

Empowerment of Self-Care Management Among Women Using Vaginal Pessaries on Vaginal Symptoms and Quality of Life

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Abstract

Background: A vaginal pessary is one type of nonsurgical treatment for pelvic organ prolapse, which preferred by a wide of women with pelvic organ prolapse. **The aim** of the current study was to evaluate the effect of empowering self-management among women using vaginal pessaries on vaginal symptoms and quality of life. A Quasi-experimental design was utilized in the current study. **Setting:** The study was conducted in outpatient clinic affiliated at Obstetrics & Gynecological Department at Banha University Hospital during the period from January 2017 and completed at the end of December 2017. **Subjects:** A purposive sample of total 80 women using vaginal support pessaries. **Tools:** Three tools were used for data collection, general characteristic interviewing questionnaire, pessaries related knowledge and reported self -care practice assessment tool, The International Consultation on Incontinence Modular Questionnaire & the prolapse quality of life tool. **Results** of the study showed a highly statistically significant differences regarding knowledge and self-care practice vaginal support pessaries and quality of life at different times of assessment ($p<0.000$). **Conclusion:** empowerment of self-management among women using vaginal pessaries was highly effective on reducing severity of vaginal symptoms and improving quality of life. **Recommendation:** Based on the findings of this study the following should be recommended: The nurses should be familiar with self-care measures for vaginal pessaries in addition to more researches should be conducted considering the demographic and obstetric factors that have a crucial role in precipitating self-management for vaginal pessary.

Keywords: Empowerment- self management, quality of life, vaginal pessary, vaginal symptoms.

Introduction:

Pelvic organs prolapse (POP) is a common condition among adult women. The prevalence of symptomatic POP in the general population is 11.4% (4–12.2%). There are two other management options for POP, the use of a vaginal pessary and pelvic reconstructive surgery. As a non-surgical treatment option, vaginal pessaries are often used as first-line

treatment in women who do not prefer surgery, women who are at a higher risk of surgical complications or in women with recurrent POP (*Abdo Z, Thakar & Sultan, 2011*). Compared with surgery, advantages of pessary use are the low rate of complications and the immediate effectiveness. In addition, pessaries have the advantage of being minimally invasive, and provide immediate relief of POP symptoms. However, disadvantages

also exist. The most frequently described pessaries side effects are vaginal symptoms that including vaginal discharge (25–33%), vaginal irritation/pain (2–33%) and vaginal blood loss (6–46%). Rarely, cases of more serious adverse events of pessary use are described, such as fistula, hydronephrosis, urosepsis, incarceration and carcinoma. However, it must be noted that these serious adverse events are often due to longstanding neglect of pessaries (*Thys et al., 2020*).

The World Health Organization defines quality of life (QoL) as “individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns (*Polinder et al., 2015*).” Quality of life is a wide-ranging phenomenon that is affected in a complex way by woman’s physical health, psychological state, and level of independence, social relationships, and woman beliefs, along with their relationship to the salient features of their environment. QoL is also an aspect of health that plays a significant role in providing and evaluation of health interventions (*Gobbiens & Remmen ,2019*). Pelvic organ prolapse affects women daily lives, such as decrease women’s confidence, limits their activities because of urinary symptoms, and affects their sexual activities (*Anantawat et al.,2016*).

Vaginal pessary is directly affected POP women quality of life (*Coelho etal., 2018*). Demonstrating self-managing of vaginal pessaries is

acceptable to most women and represents highly improvement in experience in managing their prolapse symptoms compared with doctor management. In addition, self-management is cost effective both for the hospital trust delivering the service and the commissioners (*Kearney & Brown, 2014*).

Nurse has a vital role in management of Pessaries care as reported by several reports (*Hanson et al., 2006; Kuhn 2009; Richardson & Hagen 2009; Nguyen et al., 2005*) .Nurse should educate women using pessaries regarding self-care related measures including how to insert , clean and remove pessaries, in addition to note improvement in symptoms and report new complication, such as pain or discomfort, genital bleeding, abnormal vaginal discharge, sexual problems, and problems with elimination of urine or stool (*Atnip, 2009*).

Pessary self-care consists of periodic removal, cleaning, and replacement. Regarding times of periodical removal, there is no research to support an optimum routine, so self-care should be individualized (*Atnip, 2009*). Self-care is widely advocated to reduce the possibility of complications as the pessary can be cleaned and left out overnight or for longer intervals before re-insertion (*Kuhn et al., 2009*). Pessary users can be taught self-care satisfactorily. Patients may be more ready to perform self-care when they realize that they do not need to attend for more frequent office visits (*Atnip ,2009*).

Moreover, self-care also includes maintain proper lifestyle intervention that aimed to reduce the effect of raised intra-abdominal pressure which exacerbate prolapse symptoms. Such measures include weight loss, avoidance of heavy lifting and straining at stool caused by constipation and the management of chronic coughing. However, at this stage, there is no evidence from intervention studies on the effect of lifestyle management for either the prevention or management of women with pelvic organ prolapse (*Hay-Smith et al., 2009*).

Significance of the study:

Pelvic organs prolapse (POP) influences the women's quality of life due to its associated symptoms and recurrent surgical interventions among adult women. The mean prevalence of POP in low and middle-income countries is 19.7% and range from 3.4%–56.4% (*Ghetti, 2015*). However, prolapse is not considered a life-threatening disorder, it affects women physically, psychologically, and sexually which lead to social limitations. Even through treatment of POP with pessary is commonly preferred by women, it also increases the risks of reproductive and urinary tract infection that subsequently affect vaginal health, sexual health, and quality of life (*Elsayed et al., 2016*). Lack of women's knowledge and practice toward self-care management while using vaginal pessaries may lead to many undesired consequences on the women's health. Empowering self-care management for women using vaginal pessaries may help to reduce these risks (*Horst et al., 2017*). In addition, self-

care management will increase women responsibilities toward her care and reduce cost of frequent medical examination. so the aim of the current study was to empower self-care management in order to improve their vaginal symptoms and quality of life.

Aim of study:

The current work aimed to:

Evaluate the effect of empowerment of self-care management among women using vaginal pessaries on vaginal symptoms and quality of life. This aim was achieved through:

1. Assessed vaginal symptoms and quality of life among women using vaginal pessary before implementation of educational intervention.
2. Implemented educational intervention guideline for women regarding self-care for vaginal pessary.
3. Evaluated effect of educational intervention guideline on empowering self-care management of vaginal pessary and evaluate vaginal symptoms and quality of life.

Research Hypothesis:

Empowering self-management among women using vaginal pessaries will reduce severity of vaginal symptoms and improve quality of life.

Subjects and Methods

Research design

A quantitative quasi -experimental nonequivalent groups design was utilized in the current study for empowering self-management among women using vaginal pessaries to reduce severity of vaginal symptoms and improve quality of life.

Setting

Study was conducted in Obstetrics and Gynecological outpatient clinics at Banha University Hospital for a period of 12 months. This clinic provide care for women with different gynecological disorders. This clinic consists of 2 separated rooms: one for meeting women for history taking and vital signs. while in the second room for vaginal examination and evaluating tests of pessary fits by the physician.

Subjects

Type: a purposive sample.

Size: a total 80 women using vaginal support pessaries.

Criteria: Inclusion criteria: women with pelvic organ prolapse and using vaginal pessary

Exclusion criteria: women with diabetes and women with pelvic inflammatory diseases.

Recruitment strategy: women using vaginal pessaries and met the previous inclusion criteria were directly asked to participate in the study after explaining the purpose of the study.

Tools of data collection: three tools have been utilized for collecting data as the next:

Tool I:

An interviewing questionnaire was developed following review of different literatures concerning self-care guideline of vaginal pessary (**Kearny & Brown, 2015**), (**Thys et al., 2020**), (**Hagen et al. 2020**). It was divided into three parts: part 1) personal data, obstetrical history, and POP history. Part 2) This questionnaire was designed to evaluate knowledge of the studied women regarding POP and vaginal pessary ,it was consisted of ten closed ended questions , each question had a number of correct answer ; definition of POP (1) , signs and symptoms of POP (5) , treatment measures of POP(4),definition of pessary (1),signs of infection (5),benefits of pessary (5),techniques for caring pessary (4),tests to correct pessary fit(4), and complication of pessary(6).The study subjects answers were scored as (1) score for correct answer & (0) score of incorrect answers. The total knowledge correct answers number was (42). The total knowledge score was calculated as the following:

Poor knowledge<60% of total knowledge score (25 score).

Fair knowledge60-75 of total knowledge scores (26-31 score).

Good knowledge> 75% of total knowledge score (>31 score).

Part 3) was designed to evaluate studied women self-care practice regarding vaginal pessary. It was developed by the researches after reviewing related literature concerning vaginal pessary self-care practice (**O'Dell & Atnip ,2012**). It consists of two main dimensions and 18 items of

practice, 1) pessary insertion related practice (7 items), pessary removal and care related practice (11 items). For each practice item had two responses (1) for done and (0) for not done.

Total practice score was calculated as the following:

Unsatisfactory practice ... <60% of total practice score (11 score)

Satisfactory practice >60 % of total practice score (>11 score)

Tool II:

The International Consultation on Incontinence Modular Questionnaire or ICIQ – Vaginal Symptoms (ICIQ-VS) it was adopted from (*Price et al., 2006*). The ICIQ-VS is composed of 14 questions divided into 3 parts, each with an independent score. The first part contains 8 items related to vaginal symptoms; the vaginal symptom scores (VSS) and has a possible minimum of 0 and maximum of 53 items. The second part contained 3 items related to sexual matters; the sexual matters score (SMS), and have a possible minimum of 0 and a maximum of 58. The third part contained 1 item related to quality of life; the quality-of-life scores (QoL) and has a possible minimum of 0 and maximum of 10. The score increases with the severity of symptoms. A low QoL questionnaire scores means an improvement of the studied women quality of life.

Tool III:

The Prolapse Quality of Life (P-QOL) questionnaire was adopted from (*Svihrova et al., 2010*), it was used by the researchers to evaluate quality of life of the studied women. Each woman

was asked to complete the tool. Responses ranged from “none/not at all”, through “slightly/a little” and “moderately” to “a lot”. Therefore, a four-point scoring system for each item was used to evaluate severity of urogenital prolapse symptoms. It includes 20 questions representing nine quality of life domains covering general health, prolapse impact, role, physical and social limitations, personal relationships, emotional problems, sleep/energy disturbance as well as measurements of symptom severity. Questions regarding bladder, bowel and sexual function are also separately included and validated for reproducibility and internal consistency. Scores in each domain range between 0 and 100. A high total score indicates a greater impairment of quality of life, while a low total score indicates a good quality of life.

Content validity

The content tools validity was revised by three experts in Obstetrics and Gynecological Nursing to examine the content validity and according to their ideas, the result of content validity index (CVI) delineated strongly accepting tools. For knowledge tool it measured (0.97), for self-practice it measured (0.96), for International Consultation on Incontinence Modular Questionnaire or ICIQ – Vaginal Symptoms (ICIQ-VS) Arabic version measured (0.89), and (0.87) for the prolapse quality of Life. In addition, the content of educational intervention was reviewed by the panel of expertise and the guideline contents were reviewed critically and validated its contents.

Reliability of tools

The researchers have established the reliability of the tools of the current work via Alpha Cronbach technique which revealed that each of the three tools consisted of relatively consistent items as indicated by the moderate to high reliability of each tool, it was (0.93) for knowledge tool, (0.86) for practice tool, (0.87), (0.89) for International Consultation on Incontinence Modular Questionnaire or ICIQ – Vaginal Symptoms and (0.84) for the prolapse quality of life.

Ethical Considerations

An official permission was granted from directors of Banha university hospital, to facilitate data collection process. The investigator announced herself to the females who fulfil the criteria of inclusion and informing them about the aim of this study to get their approval to participate in this study, the researcher confirmed that the study poses no risks or hazards to their health and participations in the current study are volunteers. They have been permitted to stop sharing in the study without explanation if they feel the need to do so. Females who were ready to contribute to this study and fulfil the criteria of inclusion were contacted by the investigator and requested for verbal agreement to settle their approval, and all proceedings that happened through the data collecting were considered private.

A Pilot Study:

It was performed on 10% (8 women) of the cases, were random chosen and not excepted from the entire sample because there no modifications were done. The aim was to assess the ease and clearness of the tools. It was assisted as well in estimating the period required to fill in these questionnaires.

Procedure:

Data of the current study was collected during a period of 12 months from the beginning January 2017 and completed at the end of December 2017. The researcher visited the previously mentioned setting 3 days/week, from 9.00 am to 12.00 pm. To fulfill the aim of this research, the following phases were adopted, preparatory phase, interviewing and assessment phase, planning phase, implementation of the educational intervention phase and evaluation phase.

A- Preparatory phase: The researchers conducted this phase through reviewing relevant literature concerning the various aspects of the research problem. This phase assisted the researchers to be familiar with the importance of the problem, and the researchers be directed by sample information help them to formulate adequately the required data collection tools.

B- Interviewing and assessment phase: This is the pretest phase in which the researcher interviewed the women to collect baseline data. At the start of the interview, the researchers acquainted women and informing them about the aim of this study and familiarized them

with all information about the research (purpose, duration, and activities) and obtained their oral consent for participation in the study. From one to two women was interviewed. The data collected during this phase were formed the base line for further comparison to evaluate the effect of the educational guideline.

C- Planning phase: Educational guideline was developed by the researchers based on the results of assessment phase, this guideline in a form of printed Arabic booklet to improve the studied women's deficit knowledge, and self-care practice regarding vaginal pessary. Different methods of teaching, and instructional media like video, demonstration and re-demonstration were utilized to explain guideline to studied women.

Objectives of educational intervention were constructed and included the following:

General objectives aimed to empower self-care management of the studied women regarding vaginal pessary and quality of life and evaluate the effect of self-care management on vaginal symptoms and quality of life.

Specific objectives aimed to familiarize the studied women with abundant knowledge and self-care practice concerning vaginal pessary, its definition, and complication of vaginal pessary and techniques of care during insertion, removal, and care of pessary.

D- Implementation of the educational intervention phase.

The educational intervention was designed based on the initial needs analysis of the pre-test results and was implemented in the form of 2 sessions as follows; the first is a theoretical session was held for 45 minutes focusing on enhancing the studied women knowledge regarding POP and vaginal pessary caring techniques. The second session was practical session, it held for 45 minutes focusing on training woman regarding techniques of pessary insertion, removal, and pessary care. In this session researcher firstly show a pessary insertion and removal video for all women in the session, and researchers utilize demonstration model and allow women to insert and remove pessary for a uterine model and demonstrates technique of caring vaginal pessary. These sessions were repeated to each studied woman. Each session took about 30-45 minutes. At the end of each session, women' questions were discussed to correct any misunderstanding. Total educational intervention time reached 58.30 hours / 13 weeks, with (4.30 hours /week-1.30 hours /daily) for all women.

E- Evaluation phase: this phase was done at three and six months after intervention using the same format of tools that used to evaluate knowledge, self-care reported practice, vaginal symptoms, and quality of life of the studied women, each was phoned to assure attendance to next follow up visit

that was after three and six months from educational intervention.

III- Statistical Design: The data was statistically analysed via SPSS-22. The data were explored, descriptive statistics was used for continuous variables [and standard deviation (SD)] and frequency for categorical variables. Paired t test was used to compare mean scores between pretest, posttest (three months) after intervention and also at six months after intervention. Correlational A significant level value was considered when p-value ≤ 0.05 .

Result:

Table (1): Illustrates personnel characteristics of the studied women, it shows that 70.0% of studied women age ranged from 50-60, with mean of 36.59 ± 6.45 years.in addition 50.0% of the studied women had a secondary education, 60.0% of them lived at urban settings, finally 57.5% of women were housewives.

Table (2): Illustrates obstetric history of the studied women, it shows that 53.8% of studied women had 4-6 times of pregnancy, 50.0% of them had 4-6 times of labor, and 65.0% of them had no history of gynecological surgery.in addition 100.0% of studied women are sexually active and had a ring type of pessary.

Figure (1): Percentage distribution of time of using pessary among the studied women, it illustrated that 50.0% of the studied women used

vaginal pessaries from a period of 3-<6 months.

Table (3): Reveals studied women knowledge regarding pelvic organ prolapse and vaginal pessary at different times of assessment .it indicates that there was a highly statistically significant difference regarding their mean scores at different times of assessment. the total knowledge mean score was improved from 17.20 ± 5.59 at pre-intervention to 27.39 ± 4.35 at one month after intervention, and 29.20 ± 4.12 at six months after intervention ($p<0.001^{**}$).

Figure (2): Percentage distribution of total knowledge score of the studied women reading POP and vaginal pessary care at different times of assessment, it reveals that 60.0% of the studied women had a poor knowledge regarding POP and vaginal pessary at the pre-intervention phase; on the other hand, 65.0% of women had a good knowledge at 3 months after intervention and 81.7% at six months after intervention.

Table (4): Reveals studied women self-reported practice regarding vaginal pessary insertion technique at different times of assessment .it indicates that there was a highly statistically significant difference regarding their self-reported practice at different times of assessment. The highly improved reported practice was concerning check the pessary is clean and not damaged, and fold pessary in half at the dimples on each side of the ring ($p<0.001^{**}$).

Table (5): Reveals studied women self-reported practice regarding vaginal pessary removal and caring techniques

at different times of assessment .it indicates that there was a highly statistically significant difference regarding their self-reported practice at different times of assessment. The highly improved reported practice was concerning use a mild soap with water to clean pessary and wash your hands ($p<0.001^{**}$).

Figure (3): percentage distribution of total self-care reported practice score of the studied women reading vaginal pessary care at different times of assessment , it illustrates that 63.8% of the studied women had unsatisfactory self-care reported practice regarding vaginal pessary insertion ,removal and caring of pessary at the pre-intervention phase; on the other hand 72.5% of women had a satisfactory self-care practice at 3 months after intervention and 85.0% had a satisfactory self-care practice at six months after intervention.

Table (6): shows studied women international consultation on incontinence modular scores at different times of assessment .It shows that there was a highly statistical significant difference regarding their international consultation on incontinence modular scores at different times of assessment .The vaginal symptoms mean scores were decreased from 40.8250 ± 5.49286 at pre-intervention to 26.3375 ± 6.01253 at three months after intervention ,and to 13.4125 ± 3.92233 at six months after intervention. In addition, the interference of vaginal symptoms on quality of life was significantly decreased from 8.2250 ± 1.17973 to 5.90 ± 1.52 at three

months after intervention, and to 2.75 at six months after intervention. While the sexual matters were highly improved from 27.8125 ± 7.66893 at pre-intervention to 35.2625 ± 9.79763 at three months after intervention and to 45.2625 ± 12.75449 at six months after intervention.

Table (7): Indicates studied women quality of life scores at different times of assessment. It reveals that there was a highly statistically significant difference regarding their quality-of-life different dimensions at different times of assessment. The highly improved quality of life dimension was Social limitations, followed by Sleep/energy dimension ($p<0.001^{**}$).

Figure (4): Percentage distribution of total quality of life score of the studied women at different times of assessment, it indicates that 57.5% had a low quality of life at pre-intervention, while at three months after intervention 52.4% of them had a high level of quality of life .in addition at six months after intervention 73.7% of them had a high level of quality of life.

Table (8): Shows that there was a highly significant positive association between self-care management knowledge and practice at three & six months after intervention, that means increasing knowledge is highly associated with increase practice.in addition knowledge and practice regarding self-care management is highly associated with decrease severity of vaginal symptoms and improve quality of life.

Table (1): Distribution of personnel characteristics of the studied women (n=80).

Variable	Frequency	%
Age in years		
30-<40	8	10.0
40-<50	16	20.0
50-60	56	70.0
Mean ±SD	36.59±6.45	
Educational level		
Read & write	6	7.5
Secondary education	40	50.0
University education	34	42.5
Residence		
Rural	32	40.0
Urban	48	60.0
Occupational status		
Work	34	42.5
Housewife	46	57.5

Table (2): Distribution of obstetric history of the studied women(n=80).

Variable	Frequency	%
Gravida		
<3	21	26.3
4-6	43	53.8
>6	16	20.0
Parity		
<3	31	38.8
4-6	40	50.0
>6	9	11.3
Types of delivery		
Normal vaginal delivery	52	65
Cesarean delivery	22	27.5
Both vaginal and cesarean delivery	6	7.5
Previous gynecological surgery		
No	52	65.0
Yes	28	35.0
Stages of prolapse		
Second stage	45	56.3
Third stage	23	28.8
Fourth stage	12	15.0
Sexually active		
Yes	80	100.0
No	0	0.0

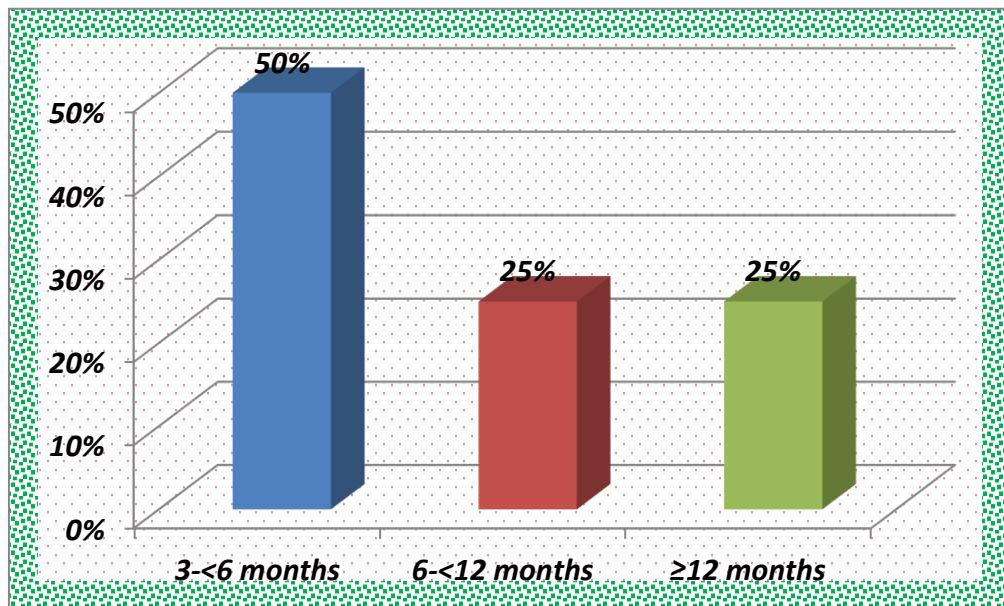


Figure (1): Percentage distribution of time of using pessary among the studied women.

Table (3): Distribution of pelvic organ prolapse and vaginal pessary knowledge of the studied women at different times of assessment.

Knowledge items	Total score	Pre-intervention	3 months Post-intervention	6 months Post-intervention	Paired t test (1)	P value (1)	Paired t test (2)	P value (2)
		Mean \pm SD	Mean \pm SD	Mean \pm SD				
Definition of pelvic organ Prolapse (POP)	1	.5000 \pm .50315	.7125 \pm .45545	.7750 \pm .42022	-4.617	<0.001**	-5.474	<0.001**
Signs of pelvic organ prolapse	5	2.3125 \pm 1.34629	3.3375 \pm 1.28224	3.7125 \pm .93041	-6.108	<0.001**	-8.506	<0.001**
Treatment measures of POP	4	1.4875 \pm .91394	2.6625 \pm .82591	2.8875 \pm .74619	-9.458	<0.001**	11.784	<0.001**
Definition of pessary	1	.5750 \pm .49746	.7500 \pm .43574	.8875 \pm .31797	-4.094	<0.001**	-5.992	<0.001**
Signs of infection	5	2.1125 \pm 1.25278	3.0500 \pm 1.16814	3.2625 \pm 1.22984	-5.159	<0.001**	-6.398	<0.001**
Complication of pessary	6	2.3500 \pm 1.45045	3.4750 \pm 1.35922	3.6125 \pm 1.35473	-5.648	<0.001**	-6.231	<0.001**
Techniques for caring of pessary	4	1.7875 \pm 1.01500	2.7250 \pm 1.15808	2.9250 \pm 1.27065	-6.841	<0.001**	-8.976	<0.001**
Benefits of pessary	5	2.3125 \pm 1.09768	3.2000 \pm 1.27686	3.4125 \pm 1.30911	-5.349	<0.001**	-6.975	<0.001**
Contraindication of using pessary	7	2.4625 \pm 1.55851	4.6000 \pm 2.05371	4.8000 \pm 1.93175	-8.962	<0.001**	10.660	<0.001**
Tests to test correct pessary fit	4	1.3000 \pm 1.01133	2.8500 \pm 1.23350	2.9250 \pm 1.27065	-9.809	<0.001**	10.737	<0.001**
Total knowledge score	42	17.2000 \pm 5.59702	27.3625 \pm 4.35234	29.2000 \pm 4.12893	17.83	<0.001**	20.867	<0.001**

*Paired t test (1) difference of mean score between pre-intervention &post-intervention. *Paired t test (2) difference of mean score between pre-intervention &post-intervention.

** Highly statistically significant difference.

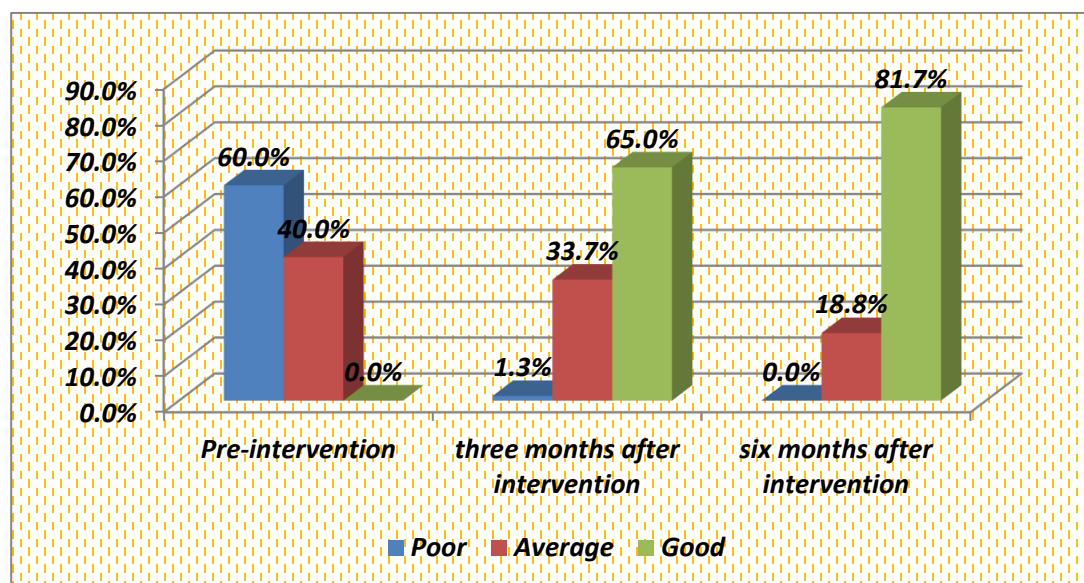


Figure (2): Percentage distribution of total knowledge score of the studied women reading POP and vaginal pessary care.

Table (4): Distribution of vaginal pessary insertion self-care practice of the studied women at different times of assessment.

Insertion technique	Pre-intervention				3 months after intervention				6 months after intervention				Chi square (1)	P value	Chi square (2)	P value
	Done		Not done		Done		Not done		Done		Not done					
	No	%	No	%	No	%	No	%	No	%	No	%				
Empty your bladder and wash your hands.	40	50.0%	40	50.0%	59	73.8%	21	26.3%	64	80.0%	16	20.0%	9.58	<0.05*	15.82	<0.001**
Check the pessary is clean and not damaged.	22	27.5%	58	72.5%	68	85.0%	12	15.0%	74	92.5%	6	7.5%	53.74	<0.001**	70.41	<0.001**
Find a comfortable position for insertion –	38	47.5%	42	52.5%	67	83.8%	13	16.3%	75	93.8%	5	6.2%	23.30	<0.001**	41.24	<0.001**
Fold pessary in half at the dimples on each side of the ring.	25	31.3%	55	68.8%	69	86.3%	11	13.8%	74	92.5%	6	7.5%	49.92	<0.001**	63.64	<0.001**
Lubricate end of pessary.	29	36.3%	51	63.8%	65	81.2%	15	18.8%	70	87.5%	10	12.5%	32.80	<0.001**	43.87	<0.001**
Insert into the vagina until you cannot see the ring, then release. The ring should position itself and be comfortable.	24	30.0%	56	70.0%	60	75.0%	20	25.0%	66	82.5%	14	17.5%	32.48	<0.001**	44.80	<0.001**
Wash your hands.	25	31.3%	55	68.8%	61	76.3%	19	23.8%	68	85.0%	12	15.0%	32.58	<0.001**	477.47	<0.001**

* chi square test (1) difference of mean score between pre-intervention &post-intervention. *chi square test (2) difference of mean score between pre-intervention &post-intervention.

** Highly statistically significant difference.

Table (5): Distribution of vaginal pessary removal and cleaning techniques self-care practice of the studied women at different times of assessment.

Removal technique	Pre-intervention				3 months after intervention				6 months after intervention				Chi square (1)	P value	Chi square (2)	P value				
	Done		Not done		Done		Not done		Done		Not done									
	No	%	No	%	No	%	No	%	No	%	No	%								
Wash your hands.	20	25.0%	60	75.0%	66	82.5%	14	17.5%	72	90.0%	8	10.0%	53.19	<0.001**	69.15	<0.001**				
Find a comfortable position.	36	45.0%	44	55.0%	62	77.5%	18	22.5%	70	87.5%	10	12.5%	17.80	<0.001**	32.31	<0.001**				
Insert one finger into the vagina. Cough or push down at the same time if you have difficulty reaching it.	25	31.3%	55	68.8%	66	82.5%	14	17.5%	73	91.3%	7	8.8%	42.83	<0.001**	60.67	<0.001**				
Pull ring down and out.	26	32.5%	54	67.5%	66	82.5%	14	17.5%	71	88.8%	9	11.3%	40.92	<0.001**	53.01	<0.001**				
Wash the pessary in warm water and place it somewhere at room temperature to dry.	22	27.5%	58	72.5%	65	81.2%	15	18.8%	77	96.3%	3	3.8%	46.58	<0.001**	80.14	<0.001**				
Wash hand	43	53.8%	37	46.2%	61	76.3%	19	23.8%	66	82.5%	14	17.5%	8.90	<0.001**	15.22	<0.001**				
Caring and reinsertion																				
use a mild soap with water	25	31.2%	55	68.8%	74	92.5%	6	7.5%	79	98.8%	1	1.3%	63.61	<0.001**	80.11	<0.001**				
rinse and dry it completely	40	50.0%	40	50.0%	69	86.3%	11	13.8%	77	96.3%	3	3.8%	24.20	<0.001**	43.53	<0.001**				
It does not feel uncomfortable	31	38.8%	49	61.2%	70	87.5%	10	12.5%	76	95.0%	4	5.0%	40.83	<0.001**	57.13	<0.001**				
Bear down and it does not fall out	33	41.2%	47	58.8%	73	91.2%	7	8.8%	75	93.8%	5	6.2%	44.70	<0.001**	44.72	<0.001**				
You have no difficulty going to the bathroom	35	43.8%	45	56.2%	72	90.0%	8	10.0%	76	95.0%	4	5.0%	38.62	<0.001**	38.62	<0.001**				

* chi square test (1) difference of mean score between pre-intervention & post-intervention. *chi square test (2) difference of mean score between pre-intervention & post-intervention. ** Highly statistically significant difference.

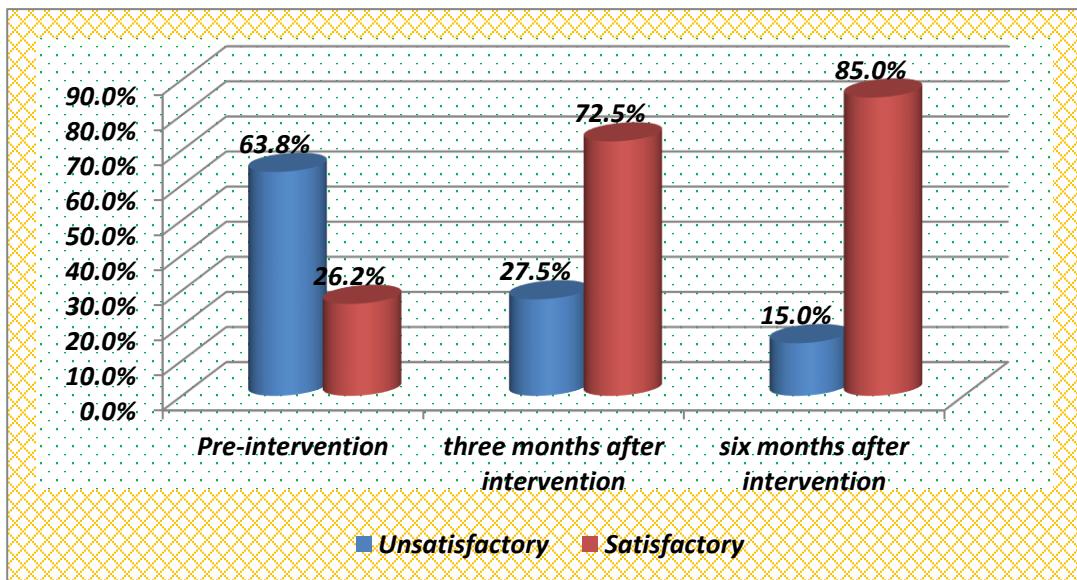


Figure (3): Percentage distribution of total self-reported practice score of the studied women reading vaginal pessary care.

Table (6): Distribution of International Consultation on Incontinence Modular mean scores of the studied women at different times of assessment.

Variable	Score	Pre-intervention	3 months Post-intervention	6 months Post-intervention	Paired t test (1)	P value (1)	Paired t test (2)	P value (2)
		Mean ±SD	Mean ±SD	Mean ±SD				
Vaginal symptoms								
Q1.'dragging pain' x 2	8	5.8000±1.21593	1.9250±1.20940	4.0000±1.23247	25.43	<0.001**	26.66	<0.001**
Q2.'soreness in vagina' x 2 =	8	6.3250±1.50758	2.9000±1.00127	4.3750±1.46153	16.544	<0.001**	36.812	<0.001**
Q3. 'reduced sensation' x 1	3	2.5500±.50063	.6125±.49025	1.6125±.49025	34.424	<0.001**	22.569	<0.001**
Q4. 'vagina too loose' x 2 =	8	6.3500±1.09197	1.8250±1.01601	4.2750±1.22190	15.906	<0.001**	71.143	<0.001**
Q5. 'lump felt inside' x 2 =	8	5.2750±1.56686	2.1500±1.64663	3.3000±.95996	9.592	<0.001**	33.123	<0.001**
Q6. 'lump seen outside' x 2 =	6	5.3000±1.23657	.9750±1.00599	2.6750±1.88112	11.876	<0.001**	11.754	<0.001**
Q7. 'vagina too dry' x 2 =	8	6.6500±1.22319	2.0500±1.23144	4.7250±1.39597	14.757	<0.001**	23.639	<0.001**
Q8. 'fecal evacuation' x 1 =	4	2.4750±.50253	.5250±.50253	1.4750±.50253	17.354	<0.001**	27.318	<0.001**
Total vaginal symptoms score	53	40.8250±5.49286	26.3375±6.01253	13.4125±3.92233	34.63	<0.001**	45.56	<0.001**
Sexual matters								
Do worries about your vagina interfere with your sex life?	24	10.1000±3.76392	13.2000±5.10745	18.0000±6.55261	-5.722	<0.001**	9.738	<0.001**
Do you feel that your relationship with your partner is affected by vaginal symptoms?	24	10.9000±4.07400	13.7000±4.96162	18.3000±6.26099	-5.240	<0.001**	9.529	<0.001**
How much do you feel that your sex life has been spoiled by vaginal symptoms?	10	5.8125±.90139	7.3625±1.52816	7.9625±1.42708	-7.289	<0.001**	10.596	<0.001**
Total sexual matters	58	27.8125±7.66893	35.2625±9.79763	45.2625±12.75449	-6.756	<0.001**	10.860	<0.001**
Effect of vaginal symptoms on quality of life								
Overall, how much do vaginal symptoms interfere with your everyday life?	10	8.2250±1.17973	5.9000±1.14295	2.7500±1.52199	15.321	<0.001**	24.884	<0.001**

* Paired t test (1) difference of mean score between pre-intervention & post-intervention. *Paired t test (2) difference of mean score between pre-intervention & post-intervention. ** Highly statistically significant difference.

Table (7): Distribution of quality-of-life mean scores of the studied women at different times of assessment.

Items	Score	Pre-intervention	3 months Post-intervention	6 months Post-intervention	Paired t test (1)	P value (1)	Paired t test (2)	P value (2)
		Mean ±SD	Mean ±SD	Mean ±SD				
1-General health perception	100	74.25±25.296	39.00±32.123	16.25±26.06	8.165	<0.001**	14.845	<0.001**
2-Incontinence impact	100	70.00±27.923	42.75±28.058	24.75±28.32	6.763	<0.001**	10.499	<0.001**
3-Role limitations	200	131.00±56.019	59.25±48.2050	32.75±34.16	8.449	<0.001**	14.181	<0.001**
4. Physical limitations	200	131.50±56.18	77.75±114.91	47.25±114.61	3.755	<0.001**	6.013	<0.001**
5. Social limitations	200	138.25±38.60	55.25±50.54	18.00±32.23	10.760	<0.001**	22.072	<0.001**
6. Personal relationships	300	121.00±65.36	73.25±53.62	28.25±42.53	5.060	<0.001**	10.832	<0.001**
7. Emotions	300	107.00±34.438	75.75±49.67	34.50±51.80	5.115	<0.001**	11.144	<0.001**
8. Sleep/energy	200	150.00±45.89	65.50±57.10	21.00±38.04	9.593	<0.001**	20.178	<0.001**
9. Severity measures	400	246.00±132.68	142.00±119.09	68.00±109.23	6.393	<0.001**	10.913	<0.001**
Total quality score	2000	1169.00±298.51	630.50±397.79	290.50±346.14	9.916	<0.001**	18.467	<0.001**

* Paired t test (1) difference of mean score between pre-intervention & post-intervention. *Paired t test (2) difference of mean score between pre-intervention & post-intervention.

** Highly statistically significant difference.

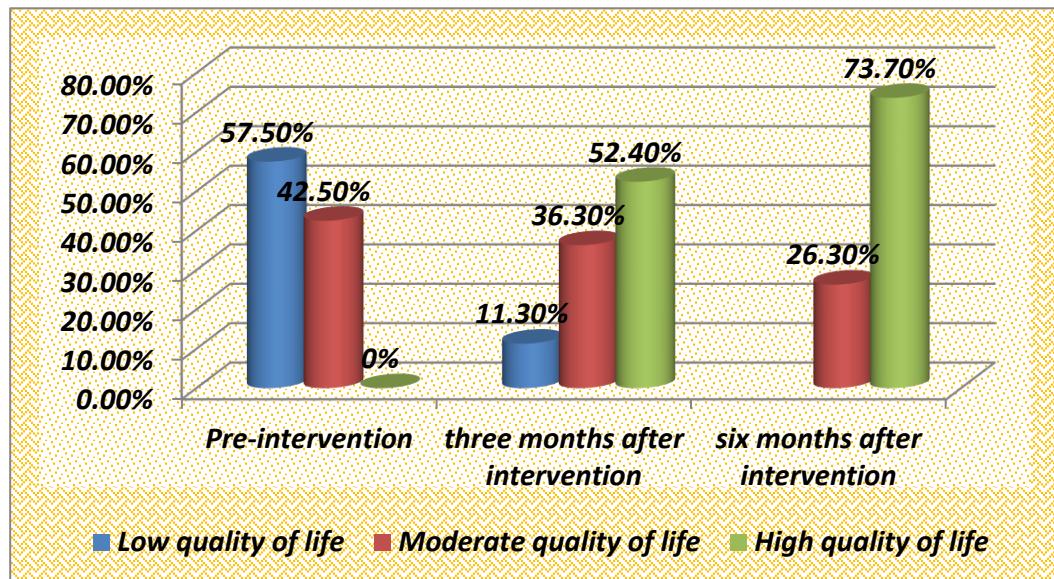


Figure (4): Percentage distribution of total quality of life score of the studied women.

Table (8): Correlation between studied women knowledge, self-reported practice regarding vaginal pessary and their vaginal symptoms and quality of life scores.

Variable	Times of assessment	Vaginal symptoms		Quality of life	
		r	P value	r	P value
Knowledge	Pre-intervention	0.054	>0.05	0.142	>0.05
	Three months after intervention	-0.243	<0.001**	-0.325	<0.001**
	Six months after intervention	-.325	<0.001**	-0.362	<0.001**
Self-reported practice	Pre-intervention	0.123	>0.05	0.089	>0.05
	Three months after intervention	-.423	<0.001**	-453	<0.001**
	Six months after intervention	-532	<0.001**	-0.542	<0.001**

** Highly statistically significant difference

Discussion

A vaginal pessary is a type of nonsurgical treatment for pelvic organ prolapse. A pessary is a device placed into the vagina to support the prolapsing vaginal walls. Pessaries have the advantage of being minimally invasive,

and immediately relief vaginal symptoms (*Abdool et al., 2011*). The aim of the current study was to evaluate effect of empowering self-care of women using vaginal pessary through an educational intervention on their vaginal symptoms and quality of life. The present study findings supported the

stated hypothesis that empowering self-care of women using vaginal pessary relieving their reported vaginal symptoms and improving their quality of life. These findings are supported by **Patel et al. (2010)**, who added that using vaginal pessary up to 6 months after initial fitting in is highly improved prolapse-related symptoms and satisfaction. In addition **Kearny & Brown (2015)**, indicated that educational intervention regarding self-managing vaginal pessaries is acceptable to many women and is highly associated with improvement in experience in managing their prolapse symptoms and self-management is cost effective both for the hospital trust delivering the service and the commissioners.

Concerning level of knowledge regarding pelvic organ prolapse at pre intervention phase the present study findings added that the vast majority of the studied women had a poor level of knowledge and unsatisfactory practice. These findings are agreed with **Elsayed et al. (2016)** in Egypt in the study to “assess knowledge and practices of women regarding risk factors of uterine prolapse”, they founded that the majority of the studied women had poor level of knowledge regarding all items of uterine prolapse.

As regarding the personnel characteristics of the studied women, the present study revealed that more than two third of women age ranged from 50-60 years old, with mean of (36.59 ± 6.45) . In addition half of them had a secondary education, two third of them lived at rural settings. These findings indicated that women lived in rural settings are more affected with POP

than women lived in urban settings, and this may be due to that women lived in rural settings may have to carry heavy objects and may work at agriculture field to help their husbands as known in Egyptian rural cultures.

Regarding obstetric history of the studied women, the present study finding illustrates that more than half of studied women were multi gravida and multipara, and more than one third of them had a history of gynecological surgery. In addition, more than two third of women had a vaginal delivery that, which indicates that POP risk is usually associated among women with vaginal delivery. These findings agreed with **El Kady et al. (2017)** in Egypt, who added that normal vaginal delivery causes significant strain on the pelvic floor and can result in some women of fertile age developing urinary incontinence. Vaginal delivery is an even a greater risk factor for pelvic organ prolapse. Moreover, all of the women used the ring pessary model, these findings came in the same line with **CoelhoS et al. (2016)**, who added that all women in the study to “Quality of life and vaginal symptoms of postmenopausal women using pessary for pelvic organ prolapse” used the ring format.

Concerning effect of educational intervention on empowering studied women self-care management, the present study findings indicated that the vaginal symptoms was highly decreased from 40.82 ± 5.49 at pre-intervention to 26.33 ± 6.012 at three months after intervention, and to 13.41 ± 3.92 at six months after intervention. This may be due to that self-care practice as technique of cleaning pessary, insert and remove

pessary all help woman to manage herself that subsequently decrease vaginal symptoms. These findings are supported by **Kearny & Brown (2015)**, who added that educating woman using vaginal pessary regarding self-managing was highly successful and women reported higher levels of comfort with pessary use and were more likely to continue with pessary management in the long term.

In addition, the present study findings indicated that the sexual matter among the studied women was highly improved from 27.817 at pre-intervention to 35.26 ± 9.79 at three months after intervention and to 45.26 ± 12.75 at six months after intervention. These findings may be due to that decreasing vaginal symptoms was highly associated with improving studied women sexual matters, as vaginal symptoms as vaginal discharge, pain, and soreness of the vaginal is directly affect sexual matters among women with pessary, and proper self-care management for pessary will reduce such symptoms through proper insertion, removal and caring of the pessary.

Pelvic organ prolapse is highly affected women quality of life, different research studies **Coelho et al.(2016)**, added that the pessary can produce a positive effect on women's quality of life and can significantly improve sexual function and body perception .the present study findings added that the quality of life score of the studied women were measured using the Prolapse Quality of Life (P-QOL) questionnaire ,where low questionnaire scores indicates an improvement of quality of life , it was illustrated that total quality of life score

was 1169.00 ± 298.51 at the pre-intervention phase decreased to 630.50 ± 397.79 at three months after intervention and to 290.50 ± 346.14 at six months after intervention .These findings are agreed with **Gobbens & Remmen (2019)**,who concluded that the pessary produced appositive effect on women's health; they have also suggested that further studies are necessary.

As regarding correlation between studied women total knowledge and practice regarding pessary self-care management and their vaginal symptoms and quality of life. The present study findings revealed that there was a highly significant positive association between self-care management knowledge and practice at three & six months after intervention, that means increasing knowledge is highly associated with increase practice. These findings came in the same line with **Mohamed et al. (2019)**, who indicated that increasing women knowledge is highly associated with increase their reported self-care practice .on the other hand there was a highly negative association between studied women both knowledge and practice and their vaginal symptoms and the interference of pelvic organ prolapse and pessary on their quality of life.as increasing level of both knowledge and self-care reported practice is highly associated with decreasing vaginal symptoms and interference of POP and pessary on quality of life.

Conclusion

Empowering self-care intervention guideline had a positive effect on reducing severity of vaginal symptoms

and improving quality of life of women using vaginal pessaries.

Recommendation:

Based on the findings of the present study the following should be recommended:

1. Self-care management guideline for women using vaginal pessary should be provided for all women using vaginal pessary.
2. The nurses should be familiar with self-care measures for vaginal pessaries.
3. More researches should be conducted considering the demographic and obstetric factors that have a crucial role in precipitating self-management for vaginal pessary.

Limitation of the study:

Some limitations have been appeared as follow:

Firstly, the lack of national and international research that study the current research topic.

Secondly, sometimes the sessions were protracted due to noise and other individuals' interruption and lastly, challenging to facilitate group place and sessions.

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