07 kg/m^2 in the control group (p=0.17). In addition, 87 women (49.4%) had babies weighing 2500-3000 gr at birth. The mean of neonate's birth weight in the test group was 3126.14±376.53 gr compared to 3137.29±438.06 gr in the control group (p=0.23).

According to Table 2, the mean values of sexual performance and pelvic floor irritation in the two study groups were obtained using the paired t-test in the pre-and post-test phases. The results revealed a significant difference between the pre-and post-test results in the test group ($p<0.001$). In the pre-test phase, the control group has a high sexual performance score than the test group (p=0.41). However, in the post-test phase, the test group had a high sexual performance score than the control group, the difference between the two groups was significant ($p<0.001$). Also, in the post-test phase, the mean score for pelvic floor irritation was significantly lower in the test group; there was a significant difference between the two groups in terms of pelvic floor irritation in the post-test phase ($p<0.001$).

Table 1. Demographic variables of participants in two groups

Variable	Number (percentage)		P-value
	Test group	Control group	
Age (yr)			
<25	42 (47.7%)	39 (44.3%)	0.52
25-30	37 (42.1%)	38 (43.2%)	
>30	9 (10.2%)	11 (12.5%)	
Education			
Illiterate	2 (2.3%)	3 (3.4%)	0.64
Secondary	48 (54.5%)	52 (59.1%)	
College	38 (43.2%)	33 (37.5%)	
BMI (kg/m^2)			
<20	23 (26.1%)	25 (28.4%)	0.17
20-24	39 (44.3%)	43 (48.9%)	
>24	26 (29.6%)	20 (22.7%)	
Baby's weight (g)			
<2500	16 (18.2%)	15 (17.1%)	0.23
2500-3000	45 (51.1%)	42 (47.7%)	
>3000	27 (30.7%)	31 (35.2%)	

Table 2. The mean scores of the investigated variables in the pre-test and post-test phases

Variable	Group	Mean±SD*		P-value
		Pre-test	Post-test	
Sexual performance	Test	33.47±3.62	37.16±3.93	<0.001
	Control	33.61±3.68	34.05±3.79	0.094
Pelvic floor irritation	Test	10.23±0.74	6.52±0.61	<0.001
	Control	10.48±0.83	10.17±0.76	0.312

*SD= Standard deviation

Discussion

The current research aimed to examine the effect of pelvic exercises on sexual performance and pelvic floor irritation in primiparous women. The results of the present study indicated that the exercise intervention improves sexual performance and pelvic floor irritation in the postpartum period and is more effective than routine postpartum recommendations. These findings were consistent with the results of many other researches in this field (12,25). Some studies also yielded inconsistent results (26), which may be attributable to differences in sample size, study type, follow-up period, questionnaires used, and pelvic floor muscle strength assessment method. The exercise intervention used in the current study was a painless, without side-effect that can be performed at any time of day. Ma and liu (27) investigated the effectiveness of electrical stimulation combined with pelvic floor muscle training on postpartum urinary incontinence and reported the positive effect of simultaneous electrical stimulation methods and pelvic floor exercises on improving stress incontinence in the postpartum period. The injuries caused by delivery, such as damage to peripheral nerves, muscle fibers, and excessive stretching of pelvic ligaments heal over time during the body's physiological process, which can explain the findings in the control group. The total score of sexual performance obtained in the control group did not increase significantly between weeks 10 and 20. As a result, it appears that improving sexual performance and pelvic floor irritation during the body's physiological process will take more time.

According to many studies conducted on women with vaginal delivery, pelvic floor exercises increase sexual performance in the postpartum. Regarding the impact of an exercise intervention on women's sexual performance during pregnancy and postpartum, Sobhgol et al. (28) reported a rise in sexual performance. Romeikiene and Bartkevičienė (1) reported the impact of pelvic floor exercise during the pre-and postpartum to prevent pelvic floor disorders, particularly incontinence symptoms, and suggested that formal studies with longer follow-ups be conducted. Woodley et al. (2) examined the impact of pelvic floor exercises on preventing urinary and fecal incontinence before and after

childbirth. Their results indicated that pelvic floor exercises performed at the start of pregnancy might prevent urinary incontinence at the end of pregnancy and after childbirth. Harvey et al. (29) in their research concluded that postpartum urinary incontinence is reduced by doing pelvic floor exercises during and after pregnancy.

The use of physiotherapy to treat pelvic floor disorders necessitates additional research in this field to determine the extent of its effect on sexual performance, incontinence, and pelvic floor irritation. One of the strengths of the current research is that it investigates the effect of pelvic muscle exercises, as recommended for postpartum routines. One of the limitations of the current study is that it only examined sexual performance of primiparous women during the postpartum period. Among the other limitations of the current research is that it was conducted solely for a treatment center and no follow-up was conducted. Therefore, it is advised to investigate other cities and races during the follow-up phase. It is suggested to determine the optimal time to begin physiotherapy after childbirth, the time interval between sessions, and the number of sessions required to achieve maximum benefits during the postpartum period. Future research shoul look into the methods of reducing urinary and fecal incontinence.

Implications for practice

As evidenced in the current study, pelvic floor exercises improves sexual performance and pelvic floor irritation in the postpartum period by strengthening the pelvic floor muscles. In addition to the standard methods of postpartum care, the method used in the current research can maximize the improvement of sexual performance.

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Conflicts of interest

The authors declared no conflict of interest.

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