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Effect of Kegel exercise on improving manifestations of uterine prolapse and its degree among pre-menopausal women

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Abstract

Background: Uterine prolapse is the main public health problem of reproductive age women in Egypt. Uterine prolapse (UP), which affects about 10% of women at reproductive age in developing countries, is the most frequently reported cause of poor health in women of reproductive age and premenopausal women (Silwal *et al*., 2016).

Aim of the study: To evaluate the effect of Kegel exercise on improving manifestations of uterine prolapse and its degree among pre-menopausal women.

Research design: Quasi-experimental research design was used.

Setting: The study was conducted at gynecological outpatient clinics at Minia University Hospital for Obstetric & Pediatric and El - Minia General Hospital.

Subjects: A Purposive sample composed of 102 pre-menopausal women was recruited for the current study and divided equally by using simple random sample.

Tools of data collection: Five tools were used as following: 1- A structured interviewing questionnaire, 2- Pelvic organ prolapse – quantification (POPQ) system, 3- Pelvic Organ Prolapse – symptoms score (POP-ss), 4- Modified Oxford Grading System, 5- Follow up evaluation sheet (dairy record).

Results: The current study reveals; that there were statistical significant relation between women compliance of Kegel exercise and uterine prolapse degrees at (P value ≤ 0.029). In addition, there was high statistical significant relation between women compliance of Kegel exercise, uterine prolapse symptoms and muscle strength at (P value ≤ 0.000 and ≤ 0.007).

Conclusion & Recommendations: The findings showed that 3months pelvic muscle exercises improve the manifestations of uterine prolapse and its degree among pre-menopausal women. Applying an educational program about performance of Kegel exercises was recommended.

Keywords: Degree of uterine prolapse, Kegel exercises, manifestations of prolapse, uterine prolapse

1. Introduction

Uterine prolapse (UP) is defined as the descent of uterus and vaginal walls through vaginal canal. Uterus, move downwards due to anatomical or functional deformities of the tissues and ligaments that support the uterus (Memon & Handa, 2012) [26]. As a component of pelvic floor dysfunction, UP which is a common health problem affecting about 30% of the women between 20-59 years of age and more than half of the women over 50 years of age (Chow & Rodríguez, 2013) [8].

There are three degrees of utero-vaginal prolapse. In first-degree prolapse, the cervix appears at the vaginal appearing only when the woman is asked to bear down. In second-degree prolapse, the cervix descends to the level of the vulva, and in third degree prolapse, the cervix protrudes outside the vulva. The condition where the entire uterus may protrude outside the vulva, bringing with it both the vaginal walls is called procidentia (Kumari *et al*., 2017) [21]. Pre-menopause is an even a greater risk factor for uterine prolapse. Birth weights, mode of delivery and length of the second stage of labor have been shown to be additional risk factors (Walker& Gunasekera, 2011) [35].

During the transition phase to menopause, the pelvic floor and its associated supports become weakened and atrophic without estrogen and therefore they are significant factors in development of uterine prolapse (Vorvick, 2011) [35]. The treatment options for uterine prolapse includes both surgical and non-surgical intervention depend on how far the condition has been progressed (Buckler, 2017) [7].

However, measures used for reducing the effects of uterine prolapse includes; training of Kegel exercises and life style changes. These exercises strengthens levator ani muscle through muscular hypertrophy, improves uterine support and reduces the burden imposed on the ligament.

Performing these exercises leads to revascularization of damaged cells and tissues (Berzuk & Shay, 2015) [4].

2. Significance of the study

Uterine prolapse (UP) is considered to be a major cause of morbidity among women in both high-income and low-income countries (Megabiaw *et al*., 2013) **[24]**. The worldwide prevalence of UP has recently been reported to be around 9%. Most recent study revealing that, prevalence rate of symptomatic UP was 1% in women of reproductive age in Egypt (Ballard *et al*., 2016) **[2]**.

In low-income settings like Egypt, Ethiopia, Gambia and Ghana women who are affected by UP are suffered from a protruding mass in the vagina and report difficulty in sitting, walking, and lifting was 89% ; this may affect the women's acceptance as full family and community members (Harmanli, 2014) **[15]**.

The development of uterine prolapse is an indication for major surgery among 20% of all women. Nevertheless, recurrence of uterine prolapse is detected among 58% of patient after surgery (Binjwala, *et al*., 2015 & Priyanka, *et al*., 2015) [5, 28].

According to evidence the early degree of uterine prolapse can be reversed and corrected by pelvic floor exercises (Kegel exercises) and other life style modifications, if routinely done by the pre-menopausal women, it helps to maintain their pelvic floor muscle strength (Glazener *et al*., 2013) [13]. In addition, clear evidence of the Kegel exercise in the management of uterine prolapse among pre-menopause is lacking. Hence, the present study will be conducted with an objective to evaluate the effectiveness of Kegel exercise on improving manifestations of uterine prolapse and its degree among pre- menopausal women.

3. Aim of the study

The present study was conducted to; evaluate the effect of Kegel exercise on improving manifestations of uterine prolapse and its degree among pre-menopausal women.

4. Research hypothesis

H1. Women who follow Kegel exercise training will have improvement in manifestations of uterine prolapse than those who do not follow

H2. Women who follow Kegel exercise training will not change progress in uterine prolapse.

5. Subjects and Methods

Research design: Quasi-experimental research design (time series design) was utilized for the purpose of the current study.

Research Setting: The study was conducted at gynecological outpatient clinics at Minia University Hospital for Obstetrics & Pediatric and El - Minia General Hospital.

Subjects

Sample type: Purposive sample composed of 102 pre-menopausal women with 1st, 2nd degree uterine prolapse was recruited for the current study and divided equally by using simple random sample into study group (n=51cases) & control group (n=51cases) according to the following inclusion and exclusion criteria:

Inclusion Criteria

- Age group ranged from 40-50 years.
- Educated women.
- Women who clinically diagnosed as uterine prolapse (1st and 2nd degree).
- Multipara women.

Exclusion criteria

- Women with reproductive tract infection & urinary tract infection or any other gynecological complications.
- Women with 3rd & 4th degree uterine prolapse.

Sample Size: The determination of the sample size was based upon the flow rate 340 pre-menopausal women (The attendants' rate of pre-menopausal women -in each clinic for both hospitals was estimated during 2017 before starting the study). Sample size was 102 & it was calculated by using the Isaac, S. & Michael, W.B. (2000) [18] formula which is computed as (N = P x 30 / 100)

Description

N = Sample size

P = Uterine prolapse prevalence in target population N = 340 x 30/ 100 = 102 patients.

Tools of Data Collection

Five tools for data collection were used in the present study

i. Tool I (pre-intervention)

Structured interviewing questionnaire was developed by the investigator to collect data and divided in to three parts

- **Part (1):** Personal data of women such as; (Age, marital status, residence, level of education …, etc.).
- **Part (2):** Obstetrics & gynecological history of women such as; (Gravidity, parity… etc.).
- **Part (3):** Medical data such as; (Medical complaints, problems resulting in increasing pressure in abdomen……, etc.).

ii. Tool II (pre/ post intervention)

Pelvic organ prolapse – quantification (POPQ) system, by International Continence Society (Persu *et al*., 2011) **[27]**. This tool was used & modified by the investigator to determine the clinical staging 1st & 2nd degree uterine prolapse through Pelvic Vaginal Examination before & after intervention. The investigator used this tool three times through the current study, the first one before intervention, the second one after 6 weeks from the intervention and the third one after 3months from the intervention to compare the baseline degree before intervention with progress degree or stability of degree after intervention.

iii. Tool III (pre/post intervention)

Pelvic Organ Prolapse – symptoms score (POP-ss), adopted from (Hagen, *et al*., 2011) **[25]**: This tool used & modified by the investigator to score the symptoms of uterine prolapse, it was a structured questionnaire included 7questions and modified into 10 questions after reviewing by 5 experts of professor of nursing staff. The total up the scores for Q 1 – Q 10 range 0-40 was calculated by summing the ten

individual symptom responses. The best possible score would be 0 - meaning haven't been complaint of these symptoms at all, the moderate score would be 10- < 40 meaning that some of these symptoms bother woman all of the time, and the worst or severe would be 40- meaning that all of these symptoms bother woman all of the time.

Tool V (pre/ post)
Modified Oxford Grading System adopted from (Ferreira *et al*., 2011): This tool is a measurement scale used and modified by the investigator to evaluate the strength of the pelvic floor muscles by using vaginal palpation. Firstly, the investigator classified the contraction in a qualitative way as no contraction, correct contraction, and contraction only with help from the other muscles and uncertain or staining. Secondly, the contraction was graded according to the modified oxford grading system ; it was given score 0- meaning there was no contraction present after vaginal palpation and no squeezing on the investigator fingers (no pelvic strength), score 1- meaning poor contraction related to poor squeezing on the investigator fingers, score 2 - meaning weak contraction with weak squeezing on the investigator fingers, score 3- meaning moderate contraction present after vaginal palpation with moderate squeezing on the investigator fingers, score 4- meaning good contraction as the pelvic muscle can contract with good squeezing on the investigator fingers and score 5 – meaning strong contraction with strong squeezing on the investigator fingers.

Tool IV (pre/ post)
Follow up evaluation sheet (dairy record) adopted from (Priyanka *et al*., 2011 & Egyptian Journal of Hospital Medicine, 2017) [28, 33]: This tool was modified by the investigator in the form of dairy record to assess the frequency & duration of performance of Kegel exercise (compliance of women).

Supportive material
It was designed by the investigator in form of handout (booklet) after revising extensive relevant literature review. It was written in a simple Arabic language & it was developed and supported with photos and illustrations to help the woman understanding the content of the booklet. This handout consisted of description about anatomy of female reproductive system, complete description about uterine prolapse, and complete description of Kegel exercises.

Validity & Reliability: The questionnaire was piloted on panel of 5 experts of Obstetrics and gynecological staff, and nursing professors who reviewed the instruments for clarity, relevance, comprehensiveness, understanding, applicability and easiness. Alpha Cronbach's test was used to check the stability of the internal consistency of instrument.

Pilot study
It was carried out on 10% of the total study sample (10 pre-menopausal women). It was conducted to evaluate the applicability and clarity of the tools, assessment of feasibility of fieldwork and to detect any possible obstacles that might face the investigator and interfere with data collection. Necessary modifications were done based on contents for more simplicity and clarity. The subjects were not included to the actual sample.

Fieldwork
After the conduction of the pilot study as well as the actual study, an official permission and consent was obtained from the dean of the Faculty of Nursing, as well as the Director of Minia University Hospital for Obstetric and Pediatric & El-Minia General Hospital & the head of internal medicine department at both hospitals. All women aged between 40-50 yrs who clinically diagnosed as uterine prolapse (1st and 2nd degree) by the gynecologist was included in this study. Then the investigator was started to collect data through four phases included: 1) Interviewing; 2) Implementation; 3) Follow up and 4) Evaluation phases.

(Interviewing phase)
At the beginning of this phase, the investigator visited data collection site from 9:00 Am to 1:00 Pm, for 2 days per week (Sunday and Tuesday). This phase was applied to control and study groups of pre- menopausal women.
The investigator held the first interview with each woman in the out-patient gynecological clinics during examination by the doctor or after examination before leaving the clinics introduced her-self, Oral consent for participation was obtained from selected pre-menopausal women, explained the objective of the research & scheduled times and frequency of sessions and follow up, save mobile phone numbers to all selected women from both groups to assure adherence to the interventions. Then the investigator collected data using the first, second, third and fourth tools from both groups.

(Implementation phase)
The investigator conducted the educational sessions about Kegel exercise for pre- menopausal women in the study group. The total number of Kegel exercise training sessions was 1 - 2 sessions (2 days/week) through 4 weeks varied according to understanding of each participant. Duration for each session was ranged from 20 to 35 minutes & it was conducted after organization with gynecologist in the outpatient clinics before the women left the clinic.
The first session took about 20 minutes; the investigator gave the pre-menopausal women an educational booklet about Kegel exercises and then illustrated the content of the booklet; through gave the women simple information about anatomy of the female reproductive system, anatomy of the female pelvis, and anatomy of pelvic floor muscles.
The second session (practical session) took about 25 minutes; the investigator gave the women a detailed explanation about Kegel exercise and helps the women to identify the correct muscle for Kegel training individualized by asked them to lie down on the bed in supine position with knees bent and focus on the perineal area and completely relax the perineal area. Then two fingers were put inside the vagina, and the woman was asked to contract her pelvic floor muscles just like when she holds the urine and she had to try to pull the investigator's finger upward and inward. After identifying these muscles, the pre-menopausal women in the study group were asked to contract the pelvic floor muscles during examination of the

vagina, and then after ensuring proper contraction of the muscle, they were asked to do these exercises twice daily, each time 15–20 times depending on their ability to contract their pelvic floor muscles for 5–10 s and relax for 5–10 s and repeating this exercise for 20 times (for 5 min). After 2 min of rest, they again had to perform this exercise for 3 times of 5 min. so that a total of 20 minutes of exercise is performed at each time.

Then; Dairy record was given to women in the study group to record their compliance of Kegel exercises at their homes. The investigator instructed them to document their compliance by put a circle for documenting frequencies of performing Kegel exercises through a day, time of relaxation / contraction and number of relaxation / contraction. It was taken from them at the end every 4 weeks to ensure women's compliance of Kegel exercise. However, control group of pre-menopausal women received routinely care from the hospital at out- patient gynecological clinics.

(Follow up phase)

The investigator used her telephone number for calling with women in the study group every 2 weeks to find out if they were regularly performing the exercises and have any other problems facing them to determine degree of her compliance with pelvic floor muscle exercises at home and checked women progress. However, the investigator calling women in the control group to ensure scheduler follow up time.

(Evaluation phase)

Evaluation phase was done at pre-intervention as a base data and after 6 weeks & 3 months at the outpatient gynecological clinic. The investigator re-interviewed pre-menopausal women in both groups to assess the progress of uterine prolapse degrees by using Pelvic organ prolapse – quantification (POPQ) system, assess the progress of symptoms by using Pelvic organ prolapse – symptoms score (POP-ss) and Modified Oxford Grading System for assessing pelvic floor muscle strength.

Administrative Design

Before the conduction of the pilot study as well as the actual study an official letter was sent to the director of the university hospital for obstetrics and pediatrics and the director of Minia General hospital of explaining the title, aim & setting of the study and seeking them permission for data collection. Also an official permission and consent were obtained from the dean of the faculty of nursing & Scientific Research Ethical Committee to collect data and conduct the study.

Ethical considerations

- Research proposal was approved from Research ethical committee in Faculty of Nursing.
- Do not contradict with the cultural, traditional and religious issues

6. Results

Table 1: Distribution of pre-menopausal women regarding to their socio-demographic characteristics (n=102)

	Study (n=51)		Control (n=51)			
Items	**No.**	**%**	**No.**	**%**	**Sig. test**	**P-value**
Age / Years						
40->45	28	54.9	24	47.1	t = 0.760	0.449
45-50	23	45.1	27	52.9		NS
Mean ± SD	44.8 ± 3.39		45.3 ±3.38			
Marital Status						
Married	74	80.4	38	74.5		
Divorced	4	7.8	3	5.9	2 = 1.25	0.533 NS
Widow	6	11.8	10	19.6		
Residence						
Rural	37	72.5	36	70.6	2 = 0.048	0.826
Urban	14	27.5	15	29.4		NS
Level of Education						
Read & write	20	39.2	21	41.2	0.670	
Basic education	18	35.3	20	39.2		
Secondary	8	15.7	4	7.8	2 = 1.55	NS
University	5	9.8	6	11.8		
Occupation						
House wife	39	76.5	35	68.5	2 = 0.788	0.375 NS
Work	12	23.5	16	31.4		

Table (1): It reveals that the mean age among both groups was (44.8 ± 3.39 and 45.3 ±3.38), (80.4%) of them among study group were married and (72.5% and 70.6%) between both groups were rural respectively. In relation to education levels, it was found that (39.2%, 41.2%) between both groups were read and write. However, (9.8%, 11.8%) among them had Bachelor degree respectively. Concerning occupation, the finding represented that the highest percentage among both groups were housewives (76.5% and 68.5%) respectively. There was no statistical significance difference between the two groups regarding to sociodemographics characteristics.

Table 2: Distribution of pre-menopausal women regarding to their uterine prolapse degrees pre and post intervention (n=102)

Uterine Prolapse degrees	Pre Intervention Study Control				Stud Post 6 weeks y Control				Post 3 months Study Control			
	(n=51)		(n=51)		(n=51)		(n=51)		(n=51)		(n=51)	
	No.	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**
Degre e (1)	29	56. 6	31	60. 8	29	56. 6	31	60. 8	36	70. 6	25	70. 6
Degre e (2)	22	43. 1	20	39. 2	22	43. 1	20	39. 2	15	29.4	26	29. 4
Fisher's exact (P – value)		0.162 (0.841)				0.162 (0.841)				4.98 (0.043*)		

Table 2: Displays that, there were statistical significant differences between both groups regarding to improvement of prolapse degrees post intervention after 3 months at (P value ≤ 0.043).

Table 3: Distribution of pre-menopausal women regarding to their degree of uterine prolapse symptoms (n=102)

Degree of uterine prolapse symptoms	Pre Intervention				Post 6 weeks				*Post 3 months*			
	Study (n=51)		Control (n=51)		Study (n=51)		Control (n=51)		Study (n=51)		Control (n=51)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Mild	10	19.6	12	23.5	18	35.3	12	23.5	38	74.5	12	23.5
Moderate	21	41.2	20	39.2	30	58.8	20	39.2	12	23.5	15	29.4
Severe	20	39.2	19	37.5	3	5.9	19	37.3	1	2	24	47.1
Fisher's exact (P – value)	0.397 (0.096)				15.4 (0.002**)				34.5 (0.000**)			

Table (3): It reveals that there was a highly statistical significant difference between both groups regarding to degree of uterine prolapse symptoms post- intervention at (P value ≤ 0.002) after 6 weeks and at (P value ≤ 0.000) after 3 months compared with no statistical significance difference at (P value = 0.096) pre- intervention.

Table 4: Distribution of pre-menopausal women regarding to their strength of the pelvic floor muscles pre and post intervention (n=102)

Strength of	Pre Intervention				Post 6 weeks				*Post 3 months*			
	Study (n=51)		Control (n=51)		Study (n=51)		Control (n=51)		Study (n=51)		Control (n=51)	
pelvic floor muscle	No.	%	No.	%	No.	%	No.	%	No.	%	No	.%
No contraction	8	15.7	3	5.9	2	3.9	3	5.9	0	0	3	5.9
Flicker	21	41.2	16	31.4	30	58.3	16	31.4	32	62.7	9	17.6
Week squeeze, no lift	11	21.6	15	29.4	9	17.6	15	29.4	9	17.6	22	43.1
Moderate	11	21.6	17	33.3	10	19.6	17	33.3	10	19.6	17	33.3
Fisher's exact (P – value)	4.7 (0.198)				7.7 (0.044*)				23.1 (0.000**)			

Table (4): It illustrates distribution of pre-menopausal women regarding to their pelvic floor muscle strength. It was, noticed that there was a significant improvement in pelvic muscle strength among both groups after 6 weeks at (P value ≤ 0.044) and a highly significant after 3 months at (P value ≤ 0.000) compared to not significant pre-intervention among both (P value = 0.198).

Table 5: Relation between socio-demographic characteristics with uterine prolapse degree of symptoms and uterine prolapse degrees among pre- menopausal women

Socio demographic characteristics	Symptoms					Degrees					
	Mild				Moderate	Severe			Degree (1)		Degree (2)
	Study		Control	Study	Control	Study	Control	Study	Control	Study	Control
	No.		No.	No.	No.	No.	No.	No.	No.	No.	No.
Age											
40-> 45	10	9	10	11		8	10	17	12	11	12
45-50	0	3	12	8		11	1	12	19	11	8
			17.93 (0.000**)						17.28 (0.044*)		
Educational status											
Read & write	2	4		4	8	14	9	8	10	12	11
Basic education	3	7		10	3	5	10	10	11	8	9
Secondary	3	1		5	3	0	0	7	4	1	0
University	2	0		3	5	0	1	4	6	1	0
			19.25 (0.004**)						13.9 (0.003**)		
Occupation											
House wife	4		11	16	8	17	16	21	18	18	17
Work	6	1		6	11	2	4	8	13	4	3
7.14 (0.028*)						4.17 (0.46*)					

Table (5): It was noticed that there was a highly statistically significant relation between the pre-menopausal women's uterine prolapse degrees of symptoms and uterine prolapse degrees with their age and educational status at (P value ≤ 0.000, P value ≤ 0.044, P value ≤0.004 and P value ≤0.003). In addition, there was statistically significant with their occupation at (P value ≤ 0.028 and P value ≤ 0.46).

Table 6: Relation between uterine prolapse degrees and degree of symptoms with gravidity and parity among pre-menopausal women

Uterine Prolapse degrees					Uterine Prolapse Degree of Symptoms					
Degree (1)			Degree (2)		Mild		Moderate		Severe	
Study		Control	Study	Control	Study	Control	Study	Control	Study	Control
No.		No.	No.	No.	No.	No.	No.	No.	No.	No.
Gravidity										
1-3	20	18	12	7	10	9	10	6	12	10
4-5	4	6	7	8	0	3	7	10	4	1
More than 5	5	7	3	5	0	0	5	3	3	9

12.8 (0.046*)			10.10 (0.018*)				20.5 (0.001**)			
Parity										
None	0	3	2	0	0	0	1	3	1	0
1-3	02	15	10	7	10	9	9	3	13	10
4-5	2	6	7	8	0	3	7	10	2	1
More than 5	5	7	3	5	0	0	5	3	3	9
6.93 (0.043*)			4.72 (0.033*)			30.6 (0.001**)				

Table (6): This table shows the relation between uterine prolapse degrees and degree of symptoms with gravidity and parity. It was, observed that there was a highly statistical significant relation between uterine prolapse degree of symptoms with gravidity and parity at (P value ≤ 0.001). However, it was noticed that there was a statistical significant relation between uterine prolapse degrees (1) and (2) with gravidity and parity at (P value ≤ 0.046, P value ≤ 0.043, P value ≤ 0.018 and P value ≤ 0.033).

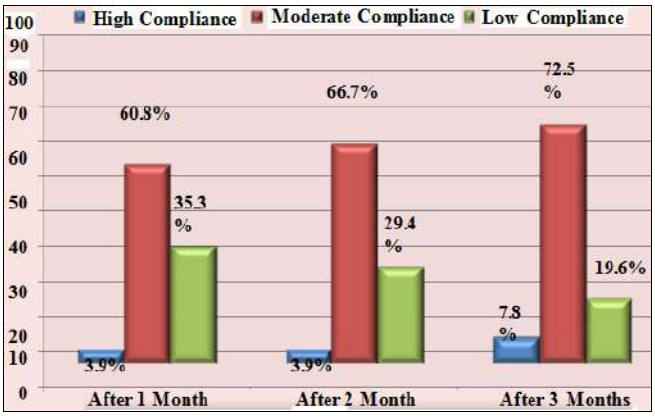

Fig 1: Distribution of pre-menopausal women regarding to their degree of compliance to performance of Kegel exercise through 3 months (n=51)

This figure illustrates tha; there is an improvement in women's moderate degree of compliance to performance of Kegel exercise from 60.8% after 1 month post intervention to 72.5% after 3 months. In addition; there is an improvement in women's high degree of compliance to performance of Kegel exercise from 3.9% after 1 month post intervention to 7.8% after 3 months.

7. Discussion

The aim of this study was to assess the effect of Kegel's exercises on Improving Manifestations of Uterine Prolapse and its degrees among Pre- menopausal Women. Findings of this study discussed to accept the research hypotheses; H1: Women who follow Kegel exercise training will have improvement in manifestations of uterine prolapse than those who do not follow and H2: Women who follow Kegel exercise training will not change progress in uterine prolapse.

Regarding demographic characteristics of pre-menopausal women, the current study findings reveals that the mean age among study and control groups was more than forty, majority of them among study group were married and nearly three-quarters between both groups were rural respectively.

This finding agreed with those of Bruno *et al*., (2012) [6] who studied randomized controlled trial on Efficacy of pelvic floor muscle training for treating pelvic organ prolapse in women, the rural and married women who had POP their age was more than 40 years. Also, Jokhio *et al*. (2013) [20] who studied population based study on prevalence of pelvic organ prolapse in women, associated factors and impact on quality of life in rural Pakistan added that the incidence of prolapse affected by age was 25% of cases with age 36-40 years but the most common age was 40-60 years old 60%. In relation to education levels in the present study, it was found that the largest percentages of study and control groups respectively were read and write. However, the lowest percentage of study and control groups respectively had Bachelor degree. Concerning occupation, the finding represented that the highest percentage among study and control groups were housewife. These findings disagreed with Hassan, Osman and Fayez (2015) [17] who studied prevalence, risk factors and severity of symptoms of pelvic organ prolapse among Emirati women and approved that 98% of women in their study were educated and workable.

Furthermore, as regards to uterine Prolapse degrees & uterine prolapse degrees of symptoms, the current study findings displayed that, there were statistical significant differences between both groups regarding to improvement of uterine prolapse degrees post intervention after 3 months respectively and highly statistical significant differences between both groups regarding to improvement of uterine prolapse degrees of symptoms post intervention after 3 months, which accepted the first research hypothesis which is women who follow Kegel's exercises will show less signs and symptoms than before.

In accordance with this finding Priyanka K *et al*., (2015) [28], who Applied a pre- experimental study to assess the effectiveness of nursing intervention package on management of pelvic organ prolapse; reported that, the intensity of symptoms reduced to 1.3 to 0.7 after 4 months of intervention, also the total mean score decreased to 19.70 to 11.2 at 6 week and 6.22 at 4 months to show the effectiveness of Kegel's exercise on managing POP.

The findings of this research agreed with study done by Subhagan (2010) [31], who applied educational program for 3 months about POP for women and proved that; women's knowledge, symptoms, and quality-of- life significantly improved in 3 months. While these findings disagreed with study done by Stüpp *et al*., (2011) [30] published randomized controlled trial who studied the Kegel's exercises on POP. Results showed that, there was no difference between the training group and control group regarding to treatment of pelvic organ prolapse.

As regard to, Strength of the Pelvic Floor Muscles, the current study findings illustrated distribution of pre-menopausal women regarding to their pelvic floor muscle strength. It was, noticed that there was a significant improvement in pelvic muscle strength among both groups after 6 weeks and a highly significant after 3 months at

compared to not significant pre-intervention. This result may be due to the Kegel's exercise helpful to increase strength of PFM that lead to decrease signs and symptoms of uterine prolapse and this feedback is very helpful to women that help to know the correct muscles and encourage the women to be better.

Findings of this study agreed with Clinical research published in the British Medical Journal by Kudish, et.al (2013) [22] compared pelvic floor exercises, vaginal weights and electro-stimulation in a randomized control trial. This research recommended that, pelvic floor exercise should be the first choice of treatment for genuine stress incontinence and prolapse, because it was simple exercises proved to be far more effective than electro-stimulation or vaginal cones

Moreover, McClurg *et al*., (2014) [25] who applied a Randomized feasibility study about pelvic floor muscle training as an adjunct to prolapse surgery, suggested that, pelvic floor exercises help to improve a mild prolapse and related symptoms. Pelvic floor muscle training resulted in significant anatomic improvement of anterior and posterior vaginal wall prolapse and better muscle strength.

Regarding levels of compliance to Performance of Kegel Exercises, the current study results displayed that there is an improvement in women's moderate degree of compliance to performance of Kegel exercise from nearly two thirds after 1 month post intervention to nearly three-quarters after 3 months. In addition; there is an improvement in women's high degree of compliance to performance of Kegel exercise from 3.9% after 1 month post intervention to 7.8% after 3 months.

These findings reflected that the adherence to performing exercises daily help increase its effect and may make it on time is usual and increase women self- efficacy to perform which increase PFM strength.

This study findings was in the same line with a recent randomized controlled trial by Felicissimo, (2010) [11] found that commitment to PFMT was as effective for women with POP and increases their compliance and exercise adherence, which lead to successful effect. Also, several studies by John & Sons (2011) [5] and Maher, *et al*. (2013) [3] have demonstrated that PFMT could increase PFM strength; it also demonstrated the positive correlation between increased strength and compliance to exercise with proper adherence to exercise performance.

Moreover, the current study findings revealed there was a relationship between socio-demographic characteristics with uterine prolapse degrees of symptoms and uterine prolapse degrees. It was noticed that there was a highly statistically significant relation between the pre-menopausal women's uterine prolapse symptoms with their age and educational status and statistically significant with their occupation at (P value≤ 0.028).

These findings reflected that the pre-menopausal, educated and workable women may had source of information about risk factors for uterine prolapse including vaginal childbirth, advancing age, more births and they tried to avoid these factors In relation to this result, several epidemiological studies as Dumoulin, Hay-Smith (2010) [10] have the similar finding when examined the association between uterine prolapse symptoms and degrees and participant characteristics such as age, education, and parity.

These factors were theoretically hypothesized as significant confounders of POP this comparable between younger and older participant educated, non- educated.

Moreover, it was, observed that there was a highly statistical significant relation between uterine prolapse degree of symptoms with gravidity and parity at (P value ≤ 0.001). As over the last few years, there has been increasing interest in the role of levator ani-muscle injuries in the development of uterine prolapse; there was relation between levator ani defects and uterine prolapse; women with levator ani defects are at least twice as likely to show clinically significant uterine prolapse. In addition; the strength of pelvic floor muscle and ani muscle affected by women gravidity and parity. This result supported by Acharya, (2016) [1] and Divya *et al*. (2015) [9] who reported that uterine prolapse strongly affected by mode of delivery and parity with statistical significance differences.

8. Conclusion & Recommendations

The current study findings concluded that Kegel exercise had been demonstrated to be effective in inducing significant improvement in manifestations of uterine prolapse and its degree among pre-menopausal women.

In the light of the findings of the present study, the following recommendations are suggested by the investigator

- Providing standardized plan of care based on Kegel exercises training for treatment of uterine prolapse that may have positive impact on women future health and their QOL**.**
- Applying an educational program about performance of Kegel exercise for women after labor (postpartum) to avoid complications such as uterine prolapse.
- Further researches are needed in a larger probability sample in different geographical areas in Egypt, especially rural areas to figure out the main aspects of these problems & to implement PFMT (Kegel exercise) for women with uterine prolapse undergoing treatment.

9. References

1. Acharya S. Contributing Factors of Utero-vaginal Prolapse among Nepali Parous Women. International Journal of Nursing Research and Practice 2016, 3(2).
2. Ballard K, Ayenachew F, Wright J, Atnafu H: Prevalence of obstetric fistula and symptomatic pelvic organ prolapse in rural Ethiopia. Int Urogynecol J 2016;27(7):1063–7.
3. Barber MD, Maher C. Epidemiology and outcome assessment of pelvic organ prolapse. Int Urogynecol J 2013;24:1783–1790. https://doi.org/10.1007/s00192-013-2169-9.
4. Berzuk K, Shay B. Effect of increasing awareness of pelvic floor muscle function on pelvic floor dysfunction: a randomized controlled trial. Int Urogynecology J 2015;26(6):837–844.
5. Binjwala S, Sharad O, Bishnu C, Rajan P, Max P, Alexandra K: Uterine prolapse and its impact on quality of life in the Jhaukhel- Duwakot Health Demographic Surveillance Site, Bhaktapur, Nepal. Glob Health Action 2015;8:28771.
6. Bruno T, Bernardes A. Paula M, Liliana S, Emerson O,

Rodrigo. Efficacy of pelvic floor muscle exercises for treating organ prolapse in women, Department of Gynecology, Universidad Federal, Pubmed) 2012.
7. Buckler H. The menopause transition endocrine changes and clinical symptoms. JBMS 2017;11(2):61-5.
8. Chow D, Rodríguez LV. Epidemiology and prevalence of pelvic organ prolapse. Curr Opin Urol 2013;23:293-8.
9. Divya Hemavathy, Sathiyalatha S. Knowledge Regarding Utero - vaginal Prolapse among Women in Sree Balaji Medical College and Hospital, Chennai. Journal of Nursing and Health Science 2015, 4(1).
10. Dumoulin C, Hay-Smith J. Pelvic floor muscle training versus no treatment, or inactive control treatments, for urinary incontinence in women. Cochrane Database Syst Rev Jan 2010;20(1):CD005654.
11. Felicissimo MF, Carneiro MM, Saleme CS, Pinto RZ, da Fonseca AM, da Silva- Filho AL. Intensive supervised versus unsupervised pelvic floor muscle training for the treatment of stress urinary incontinence: a randomized comparative trial. Int Urogynecol J Pelvic Floor Dysfunct 2010;21:835-40.
12. Ferreira C, Barbosa P, Oliveira S, Antônio F, Franco M Bø K. Inter- rater reliability study of the modified Oxford grading scale and the Peritron manometer. Physiotherapy 2011;97(2):132–138.
13. Glazener C, Elders A, MacArthur C, Lancashire R, Herbison R; Childbirth and prolapse: long-term associations with the symptoms and objective measurement of pelvic organ prolapse, BJOG: An International Journal of Obstetrics & Gynaecology 2013;120(2):161.
14. Hagen S, Stark D, Maher C, Adams E. Conservative management of pelvic organ prolapses in women. Cochrane Database Syst Rev 2011,2:CD003882. http://www.ncbi.nlm.nih.gov/pubmed/22161382.
15. Harmanli O. POP-Q 2.0: its time has come! Int Urogynecol J 2014;25(4):447–9. doi: 10.1007/s00192-013-2252-2 [PubMed] [Google Scholar].
16. Hassan M, Osman N, Fayez T. Prevalence, risk factors and severity of Symptoms of pelvic organ prolapse among Emirati women, BMC Urology 2015;15:66.
17. Issacs, Michael WB,: Hand book in research and evaluation, San Diego 2000,225.
18. John W, Sons L. Conservative prevention and management of pelvic organ prolapse in women (Review) The Cochrane Collaboration 2011.
19. Jokhio A, Rizvi R, Rizvi J, MacArthur C, Urinary Incontinence in Women in rural Pakistan, Prevalence, Severity, Associated factors and Impact on life. BJOG 2013;120:180-6.
20. Kumari S, Walia I, Singh A. Self-reported uterine prolapse in a resettlement colony of North India. J Midwifery Women's Health 2017;45:343-50.
21. Kudish B, Iglesia C, Sokol R, Cochrane B, Richter H, Larson J. effect of Weight change on natural history of pelvic organ prolapse, obstetrics and Gynecology 2013,81-88. available at http//www.ncb.nlm.nih.gov/pmc/articles.
22. Maher C, Baessler K, Barber M, Cheon C, Deitz V, DeTayrac R. Surgical management of pelvic organ Prolapse, In Abrams, Cardozo, Khoury, Wein (eds), 5th International Consultation on Incontinence. Health Publication Ltd, Paris, Chapter 15 and Modified for publication in International, Urogynaecology Journal 2013.
23. Megabiaw B *et al*., Pelvic floor disorders among women in Dabat district, northwest Ethiopia: a pilot study. Int Urogynecol J 2013;24(7):1135-43. doi: 10.1007/s00192-012-1981-y [PubMed] [Google Scholar].
24. McClurg D, Hilton P, Dolan L, Monga A, Hagen S, Frawley H. Pelvic floor muscle training as an adjunct to prolapse surgery, a Randomized feasibility study, Int Urogynecol J 2014;25:883-91.
25. Memon H, Handa VL. Pelvic floor disorders following vaginal or cesarean delivery. Curr Opin Obstet Gynecol 2012;24:349-54.
26. Persu C, Chapple C, Cauni V *et al*. Pelvic Organ Prolapse Quantification System (POP-Q)- a new era in pelvic prolapse staging. J Med Life 2011;4(1):75-81.
27. Priyanka K, Sukhjit K, Amarjeets S, Neelam A, Kaur S, Singh A. A pre-experimental study to assess the effectiveness of nursing intervention package on management of pelvic organ prolapse. Nursing and Midwifery Research Journal 2015;11(3):131-143.
28. Shrestha B, Choulagai B, Onta S, Shrestha KB, Petzold M, Krettek A. Knowledge, prevalence and treatment practices of uterine prolapse among women of reproductive age in the Jhaukhel- Duwakot Health Demographic Surveillance Site, Bhaktapur,Nepal. Journal of Kathmandu medical college 2014;3(4):136-43.
29. Stüpp L, Resende A, Oliveira E, Castro R, Girão M, Sartori G. Pelvic Floor muscle training for treatment of pelvic organ prolapse, an assessor- blinded Randomized controlled trial, Int Urogynecol J 2011;11-22(10):1233-9.
30. Subhagan R. Assess Knowledge regarding Prevention of Uterine Prolapse among Postnatal Mothers. MSc thesis, College of nursing, Bengauru 2010.
31. Silwal M, Gurung R, Shrestha N, Gurung A, Ojha S. Prevalence and Factors Affecting Women with Uterine Prolapse in Lekhnath, Kaski, Nepal, Journal of Gandaki Medical College-Nepal 2016;9(2):54-57.
32. The Egyptian Journal of Hospital Medicine 2017;68(2):1252-1256.
33. Vorvick L, Storck S, Zieve D. Uterine prolapse, Journal of Nursing and Health Science 2011, 5(2).
34. Walker GJA, Gunasekera P. Pelvic organ prolapse and incontinence in developing countries: review of prevalence and risk factors. Int Urogynecol J 2011;22:127–35.