

Effect of Pelvic Floor Muscles Exercises Program on Women's Sexual Self-Efficacy after Delivery

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Abstract: Background: Normal vaginal delivery affects women's body organs, especially the genital organs; such changes may cause problems in the sexual relationship. **Purpose:** This study was conducted with the purpose of identifying the effect of pelvic floor muscles exercises program on women's sexual self-efficacy after delivery. **Methods: Research Design:** A quasi experimental design was used in conducting this study. Participants were randomly assigned to either study or control group. The study group was asked to perform Kegel exercises for 8 weeks. Both groups were evaluated at 4 and 8 weeks. **Tools:** three tools were used during the course of this study: interviewing questionnaire, Brink scale for measuring pelvic floor muscles strength and Bales sexual self-efficacy questionnaire. **Main results:** there was a significant increase in pelvic floor muscle strength in the study group at 4 and 8 weeks after the start of the program without a difference in the control group. There was also a significant increase in sexual self-efficacy in the study group at 4 and 8 weeks after the start of the program. The comparison of the two groups showed a significant difference in sexual self-efficacy after implementing the program. **Conclusion:** all study hypotheses are accepted as: pelvic floor muscles exercises program increased the pelvic floor muscles strength among study group's participants as compared to the control group ones, the study group's participants experienced increased pelvic floor muscles strength at the end of as compared to before the program, pelvic floor muscles exercises program increased sexual self-efficacy among study group's participants as compared to the control group ones and the study group's participants experienced an increased sexual self-efficacy at the end of as compared to before the program. **Recommendations:** Encourage women to do pelvic floor muscles exercises during post partum period and enhance assessing sexual self-efficacy during postpartum visits.

Keywords: Pelvic Floor, Exercises Program and Sexual Self-Efficacy

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I. Introduction

1.1 Operational Definitions

Pelvic Floor Muscles: The pelvic floor muscles consist of three muscle layers: superficial perineal layer, deep urogenital diaphragm layer and the pelvic diaphragm [1].

Exercises Program: in this study; it involved asking the study group to perform certain types of Kegel exercises for 8 weeks. Participants were evaluated at 4 and 8 weeks later for the strength of pelvic floor muscles and sexual self efficacy.

Sexual Self-Efficacy: Sexual self efficacy is one of the aspects of self efficacy which refers to the individuals' beliefs in their abilities to perform sexual acts and sexual emotional reactions successfully [2].

The pelvic floor muscles (PFMs) compose the inferior portion of the abdomino-pelvic cavity [3] and its strength refers directly to the degree of maximum voluntary contraction, with the recruitment of the greatest possible number of fibers [4,5]. The pelvic floor is the only transverse muscle group of the body that supports load, and it is responsible for many functions such as: (a) supporting the abdominal and pelvic organs [6,7], (b) maintaining the urinary and fecal continence [5,8], (c) helping in increasing intra-abdominal pressure, in breathing and in stabilizing the body [9]. Such muscles also allow sexual intercourse and childbirth; as their involuntary contractions are the principal characteristics of orgasm [10] and, when these muscles are weak, they can directly cause anorgasmia and vaginal hypoesthesia⁷. Thus, PFMs can interfere negatively in female sexual function [11].

The sexual life of both male and female is changing over time due to different life events. For female; pregnancy, childbirth and the postpartum period are major events that affect the female sexual behaviors [12,13]. Delivery affects different body organs, especially the genital tract, and these changes may result in problems in

women's sexual relationship [14]. Postpartum period can also change the female sexual pattern in a way that sometimes these changes are followed by major problems in the sexual relationship [15].

According to the current available body of literature; around 90% of women begin their sexual activity after finishing their 6th postpartum week. About 83% of them experience sexual problems in the first 3 months and 64% in the first 6 months after delivery [16]. The same reference reported that a 91.3 percent of women experience at least one sexual problem in the postpartum period. [17] Reported also that 41.4% in their study had experienced some degree of sexual problems within the first year after delivery.

Several factors have been reported to affect the female sexual function after delivery; such factors may include new maternal duties, changes in mental imaging of the body, psychosocial changes, fatigue, improper sleep, and breastfeeding [14]. In addition; the reduced strength of pelvic floor muscle after delivery which is seen to be the main cause negatively affects women's sexual function [18]. As a result, sexual problems after delivery are mostly observed in women who have had vaginal delivery than cesarean section ones [14].

Reduced or even loss of pelvic muscle strength is one of the main physical changes in the postpartum period and can even persist for many years, leading to many complications like pelvic pain, rectocele, cystocele, urinary incontinence and lack of sexual satisfaction [19]. In the evaluation of sexual problems and determining their nature, sexual self-efficacy as an intervening variable has a chief role [20]. [12]'s study revealed that women's sexual self-efficacy is decreased after delivery. Low sexual self-efficacy and limited confidence in their sexual capabilities after delivery create problems in the sexual behaviors and function [12].

In Egypt; about 31.5% of women were having dyspareunia and decreased sexual self efficacy [21]. A study conducted at Mansoura city examined the effect of sexual counseling program on pain level and sexual function among women with dyspareunia revealed that about 27.3% of the studied sample complained of dyspareunia as a direct result of weak pelvic floor muscles after vaginal delivery [22].

Sexual self-efficacy is a critical invisible variable in individuals' sexual function [20]. In different studies, it is mentioned as an important factor for a satisfying sexual copulation in a way that high sexual self-efficacy result in more sexual compatibility and activity [23,24]. In [25] 's study it was mentioned that; increased sexual self-efficacy may be a successful strategy to prevent sexual problems in young female[25].

However social and psychological factors play an important role in female sexual problems, the role of physical factors such as neurological, vascular, and muscular factors is remarkable¹⁸. Pelvic floor muscles play an important role in female stimulation and orgasm [23]. Thus, weakness of these muscles is seen to be a direct cause of decreased blood flow, decreased vaginal sensation, dyspareunia, and even anorgasmia [26]. Pelvic floor muscle relaxation has been identified as a main affecting factor on sexual satisfaction. Half of the women with genital prolapse suffer from sexual dysfunctions such as; orgasmic disorder, decreased libido, difficult arousal, dyspareunia and sexual dissatisfaction [27,28].

On the other hand, available reports show that the rate of cesarean section delivery is highly increasing all over the world [29]. Nowadays, pregnant women prefer cesarean over vaginal delivery to prevent possible damage to the pelvic floor and thus the decrease in sexual function [30,31]. Several treatment modalities have been reported for pelvic floor muscle relaxation, but till now none of them is without hazards [32].

Pelvic floor exercises, also known as Kegel exercises were first described in 1948 by Arnold Kegel [33]. The exercises consist of repeatedly contracting and relaxing the pelvic muscles. Two techniques can be used simultaneously but only one is the most commonly used and known by women. Recent studies proved that Kegel exercises can be used for both male and female. The concept of Kegel exercises was linked to the treatment of urinary incontinence for decades however such exercises can be used for managing many female genital problems more than urinary incontinence as proved by lots of recent researches.

The Kegel exercises, as a treatment modality for pelvic floor muscle relaxation and in turn for increasing sexual self efficacy, are free, painless, and without side effects; moreover, can be done at any time and place [2]. Available data forms indicate that more than 200 million women around the world are not familiar with these exercises and are not aware of their effects and about 50% of women do not perform these exercises correctly [32]. [34]'s study and [35]'s study showed that there is a significant relationship between sexual self-efficacy and performing exercises in the postpartum period. [2] Reported that performing Kegel exercises can increase sexual satisfaction of women.

1.2 Significance of the Study:

As published by [36]; it is estimated that about 20% of women have low sexual self efficacy during their first three months of postpartum period in a way that the pain of dyspareunia persisted in one woman out of five until six months after delivery and one ninth could not ever resume sexual intercourse easily.

Postpartum female sexual dysfunction (PPFSD) is a common health problem with different incidence reported in the available literature around the world. Such problem varies in degree according to the cause. One of the main causes is weak and very weak pelvic floor muscles. [37] Reported 70.6% incidence of PPFSD in

the first three months after delivery decreased to 55.6% during the 4th to 6th months, and reduced to 34.2% at the 6th month, but not reaching pre-pregnancy levels after that.

Conservative treatments for pelvic floor muscles weakness may include non-surgical treatments like modifying the lifestyle, performing pelvic floor muscle exercises, biofeedback, and the electrical stimulation of pelvic muscles [38]. Kegel exercises are the most popular method used for increasing the strength of pelvic floor muscles and are noninvasive treatment as they do not involve the placement of any vaginal weights or cones. They are the most cost-effective treatment and differ from other therapies in that women can do them by themselves, at anytime, at anywhere, while doing any other work, and without regular physician visits. Women at their postpartum period simply need only to be trained to contract their pelvic floor muscles. Most studies show that Kegel exercises steadily reinforce the pelvic muscles [39].

After reviewing the available body of literature, it is clearly noticed that postpartum women suffer from lots of sexual problems which directly decrease sexual self efficacy. Thus the purpose of this piece of work was to improve sexual self efficacy of postpartum women through applying certain exercises program as a non-pharmacological intervention.

1.3 Purposes of the Study:

The current study was conducted with the purposes of identifying the effect of pelvic floor muscles exercises program on women's sexual self-efficacy after delivery.

1.4 Research Hypotheses:

Pelvic floor muscles exercises program will increase pelvic floor muscles strength among study group's participants as compared to the control group ones.

Pelvic floor muscles exercises program will increase the study group participants' pelvic floor muscles strength at the end of as compared to before the program.

Pelvic floor muscles exercises program will increase sexual self-efficacy among study group's participants as compared to the control group ones.

Pelvic floor muscles exercises program will increase the study group participants' sexual self-efficacy at the end of as compared to before the program.

II. METHODS:

2.1 Research design:

A quasi experimental design was used in conducting this study. Participants were randomly assigned to either study or control group

2.2 Setting:

The study was conducted through home visits to postpartum women who came for the maternal and child health center MCH at Shebin El Koom for receiving late postpartum care and family planning services. This center was purposively selected because it is known to present services to large sector of the governorate population thus having a high flow rate of post partum women.

2.3 Subjects:

The involved participants were assigned to two groups (study and control group). Each group comprised of 50 women. Participants were recruited according to the following inclusion criteria: Primipara, at least read and write, living with husband, beginning the sexual activity after delivery, having passed 6 weeks of delivery, having a healthy baby, no postpartum complications, lack of psychological disorder, no uterine prolapse or cystocele or rectocele grade 3 and 4, and not having undergone stressful events during a month ago. Exclusion criteria were: Unwillingness to continue participation in the study and not regularly performing Kegel exercises program based on the method proposed in the study.

The sample size was determined through the following procedure:

Based on post-intervention values of sexual self-efficacy reported in [40] for the Kegel exercises group, 5.56 ± 1.53 as an intervention group, 11.36 ± 2.11 as a control group; the sample size was calculated to be 100 postpartum women (50 for each group), considering CI=95% and power=90% (10% dropout).

2.4 Maneuver of Intervention

The filed work was conducted from March 2016 to August 2016.

The current study was carried out in four consecutive phases, namely preparatory, program development, program implementation and evaluation phases.

2.4.1 Preparatory Phase:

An extensive reviewing of electronic data related to anatomy of female pelvis soft tissues, human sexuality after delivery and sexual self efficacy and the different types of Kegel exercises was done. A review of literature to collect relevant knowledge pertinent to study was also used in developing data collection instruments.

2.4.2 Program Development Phase:

The pelvic exercises program aimed at improving sexual self-efficacy of women after delivery. It was designed by the researcher and validated by a jury. It covered two types of pelvic floor muscles exercises techniques.

A guiding booklet and a video CD about the techniques of the exercises were prepared by the researcher and evaluated by the same jury.

2.4.3 Program Implementation Phase:

Participants were selected according to the previously mentioned inclusion criteria and randomly assigned to the study groups (1: pelvic floor muscles exercises group/study group and 2: control group).

The study group received three sessions. The first session was devoted to explaining the purpose of the study, its method also obtaining an oral informed consent, sitting time for other sessions and identifying methods of contacting with the researcher, this session was done at the MCH center.

The second session was conducted at women homes and lasted for 30 minutes. It involved first a base line evaluation of (a) women main data listed in the interviewing questionnaire, (b) pelvic floor muscles strength using Brink scale and (c) sexual self-efficacy using Bailes questionnaire.

The third session was a training one which took about 60 minutes. It included an overview about anatomy and function of the pelvic floor muscles, how to do pelvic floor exercises and how to integrate the exercises into the daily living activities. The booklet and the video CD were presented to women at the end of this session. Women were asked to do such exercises for 8 weeks.

The intended learning outcomes of this session were:

Knowledge and understanding: List the importance of pelvic floor muscles exercises. Recall the steps of pelvic floor muscles exercises.

Intellectual skills: Summarize the role of pelvic floor muscles exercises in improving sexual self-efficacy.

General and transferable skills: Value the importance of pelvic floor muscles exercises in improving sexual self-efficacy.

Attitude: Communicate effectively with the researchers to correctly practice pelvic floor muscles exercises.

Session outline: 1. Overview about anatomy of the pelvic floor muscles. 2. Functions of pelvic floor muscles. 3. Sexual self-efficacy: concept of, and effect of pregnancy and delivery on. 4. Pelvic floor muscles exercises: purposes and benefits. 5. Techniques of pelvic floor muscles exercises

- **Kegel exercise: type A**

Tighten the pelvic floor muscles as tightly as possible to the count of five and then relax to the count of five. Repeat 30 times a day (3 sets of 10 or 2 sets of 15). As the pelvic floor strength improves, squeeze to the count of ten and then relax to the count of ten. Doing too many too soon may cause the muscles become fatigue and work less effectively.

- **Kegel exercise: type B**

Tighten the pelvic floor muscles as tightly as possible and relax in quick succession. Repeat 20-50 times a day (2 to 5 sets of 10).

Teaching Materials: PowerPoint presentation using lab top computer, images and videos

As for the **control group** participants; they were interviewed only to evaluate (a) main data listed in the interviewing questionnaire, (b) pelvic floor muscles strength using Brink scale and (c) sexual self-efficacy using Bailes questionnaire at the start of the study then after 4 weeks and finally after 8 weeks without giving any training sessions.

2.4.3 Program Evaluation Phase:

The researcher followed up the study group along the program duration by telephone every 2 weeks in order to find out if they were regularly performing the exercises and had any problem.

After four weeks from the start of performing the exercises, the researcher evaluated all participants of both groups for pelvic floor muscles strength using Brink scale and sexual self-efficacy using Bailes questionnaire. Another follow-up was done again after 8 weeks.

2.5 Data Collection Instruments

Three tools were used during the course of this study: interviewing questionnaire, Brink scale for measuring pelvic floor muscles strength and Bailes sexual self-efficacy questionnaire.

1- The interviewing questionnaire: was developed by the researcher and submitted to validity and reliability tests. It included: A- Basic data of studied women, age, duration of marriage, education, occupation, residence and income.....B- Menstrual/obstetric/and contraceptive history. C- Present & past reproductive history. D- Present history and characteristics of sexual self-efficacy.

Validity of the interviewing questionnaire was ascertained by a group of subject areas experts, medical and nursing staff who reviewed the tool for content validity. They were asked also to judge the items for completeness and clarity. Suggestions were incorporated into the tool.

Test-retest **reliability** was applied by the researcher for testing the internal consistency of the interviewing questionnaire. It is the administration of the same instrument to the same participant under similar conditions on two or more occasions. Scores from repeated testing were compared.

2- Brink scale: This scale was adopted from [41]. It is a four degree scale (1, 2, 3, and 4) which is measured based on three main criteria which are: pressure, moving the fingers in the horizontal plane, and finally time. The minimum possible score is 3 and the maximum one is 12. If after the intervention, the score was increased, this indicated an increase in pelvic floor muscle strength. To determine the strength of the pelvic floor muscles by this scale, the woman was asked to lie down in supine position with knees bent and completely relax the perineal area. Then the researcher's two fingers were put inside the vagina, and the woman was asked to contract her pelvic muscles just like holding the urine and she had to try to pull the researcher's two fingers upward and inward. The **validity and reliability** of Brink scale has been previously confirmed by [41].

3- Bailes sexual self-efficacy questionnaire (1989): This tool was adapted from [42]. It consists of 8 elements (desire, sensuality, arousal, orgasm, emotion, communication, body acceptance, and rejection). If the woman is able to do the activity, her confidence is determined to be in the range of 10 (very uncertain) to 100 (absolutely certain), and if she is not able to perform that, the column is left without answer and zero score is given. The total score of the questionnaire is obtained from the mean of all elements of sexual self-efficacy. Higher score means higher sexual self- efficacy. The **validity** of this tool was confirmed by [12] while its **reliability** was confirmed by [42].

2.6 Ethical Consideration:

Official steps were taken to obtain a permission to conduct the study, with explanation of the aim and the importance of the study to the family planning center authorities. An informed verbal consent was obtained from all women before participation in the study. Women were assure that their information were confidential and only used for study process.

2.7 Piloting the Instruments:

A Piloting was conducted on ten women to test the applicability of the tools and to estimate the time needed for data collection. On the basis of the piloting results the researcher determined the feasibility of data collection procedures, developed an interview schedule. The results of the piloting help in refining the interview questionnaire.

2.8 Statistical Data Analysis:

The current collected data were tabulated and then analyzed using statistical package for the social science (SPSS) software version 20 on IBM compatible computer. Quantitative data were expressed as mean & standard deviation ($X \pm SD$) and analyzed using student t test for the comparison of two groups of normally distributed variables and two groups of not normally distributed variables.

Qualitative data were expressed as number and percentage (No & %) and analyzed through: chi-square test, Pearson correlation, repeated measures test, Mann-Whitney test, independent t test, Friedman test. P-value at 0.05 was used to determine significance regarding: P-value > 0.05 to be statistically insignificant (NS), P-value \leq 0.05 to be statistically significant (S) and P-value \leq 0.001 to be high statistically significant (HS).

III. Results:

Table 1: Socio-demographic data of the studied sample

Variable	Group		P value
	Control (50)	Study (50)	
Woman's age (years) mean±SD	22.16 (3.70)	21.57 (3.92)	0.868*
Husband's age (years) mean±SD			
BMI (kg/m ²) mean±SD	31.28 (4.64)	30.38 (5.33)	0.862*
Duration of marriage mean±SD	20.17 (2.90)	21.64 (3.14)	0.431*
	1.34 (1.88)	1.31 (2.23)	0.125**

*Independent t test, **Mann-Whitney test

The sociodemographic data of study participants are represented in Table 1. The table shows no statistically significant difference between groups regarding any item. The studied women at both groups were at the age group of twenties. The husbands were at the start of their thirty decades of their life. Women were having normal BMI.

Table 2: Sexual activity of the studied sample

Variable	Group		P value
	Control (50)	Study (50)	
Onset of intercourse after delivery/ days mean±SD	45.21 (8.04)	43.19 (9.20)	0.655**
Frequency of sexual activity			
1-2/month			
1-2/week	24 48%	26 52%	0.213**
3-4/week	20 40%	21 42%	
4 > w	3 6%	1 2%	
	3 6%	2 4%	

**Mann-Whitney test

Sexual activity of the studied women is displayed in Table 2. The table shows that all women started their sexual activity with a mean of 45 days after delivery (for control group) and 43 days (for study group). The majority of participants at both groups were having sexual relation one to two times per month.

Table 3: Comparison of mean scores of the pelvic floor muscles strength before, 4 and 8 weeks after the start of the program among the study and control groups

Variable	Group		P value*
	Control (50)	Study (50)	
Before the study	6.84 (1.24)	6.87 (1.04)	0.246
4 weeks	7.00 (1.30)	7.14 (0.92)	0.793
8 weeks	7.06 (1.25)	10.15 (1.02)	
P value **	0.368	<0.0001	<0.0001

*Mann-Whitney test, **Friedman test.

Mean score of pelvic floor muscles strength is represented in table 3. The table shows that Mann-Whitney test results in the intervention and control group revealed a statistically significant difference between groups in terms of mean strength of pelvic floor muscle 8 weeks after the beginning of the study ($P < 0.0001$) thus the first study hypothesis is accepted. Friedman test results revealed an increase in the mean strength of pelvic floor muscle of study group at 8 weeks measurement as compared to before and 4 weeks ones thus the second study hypothesis is accepted.

Table 4: Comparison of mean score of all aspects of sexual self-efficacy before, 4 and 8 weeks after the start of the program among the study and control groups

Variable	Group		P value *
	Control (50)	Study (50)	
Before the study			
Desire	3.8±1.0	4.1±1.7	> 0.05
Sensuality	3.2±0.0	3.5±1.0	
Arousal	3.2±1.8	3.6±1.2	
Orgasm	3.9±1.0	4.2±1.4	
Emotion	4.5±1.2	4.6±1.2	<0.0001
Communication	3.8±1.7	4.2±1.3	
Body acceptance	3.2±1.9	3.6±1.1	
Rejection	3.3±1.4	3.4±1.8	
4 weeks			
Desire	3.9±1.2	5.2±1.5	<0.0001
Sensuality	3.2±1.0	4.8±1.1	
Arousal	3.3±1.9	5.9±1.3	
Orgasm	4.0±1.1	5.5±1.8	
Emotion	4.7±1.0	5.1±1.0	
Communication	3.8±1.9	4.9±1.2	
Body acceptance	3.5±0.0	4.5±1.1	
Rejection	3.5±1.1	4.8±1.5	
8 weeks			
Desire	3.9±1.6	5.5±1.0	
Sensuality	3.3±1.1	5.8±1.0	
Arousal	3.5±1.2	6.9±0.9	
Orgasm	4.5±1.8	6.5±1.6	
Emotion	4.2±1.7	6.1±1.3	
Communication	3.9±1.7	6.9±1.5	
Body acceptance	3.7±1.0	6.5±1.4	
Rejection	3.3±1.7	6.8±1.7	
P value **	0.649	<0.0001	

*Independent t test, ** repeated measures test

Table 4 displays the mean score of all items of sexual self-efficacy among the studied sample at the three measurement times. According to the results of the t-test, there was a statistically significant difference between groups at 4 and 8 weeks of the study in all components of sexual self-efficacy (p<0.0001). The repeated measures test indicated a significant difference between scores of the study group at 8 weeks measurement as compared to before and 4 weeks ones.

Table 5: Comparison of sexual self-efficacy scores before, 4 and 8 weeks after the start of the program among the study and control groups

Variable	Group		P value *
	Control (50)	Study (50)	
Before the study	50.62 (12.3)	49.08 (11.74)	0.291
4 weeks	50.82 (12.61)	53.68 (11.14)	0.804
8 weeks	52.28 (13.18)	62.78 (12.16)	0.001
P value **	0.001	<0.0001	

*Independent t test, ** repeated measures test

Comparison of mean sexual self-efficacy at the three measurements times is displayed in Table 4. The independent t test indicated that the mean score of sexual self-efficacy was statistically significantly increased in the study group as compared to the control group at 8 weeks after the beginning of the study thus the third study hypothesis is accepted. The table also shows an increase in the mean sexual self-efficacy scores of the study group at 8 weeks measurement as compared to before and 4 weeks ones thus the fourth study hypothesis is accepted.

Table 6: Correlation between type of delivery and pelvic floor muscles strength and sexual self-efficacy

Type of Delivery	Study Group (50)		r*
	Sexual self-efficacy scores	Pelvic floor muscles strength	
Normal vaginal	50.03 (10.24)	7.17 (1.24)	- 0.767
Normal vaginal + episiotomy	49.68 (11.39)	6.06 (0.40)	- 0.786
C.S.	61.58 (17.76)	9.28 (2.76)	- 0.793

* Pearson correlation

The correlation between delivery and pelvic floor muscles strength and sexual self-efficacy is represented in Table 5. The results showed that there was a negative correlation between type of delivery and the mean scores of pelvic floor muscles strength and sexual self-efficacy. In other words the more work load of pelvic floor muscles during delivery, the fewer score of pelvic floor muscles strength and sexual self-efficacy.

IV. Discussion

The current study findings revealed no statistically significant difference between groups regarding any item of sociodemographic data. The studied women at both groups were at the age group of twenties. The husbands were at the start of their third decade of their life. Women were having normal BMI (normal 18.5 to 25). Such findings are consistent with [43] who studied the effect of post-natal exercises to strengthen the pelvic floor muscles of Italian postpartum women and reported homogeneity of the studied groups. [44] Investigated the sexual satisfaction of French postmenopausal women; either enhanced by physical exercise and pelvic floor muscle training or not and reported similar findings. Homogeneity of groups allows the researcher to decrease bias and rationalize the resultant change by the intervention.

As for the sexual activity of the studied women, the findings revealed that women started their sexual activity with a mean of 45 days after delivery. Participants at both groups were having sexual relation one to two times per month. [45] Who studied teaching and practicing of pelvic floor muscle exercises in American primiparous women during pregnancy and postpartum period reported 42 days mean of resuming postpartum sexual relation among postpartum group of the study.

Regarding pelvic floor muscle strength and as a main study finding; the current study assured that the pelvic floor muscles exercises program increased the muscles strength among the study group compared to the control one. Moreover the study group experienced an increase in muscles strength after the program as compared to before. These findings are similar to that reported by [26] whose study aimed to evaluate the effect of pelvic floor muscle strengthening exercises after vaginal delivery on sexual function in gulf area women and reported that pelvic floor muscle strength in women was significantly increased in the intervention group. [43] Who studied the effect of post-natal exercises to strengthen the pelvic floor muscles of Italian postpartum women reported a contradicting result; which was an increase in pelvic floor muscle strength in the control group. This disagreement could be due to differences in evaluating the strength of pelvic floor muscles and the study participants (nulliparous and multiparous women, vaginal delivery and cesarean delivery). In [43]'s study, control group also received postpartum care instructions similar to the study group that included Kegel exercises technique in addition; half of this group reported that they performed such exercises once and even twice a week. So, this can rationalize the increase in pelvic floor muscle strength in the control group.

In relation to sexual self-efficacy, the current study revealed an increase in self-efficacy among the study group as compared to the control one and an increase in the study group at the end as compared to before the program. [2] Evaluated the effects of Kegel exercises on sexual satisfaction of 100 nulliparous Chinese women. The results showed that the score of sexual satisfaction in the studied Chinese women was increased after doing the exercises. [18] Studied postpartum sexual function of women and the effects of early postpartum pelvic floor muscle exercises and stated that although exercises have a positive effect on women's sexual function, they do not increase the rate of women's sexual self-efficacy. Probably the cause of difference with the present study is due to using only one Kegel exercise protocols.

Concerning the mode of delivery and pelvic floor muscles strength and sexual self-efficacy; the current study findings showed that the more work load of pelvic floor muscles during delivery, the fewer score of pelvic floor muscles strength and sexual self-efficacy. [46] Conducted a study named "sexual function of American females after childbirth" recently published similar findings regarding this point.

V. Conclusion

Based on the findings of the current study; it can be concluded that all study hypotheses were accepted as it was clearly noticed that: pelvic floor muscles exercises program increased the pelvic floor muscles strength among study group's participants as compared to the control group ones, the study group's participants experienced increased pelvic floor muscles strength at the end of as compared to before the program, pelvic floor muscles exercises program increased sexual self-efficacy among study group's participants as compared to the control group ones and the study group's participants experienced an increased sexual self-efficacy at the end of as compared to before the program.

VI. RECOMMENDATIONS:

Encourage women to do pelvic floor muscles exercises during post partum period Enhance assessing sexual self-efficacy during postpartum visits Communicate with maternal and child health center authority to give training sessions to teach women pelvic floor muscles exercises during postpartum visits.

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