Effect of Nursing Intervention on Pelvic Organ Prolapse Symptoms

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Abstract

The aim of this study was undertaken to evaluate the effect of nursing intervention on pelvic organ prolapse symptoms. **Design:** A quasi experimental design was utilized to fulfill the aim of this study. **Setting:** The study was conducted at gynecological outpatient clinic affiliated to Benha University Hospital. **Sample**: A purposive sample of 45 women recruited in the study according to inclusion criteria. **Tools:** Four tools were used for data collection; a structured interviewing questionnaire, women' compliance toward recommended nursing instructions sheet, pelvic organ prolapse symptom score and pelvic organ prolapse impact questionnaire. **Results**: There was a significant improvement in women' knowledge and compliance regarding pelvic organ prolapse ($p<0.000$). Additionally, mean scores of pelvic organ prolapse symptoms and pelvic organ prolapse impact questionnaire after one month and three months remarkably reduced compared to before nursing intervention ($p<0.000$). **Conclusion and recommendation:** Nursing intervention was effective in improving women' knowledge and compliance regarding pelvic organ prolapse. As well a reduction in prolapse symptoms and better quality of life at follow-up periods. The study recommended provision of instructional booklets to women with pelvic organ prolapse for improving knowledge, compliance and reducing symptoms.

Key words: Intervention, Nursing, , Pelvic Organ Prolapse, Symptoms .

Introduction

Pelvic Organ Prolapse (POP) is the descent of one or more of pelvic structures from normal anatomic location toward or through the vaginal opening; women of all ages may be affected. The cause is a loss of pelvic support from multiple factors, including direct injury to the levator ani, as well as neurologic injury from stretching of the pudendal nerves that may occur with vaginal childbirth **(Kuncharapu et al., 2010)**. POP is common and is seen in 50% of parous women. Risk factors include pregnancy, vaginal childbirth, congenital or acquired connective tissue abnormalities, weakness of the pelvic floor, aging, menopause and factors associated with chronically raised intraabdominal pressure from chronic coughing, straining with constipation, and repeated heavy lifting **(Hagen and Stark, 2011)**.

Pelvic organ prolapse is categorized in four stages, ranging from mild to severe. In mild cases, women may be totally unaware that something has shifted until their gynecologist discovers it during a routine pelvic examination. In addition, Pelvic Organ Prolapse Quantification System graded POP as follows; stage (0) no prolapse is demonstrated, stage (I) the most distal portion of the prolapse is more than 1 cm above the level of the hymen , stage (II) the most distal portion of the prolapse is 1 cm or less proximal or distal to the hymen, stage (III) the most distal portion of the prolapse protrudes more than 1 cm below the hymen but no farther than 2 cm less than the total vaginal length, and stage (IV) vaginal eversion is essentially complete **(Persu et al., 2011)**.

World Health Organization estimates that approximately 33 % of the total global burden of disease is related to reproductive health. The global prevalence of genital prolapse is 2 to 20 % under age 45 years. POP is seen in up to 43 to 76% of women presenting for routine gynecological care, and 3 to 6% involve descent beyond the hymen **(Eleje et al., 2014)**.

Women with pelvic floor prolapse commonly have a variety of symptoms including pelvic heaviness, dragging sensation in the vagina, protrusion coming down from the vagina, and backache. Bladder and bowel symptoms, discomfort during sexual intercourse are also frequently present. Women who exhibit just mild or moderate POP do not experience any of these symptoms until any aspect of the vaginal wall actually protrudes beyond the opening of the vagina **(Culligan, 2012)**. Additionally, POP is not responsible for any severe morbidity or mortality, but it may have a marked functional impact on quality of life, self-esteem, and sexuality. **(Letouzey et al., 2013)**.

Treatment options for prolapse depend on the severity of the symptoms; mild to moderate prolapse is usually treated with conservative methods such as electrical stimulation, pelvic floor muscle training, and biofeedback. More severe prolapse often needs surgery. Various types of surgery are used to repair the prolapse **(Hoffman et al., 2012)**. The efficacy of various intervention in repairing prolapse is measured by reducing POP symptoms, prolapse recurrence rate, and improvement in quality of life **(Mahdyie et al., 2013;Doaee et al., 2014)**.

Nursing intervention is essential in both prevention and detection of prolapse, also help women to become more comfortable in opening up about POP symptoms and complaints. Therefore, close communication with the women, gynecologist, and nurse is essential for optimal understanding, informed consent, and management **(Gonzalez, 2008)**. These steps include performing regular pelvic floor exercises to strengthen the muscles that control the flow of urine from the bladder, maintaining a healthy weight, eating a high fiber diet to avoid bowel problems, and avoiding heavy lifting and prolonged standing **(Richardson et al., 2009; Smeltzer et al., 2010)**.

Significance of the study

Pelvic organ prolapse is one of the common gynecological morbidities among women which might result in bothering symptoms. The mean prevalence of pelvic organ prolapse in low and middle income countries is 19.7% (range 3.4%-56.4%) (***Godfrey et al., 2011***). In Egypt, the incidence of pelvic organ prolapse is 25.75% of 2000 females in the first year following delivery from different Governates (health centers, hospitals, and family planning centers) ***(Mahmoud, 2012)***. The symptoms of POP can be extremely debilitating and have an appreciable impact on quality of life, women with symptomatic POP experience discomfort, as well as interference with daily activities. The researchers observed from clinical experience that women with POP have deficient knowledge, and compliance with healthy measure is sparse. Meanwhile, nursing intervention has a crucial role in mangening POP symptoms. Therefore, the researchers conducted this study to improve women' knowledge and compliance toward pop instruction to reduce POP symptoms and its impact on quality of life.

Aim of the study:

This study was undertaken to evaluate the effect of nursing intervention on pelvic organ prolapse symptoms. This aim achieved through:

- Assessing women's knowledge regarding pelvic organ prolapse and compliance toward recommended nursing instructions.
- Determining prolapse symptoms and quality of life change among women with pelvic organ prolapse.
- Designing, implementing and evaluating the outcome of the nursing intervention.

Research hypothesis:

- Women with pelvic organ prolapse who received nursing intervention would have improved knowledge and compliance regarding pelvic organ prolapse.
- Women with pelvic organ prolapse who received nursing intervention would have reduced prolapse symptoms.
- Women with pelvic organ prolapse who received nursing intervention would have a better quality of life.

Subjects and methods:

Research design: A quasi-experimental design was utilized to fulfill the aim of this study.

Setting: The study was conducted at gynecological outpatient clinic affiliated to Benha University Hospital.

Sample:

A purposive sample of 45 women who attended the previously mentioned setting and seeking for gynecological treatment was recruited in the study. The studied women were chosen according to inclusion criteria: who were newly diagnosed, symptomatic stage I, II, or III prolapse of any type as diagnosed by gynecologist on vaginal examination and accepted to participate in the study. Exclusion criteria: Women who received previous treatment for prolapse, including surgery, pregnant women and free from any medical disorders.

The sample size was calculated according to the following equation: **(Abo Yousef, 1984)**.

$$n \leq P\,(1-P)\left(\frac{Z_{\alpha/2}}{Error}\right)^2$$

Where: n = sample size, P = Probability of prevalence of disease (0.025).

$Z_{\alpha/2}$ = Standard Normal Deviation (1.96), Error = 0.05.

Level of confidence = 95%, n = 0.025 × 0.975 × 1536.64.

Considering dropout during follow-up, the researcher added 20%. Thus, the final sample consisted of forty-five women.

Tools of data collection:

Four tools were used for data collection.

First tool: A structured interviewing questionnaire was designed by the researchers in Arabic language in the form of close and open-ended questions after reviewing of related literature, which comprised of three main parts:

Part I: General characteristics of the studied women as age, educational level, marital status, occupation, residence, body mass index (BMI), as well as the telephone number for follow-up.

Part II: Obstetric and gynecological history as parity, mode of previous deliveries, and prolapse (duration, stage, and type).

Part III: Women knowledge about pelvic organ prolapse, it was composed of nine items as meaning, types, causes, symptoms, diagnosis, complications, preventive measures, measures for reducing POP symptoms and treatment options.

Part IV: Women' perceived change in prolapse symptoms since the start of the study (same/better/worse).

Scoring for knowledge: Each item assigned a completely correct answer was scored (2), incompletely correct answer was scored (1), and don't know/incorrect answer was scored (0). Women total knowledge score was classified as the following; poor when total score was $0 < 6$, and average when total score was $6 < 12$ and good when total score was $12 \leq 18$.

Second tool: Women' compliance toward recommended nursing instructions sheet

This sheet was developed by the researchers after reviewing of related literature to assess women' compliance toward recommended nursing instructions to reduce POP symptoms. It included six areas as compliance to practicing pelvic floor muscle exercise correctly and regularly; compliance to weight reduction; compliance to avoid sitting in squatting position or standing for long hours; compliance to avoidance lifting heavy things; compliance to intake food that contain fiber to avoid constipation and compliance to avoidance of high impact activity/exercise.

Scoring: Each area was judged according to three point scale continuum from comply (2), sometimes (1) not comply (0). The range of possible score varied from a minimum of 0 to maximum 12. Women total compliance score was graded as follows; low when total score was $0 < 4$, and moderate when total score was $4 < 8$ and high when total score was $8 \leq 12$.

Third tool: Pelvic Organ Prolapse Symptom Score

Pelvic organ prolapse symptom score (POP-SS) was adopted from **Hagen et al., (2009)**. The POP-SS composed of seven items relating to the frequency of prolapse symptoms in the previous four weeks; such as a feeling of something coming down, discomfort worse when standing, abdominal pain when standing, lower back heaviness, strain to empty bladder, a feeling bladder not empty, and a feeling bowel not empty.

Scoring: The symptoms were assessed on a 5-points Likert response, never (0), a little of the time (1), sometimes (2), most of the time (3), and all of the time (4). A total score ranging from 0 to 28 is calculated by summing the seven individual symptom responses to derive the POP-SS score, higher scores representing more symptoms.

Fourth tool: Pelvic Organ Prolapse Impact Questionnaire

Pelvic Organ Prolapse Impact Questionnaire (POPIQ-7) was adopted from **Barber et al., (2005)** to evaluate the impact of pelvic organ prolapse

on the quality of life. The questionnaire included seven items; women were asked to what extent POP symptoms affected household chores, physical activities, entertainment activities, travel by car or bus for a distance greater than 30 minutes away from home, participation in social activities outside the home, emotional health, and feeling frustrated.

Scoring: All of the items use the following response scale; (0), Not at all; (1), somewhat; (2), moderately; (3), quite a bit. The mean value for all of the answered items possible value (0-3) is obtained then multiply by (100/3) to obtain the total scale score range from 0 to 100, where higher scores indicate poor quality of life.

Tools validity and reliability:

Tools were reviewed by a panel of three experts in the field of Obstetrics and Woman Health Nursing and Community Health Nursing to test content validity. Reliability was done by Cronbach's Alpha coefficient test which revealed that each of the tools consisted of relatively homogenous items as indicated by the moderate to high reliability. The internal consistency of knowledge was 0.82, compliance was 0.86 and POP-SS was 0.91 and POPIQ-7 was 0.87.

Ethical considerations:

Each woman was informed about the purpose and benefits of the study at the beginning of the study. An oral consent was obtained from each woman before starting the data collection. Confidentiality and anonymity of each subject were assured through coding of all data. The women were assured that data was used only for research purpose, participation is voluntary and the freedom to withdrawal from participation at any time.

Pilot study:

The pilot study was carried out on 5 women (about 10% of the total sample) to test the clarity and applicability of the study tools as well as estimation of the time needed to fill the questionnaire. No required

modifications were done. Women involved in the pilot were included in the study.

Procedure:

To fulfill the aim of the current study, the following phases were adopted; assessment phase, planning phase, implementation phase, and follow-up and evaluation phase. These phases were carried out from the beginning of October 2013 and completed at the end of April 2014 covering seven months. Official approvals and letters to conduct this study were obtained from the Dean of Faculty of Nursing to Director of Benha University Hospital. The researchers visited the previously mentioned setting two days/week (Saturday and Monday) from 9.00 Am to 1.00 Pm until the predertermined sample size completed.

Assessment phase: This phase encompassed interviewing the woman to collect baseline data, at the beginning of the interview the researchers greeted the woman, introduced themselves to each woman included in the study, explained all information about the study purpose, duration, and activities and taken oral consent. Data was collected by the researchers through administration of the tools to each woman where, the highly educated women have filled the tools by themselves while the researchers help some women who read and write after explaining the questionnaires to them. The average time for the completion of each women interview was around (25-45 minutes), divided as (10-15 minutes) for the first tool, (5-10 minutes) for the second tool, (5-10 minutes) for the third tool. and (5-10 minutes) for the fourth tool Average number collected was 1- 2 women / day.

Planning phase: Based on the needs identified in the assessment phase and relevant review of literature, the researchers developed a booklet about nursing intervention regarding POP. This was prepared in simple

Arabic language to suit women' level of understanding and distributed to all recruited women in the study to achieve its objectives. As well as sessions number and its contents, different methods of teaching and instructional media were determined accordingly.

Implementation phase: The nursing intervention was conducted through three sessions in the waiting area of the outpatient clinic. Total time for all sessions to each woman took about two hours; each session took about 30-45 minutes for an individual case, at the beginning of the first session, the woman was oriented with the nursing intervention contents. Then, a brief explanation of the anatomy and function of pelvic floor muscles was given with the use of diagrams and a model pelvis. As well as general information about prolapse meaning, stages, types of prolapse diagnosis, preventive measures, and management of pelvic organ prolapse.

At the second session, each woman instructed about recommended nursing interventions to reduce POP symptoms as weight loss, avoidance of sitting in squatting position, prolonged standing and lifting heavy things. Measures for preventing or reducing constipation. Physical interventions to brace pelvic floor muscles against increased intra-abdominal pressure.

At the third session, the woman instructed about pelvic floor muscle exercise technique. it was composed of four items as sit, stand or lie down with legs slightly apart and relax thighs, buttocks and abdomen muscles; tighten the ring of muscle around the front and back passages drawing the pelvic floor muscles up inside; try to complete up to 10 slow squeezes and 10 fast squeezing exercises. Then, women asked to demonstrate the exercise taught to them, any fault in the exercise technique was corrected. Women were encouraged to practice and repeat this exercise at home 4-5 times every day.

Each session started with a feedback about the previous session and the objectives of the new session, using simple Arabic language to suit

women' level of understanding. At the end of each session, women' questions were discussed to correct any misunderstanding. Methods of teaching were used as discussion and instructional media included colored posters and pelvic model, and film video about pelvic floor muscle exercise.

Evaluation phase: Evaluation was done using the same format of pre-test immediate to evaluate knowledge. At follow-up periods (one and three months) to evaluate compliance toward recommended nursing instructions, POP-SS, and POPIQ-7. Women' perceived change in symptoms from the start of the study by using part IV (tool first) at three months of nursing intervention.

Statistical analysis:

Data were verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 20.0) was used for that purpose, followed by data analysis and tabulation. Descriptive statistics were applied (mean, standard deviation, frequency, and percentages). Tests of significance were performed to test the study hypotheses (chi-square test, Fisher Exact Test, and repeated measures ANOVA test). Pearson correlation coefficient was applied for quantitative variables. A statistically significant difference was considered at $p \leq 0.05$, and a highly statistically significant difference was considered at $p \leq 0.001$.

Limitations of the study:

Sometimes the sessions were protracted due to noise and other individuals' interruption. In addition, lack of objective anatomic measurements.

Results:

Table (1) shows that 57.8% of the studied women aged from 40 to 49 years old, with a mean age 43.62 ± 6.31 years. Regarding educational level, 55.6 % of them had secondary education. As regards to marital status, 88.9% of them were married, about 64.4% were housewives and 71.1% of

the studied women were living in rural areas. In addition, the mean body mass index was 32.03 ± 2.73 kg/m^2.

Table (2) illustrates that 71.1% of the studied women had parity four or more. As far as the mode of delivery, 93.3% of the studied women had normal vaginal deliveries, while 6.7% had cesarean sections. In relation to duration of pelvic organ prolapse, 60.0% of the studied women suffered from prolapse < 6 months, with the mean 7.46 ± 5.28 months. 57.8% of them had diagnosed as prolapsed with stage II. Regarding the type of prolapse, 40.0% of them had anterior prolapse, while 13.3% of them had an apical prolapse.

Table (3) reveals that the studied women's knowledge about pelvic organ prolapse (meaning, types, causes, symptoms, diagnosis, complications, preventive measures, measures for relieving POP symptoms, and treatment options) improved significantly after the nursing intervention (P < 0.001).

Figure (1) illustrates that 77.8% of the studied women had a poor level of total knowledge score about pelvic organ prolapse before nursing intervention. Meanwhile after nursing intervention, 68.9% of them had a good level of total knowledge score and there was a highly statistically significant difference (p<0.001).

Table (4) elaborates that the studied women' compliance toward recommended pelvic organ prolapse nursing instructions (practicing the pelvic floor muscle exercise correctly and regularly, weight reduction, avoid sitting in squatting position or standing for long hours, don't lifting heavy thing, intake food that contains fiber to avoid constipation, avoidance of high impact activity/exercise) improved significantly at follow-up periods (P < 0.001).

Figure (2) illustrates that mean total score of pelvic organ prolapse symptoms was 11.04 before nursing intervention. Meanwhile, after one month and three months POP-SS remarkably reduced to 9.13 and 6.51 respectively, with a highly statistically significant difference (p<0.000).

Table (5) displays that there was significant improvement in POPIQ-7 at follow-up periods compared to before nursing intervention regarding the ability to do household chores ($p<0.004$), physical recreation ($p<0.002$), entertainment activities ($p<0.018$), ability to travel by car or bus more than 30 minutes ($p<0.026$), participation in social activities outside home ($p<0.000$), emotional health ($p<0.007$), and feeling frustrated ($p<0.000$).

Figure (3) illustrates that mean total score of POPIQ-7 was 40.45 before the nursing intervention. However, after one month and three months POPIQ-7 remarkably decreased to 31.36 and 19.35 respectively, with a highly statistically significant difference ($p<0.000$). This indicated the lower POPIQ-7 score, the better quality of life.

Figure (4) clarifies that 64.4% of the studied women had reported an improvement in POP symptoms from the start of the study compared to 8.9% of them reported that POP symptoms were worse.

Table (6) reveals that there was a highly statistically significant negative correlation between the studied women' total POP-SS and total compliance score before nursing intervention and at periods of follow-up ($P < 0.001$). On the other hand, there was a highly statistically significant positive correlation between the studied women' total Total POP-SS and total POPIQ-7 score before nursing intervention and at periods of follow-up ($P < 0.001$).

Table (1): Distribution of the studied women according to socio-demographic characteristics (n=45)

Socio-demographic characteristics	No.	%
Age (years)		
30 - 39	14	31.1
40 - 49	26	57.8
≥ 50	5	11.1
Mean ± SD	43.62 ± 6.31	
Educational level		
Read and write	6	13.3
Primary	10	22.2
Secondary	25	55.6
University	4	8.9
Marital status		
Married	40	88.9
Divorced	3	6.7
Widow	2	4.4
Occupation		
Hard work	9	20.0
Office work	7	15.6
Housewife	29	64.4
Residence		
Rural	32	71.1
Urban	13	28.9
Body mass index (kg/m^2) **Mean ± SD**	32.03 ± 2.73	

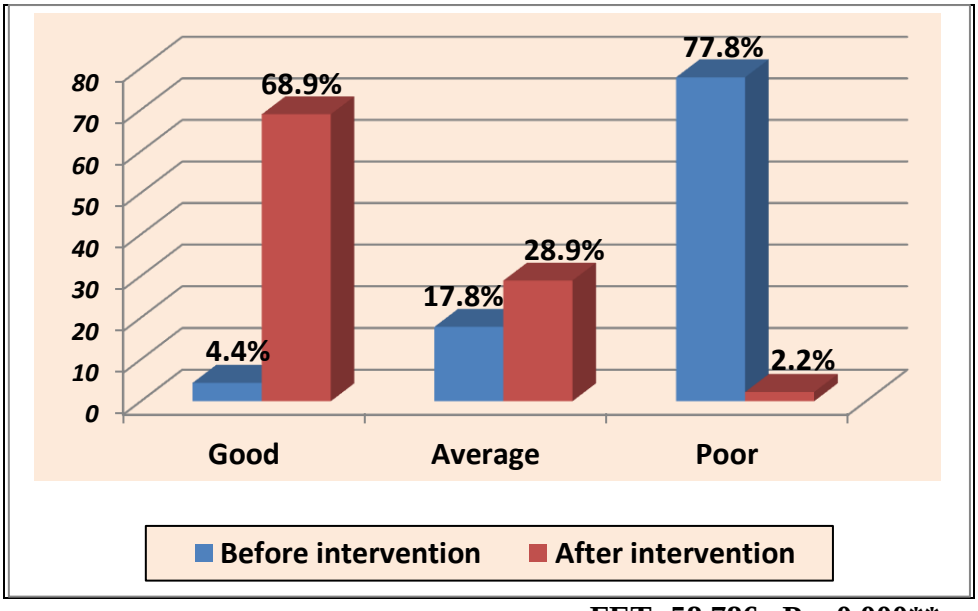
Table (2): Distribution of the studied women according to obstetrics and gynecology history (n=45)

Obstetrics and gynecology history	No	%
Parity		
Two times	8	17.8
Three times	5	11.1
Four or more times	32	71.1
Mode of delivery		
Normal vaginal delivery	42	93.3
Cesarean section	3	6. 7
Duration of pelvic organ prolapse (months)		
< 6	27	60.0
6 < 12	11	24.4
12 ≤ 24	7	15.6
Mean ± SD	7.46 ± 5.28	
Stage of prolapse		
Stage I	15	33.3
Stage II	26	57.8
Stage III	4	8.9
Type of prolapse		
Anterior	18	40.0
Posterior	9	20.0
Anterior and posterior	12	26.7
Apical	6	13.3

Table (3): Distribution of the studied women according to knowledge about pelvic organ prolapse before and after nursing intervention (n=45)

Knowledge about pelvic organ prolapse	Before intervention						After intervention						X^2	P-value
	Completely correct answer		Incompletely correct answer		Don't know		Completely correct answer		Incompletely correct answer		Don't know			
	No	%	No	%	No	%	No	%	No	%	No	%		
Meaning	7	15.6	25	55.6	13	28.8	33	73.3	12	26.7	0	0.0	FET	0.000**
Types	3	6.7	11	24.4	31	68.9	19	42.2	24	53.4	2	4.4	FET	0.000**
Causes	5	11.1	14	31.1	26	57.8	32	71.1	7	15.6	6	13.3	34.536	0.000**
Symptoms	9	20.0	33	73.3	3	6.7	26	57.8	91	42.2	0	0.0	FET	0.001**
Diagnosis	2	4.4	7	15.6	36	80.0	22	48.9	15	33.3	8	17.8	FET	0.000**
Complications	0	0.0	10	22.2	35	77.8	9	20.0	30	66.7	6	13.3	FET	0.000**
Preventive measures	0	0.0	8	17.8	37	82.2	12	26.7	29	64.4	4	8.9	FET	0.000**
Measures for relieving POP symptoms	0	0.0	6	13.3	39	86.7	32	71.1	13	28.9	0	0.0	FET	0.000**
Treatment options	0	0.0	20	44.4	25	55.6	30	66.7	15	33.3	0	0.0	FET	0.000**

FET= Fisher Exact Test ** A highly significant difference at p≤ 0.001.



FET=58.786 P = 0.000**

Figure (1): Distribution of the studied women according to total knowledge score about pelvic organ prolapse before and after nursing

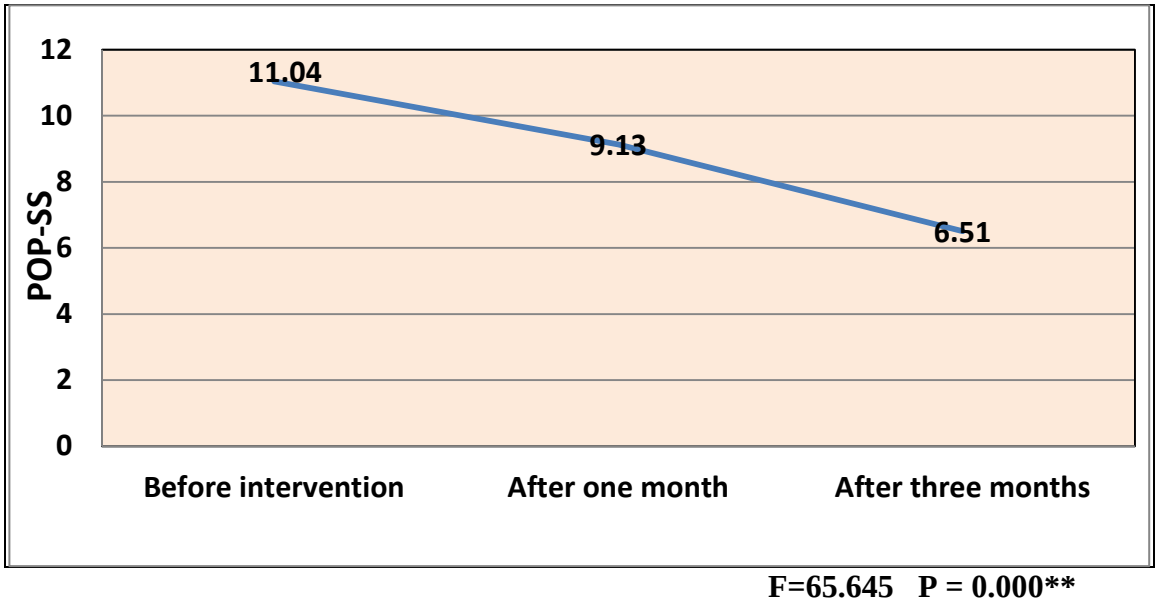
Times of assessment / Compliance items	Before intervention		After one month		After three months		Test of significance	P value
	No	%	No	%	No	%		
Practicing the pelvic floor muscle exercise correctly and regularly								
Comply	0	0.0	32	71.1	42	93.3	FET	0.000**
Sometimes	4	8.9	8	17.8	3	6.7		
Not comply	41	91.1	5	11.1	0	0.0		
Weight reduction								
Comply	3	6.7	24	53.3	32	71.1	FET	0.000**

intervention (n=45)

Sometimes	26	57.8	14	31.1	9	20.0		
Not comply	16	35.6	7	15.6	4	8.9		
Avoidance sitting in squatting position or standing for long hours								
Comply	1	2.2	18	40.0	26	57.8	FET	0.000**
Sometimes	15	33.3	21	46.7	19	42.2		
Not comply	29	64.4	6	13.3	0	0.0		
Avoid lifting heavy things								
Comply	4	8.9	17	37.8	37	82.2	FET	0.000**
Sometimes	9	20.0	23	51.1	8	17.8		
Not comply	32	71.1	5	11.1	0	0.0		
Intake food that contains fiber to avoid constipation								
Comply	0	0.0	22	48.9	33	73.3	FET	0.000**
Sometimes	5	11.1	17	37.8	8	17.8		
Not comply	40	88.9	6	13.3	4	8.9		
Avoidance of high impact activity/exercise								
Comply	0	0.0	25	55.6	34	75.6	FET	0.000**
Sometimes	3	6.7	11	24.4	6	13.3		
Not comply	42	93.3	9	20.0	5	11.1		
Total score								
High compliance	1	2.2	32	71.1	39	86.7	FET	0.000**
Moderate compliance	2	4.4	13	28.9	6	13.3		
Low compliance	42	93.3	0	0.0	0	0.0		

Table (4): Distribution of the studied women according to compliance toward pelvic organ prolapse at follow-up periods (n=45)

FET= Fisher Exact Test ** A highly significant difference at p≤ 0.001.



F=65.645 P = 0.000**

Figure (2) Mean scores of the studied women's POP-SS score before nursing intervention and at follow-up periods (n=45)

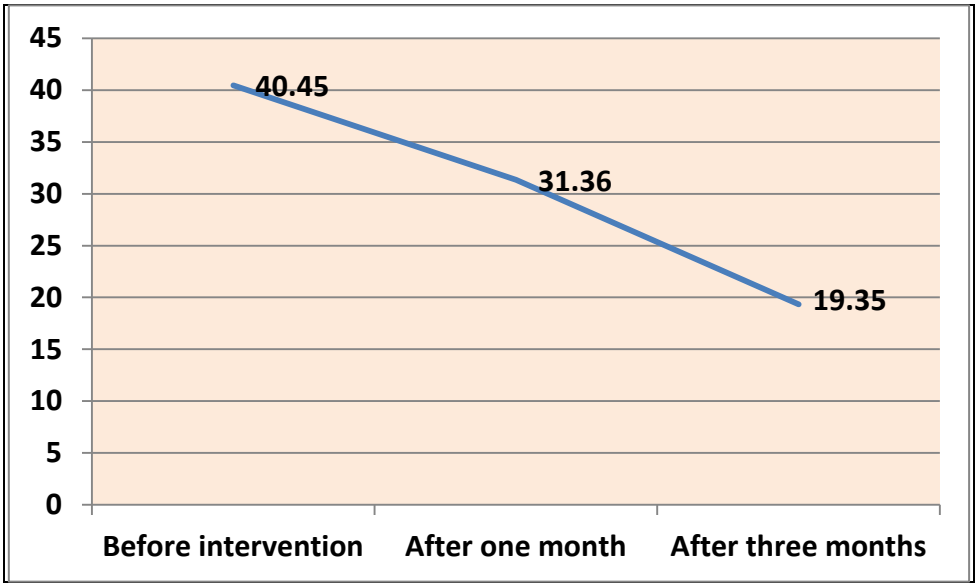
Times of assessment	Before intervention	After one month	After three months	x^2	P value

	No	%	No	%	No	%		
Ability to do household chores such as cooking ,laundry and housecleaning								
Not at all	8	17.8	9	20.0	17	37.8	18.951	0.004**
Somewhat	6	13.3	12	26.7	14	31.1		
Moderately	10	22.2	13	28.9	9	20.0		
Quite a bit	21	46.7	11	24.4	5	11.1		
Ability to do physical activities such as walking, or other exercise								
Not at all	5	11.1	10	22.2	21	46.7	21.267	0.002**
Somewhat	8	17.8	12	26.7	7	15.6		
Moderately	13	28.9	14	31.1	11	24.4		
Quite a bit	19	42.2	9	20.0	6	13.3		
Entertainment activities such as going to a movie or concert								
Not at all	12	26.7	17	37.8	23	51.1	FET	0.018*
Somewhat	14	31.1	11	24.4	15	33.3		
Moderately	10	22.2	13	28.9	7	15.6		
Quite a bit	9	20.0	4	8.9	0	0.0		
Ability to travel by car or bus for a distance more than 30 minutes away from home								
Not at all	17	37.8	19	42.3	31	68.9	FET	0.026*
Somewhat	14	31.1	11	24.4	9	20.0		
Moderately	6	13.3	10	22.2	4	8.9		
Quite a bit	8	17.8	5	11.1	1	2.2		
Participating in social activities outside home								
Not at all	10	22.2	25	55.6	33	73.3	FET	0.000**
Somewhat	13	28.9	5	11.1	8	17.8		
Moderately	7	15.6	9	20.0	3	6.7		
Quite a bit	15	33.3	6	13.3	1	2.2		
Emotional health (nervousness, depression)								
Not at all	7	15.6	16	35.5	25	55.6	FET	0.007**
Somewhat	15	33.3	12	26.7	11	24.4		
Moderately	10	22.2	8	17.8	6	13.3		
Quite a bit	13	28.9	9	20.0	3	6.7		
Feeling frustrated								
Not at all	5	11.1	17	37.7	32	71.1	FET	0.000**
Somewhat	24	53.4	12	26.7	8	17.8		
Moderately	6	13.3	9	20.0	4	8.9		
Quite a bit	10	22.2	7	15.6	1	2.2		

Table (5): Distribution of the studied women according to quality of life (n=45)

FET= Fisher Exact Test * A significant difference at $p \leq 0.05$.

** A highly significant difference at $p \leq 0.001$.



F=19.862 P = 0.000**

Figure (3) Mean scores of the studied women's total quality of life score before nursing intervention and at follow-up periods (n=45)

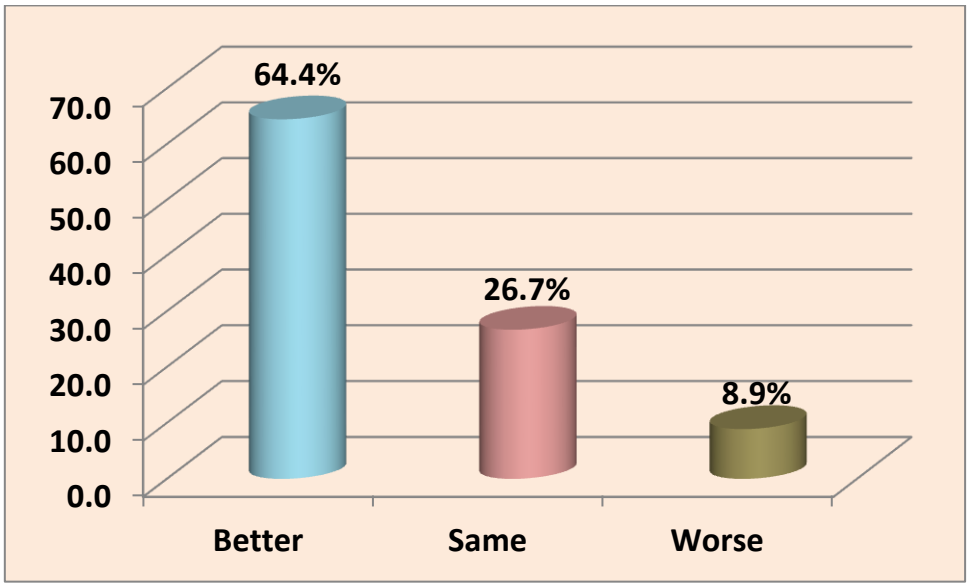


Figure (4): Women' self-reported change in POP symptoms from the start of the study (n=45)

Table (6) Correlation coefficient between Total POP-SS and total compliance score as well as total POPIQ-7score at different follow-up periods (n= 45)

Variable	Total POP-SS	
	r	p
Total compliance score before	-0.598	0.000**
Total compliance score after one month	-0.681	0.000**
Total compliance score after three months	-0.720	0.000**
Total POPIQ-7 score before	0.567	0.000**
Total POPIQ-7 score after one month	0.673	0.000**
Total POPIQ-7 score after three months	0.724	0.000**

Discussion

The present study aimed to evaluate the effect of nursing intervention on pelvic organ prolapse symptoms. The study finding revealed that more than half of the studied women were aged from 40 to 49 years old, with a mean age 43.62± 6.31 years. This is similar to **Aytan et al., (2014)** who reported that mean age of the women with genital prolapse was 42.8+9.4 years. This is disagreed with **Braekken et al., (2010)** reported that mean age of participants with POP was 48.9 ± 11.8 years. The findings also indicated that more than half of the studied women had secondary education and less than three-quarters of them from a rural area, the majority of them were married, and less than two-thirds were housewives. In addition, the mean body mass index was 32.03 ± 2.73 kg/m^2. This is supported by **Alshami et al., (2012)** who mentioned that increased body mass index may associate with prevalence POP symptoms.

As regards obstetrics and gynecological history, the findings of the current study showed that more than two-thirds of the studied women were multipara ≥ four and the most of them had normal vaginal deliveries. This is may be due to among parous women the odds for symptomatic pelvic organ prolapse increased with a number of childbirths. **Bijalwan et al., (2015)** contradicted this finding and reported that pelvic organ prolapse

is a common health problem affecting nearby 40% of multipara women above 35 years of age.

In addition, the study findings revealed that less than two-thirds of the studied women suffered from prolapse < 6 months, with the mean 7.46 ± 5.28 months. More than half of them had diagnosed as prolapsed with stage II. As well as more than one-third of them had anterior prolapse, while more than one-tenth of them had an apical prolapse. These findings are slightly similar to **Hagen et al., (2014)** found that stage II prolapse was the most common type among the studied women and median duration of prolapse symptoms was 12 months.

On investigating women' knowledge about pelvic organ prolapse, the findings of the current study revealed that more than three-quarters of the studied women had a poor level of knowledge before nursing intervention. These findings are in agreement with **Good et al., (2013)** stated that knowledge related prolapse is low in women seeking care for prolapse symptoms. The overall mean knowledge score was 2.2 ± 1.1 (range 0–5). On the contrary, **Mandimika et al., (2014)** found that 48.1% of women had lacked knowledge about pelvic organ prolapse in a community of New Haven, USA. This could be due to the difference of cultural.

However after nursing intervention, the studied women's knowledge about POP was improved significantly in all items of knowledge. Additionally, more than two-thirds of the studied women had a good level of knowledge about pelvic organ prolapse. This may be accounted on women's interest to attain knowledge regarding POP and the effect of nursing intervention on helping women to acquire knowledge about overcoming POP symptoms.

The current study findings elaborated that women' compliance toward recommended pelvic organ prolapse nursing instructions were

improved significantly at follow-up periods. This improvement might be due to the fact that the women recognized the importance and availability of carrying out all the recommended instructions regarding overcoming prolapse symptoms. Additionally, the studied women have a greater incentive to nature and non invasive modalities for reducing POP symptoms. This indicated the effective of nursing intervention.

Concerning women' pelvic organ prolapse symptom score, the study finding indicated that mean total score of POP symptoms was significantly reduced after one month and three months. This is may be attributed to women' compliance toward recommended pelvic organ prolapse nursing instructions resulted in significant reduce in prolapse symptoms. This is in accordance with **Burgio (2014)** who concluded that women were taught to avoid activities that increase pressure on the pelvic floor, weight loss, and pelvic floor muscle training. Women who received these activities reported fewer prolapse symptoms.

Moreover, this finding is supported by **Priyanka et al., (2015)** who found that total mean of POP symptom score at initial assessment was 19.70 with (range 0-40). Meanwhile, after nursing intervention package was given the mean score remarkably decreased to 11.52 at 6 weeks, and 6.22 at 4 months. They concluded the effectiveness of nursing intervention package on reducing the prolapsed symptoms, severity and the need for further surgery and treatment. Also, this is congruent with **Hagen et al., (2014)** reported that mean POP symptom score at baseline was 10.04 in the intervention group (pelvic floor muscle exercise along with lifestyle advice) and 9.51 in the control group (lifestyle advice). The mean reduction in self-reported symptoms from baseline was 3.77 in the intervention group and 2.09 in the control group. The reduction was significantly greater in the intervention group compared with control.

In relation to the impact of POP on quality of life, the findings of the current study revealed that there was a significant improvement in POPIQ-7 at follow-up periods compared to before nursing intervention. This may be due to POP symptoms represent a source of concern for many women as these symptoms have a negative effect on physical, social, and psychological functions. Accordingly, the studied women complied with recommended nursing instructions to overcome these symptoms. These findings are in accordance with **Geoffrion et al., (2009)** who reported that quality of life scores for women with POP significantly improved from baseline to three months after educational program ($p = 0.005$). **Chan et al., (2012)** added that women suffering from POP report symptomatic distress and impaired quality of life.

Furthermore, the finding of the present study illustrated that more than half of the studied women had reported an improvement in POP symptoms from the start of the study compared to less than one-tenth of them reported that POP symptoms were worse. This may due to the effect of nursing intervention as focused on helping women to enhance enthusiasm to comply with practice recommended instructions and thus improve POP symptoms. This is in agreement with **Wiegersma et al., (2014)** who found 57% of participants in the intervention group (pelvic floor muscle training and lifestyle device) reported an improvement in overall symptoms from the start of the study compared with 13% in the watchful waiting group (received no treatment and no recommendations).

Moreover, the findings of the current study indicated that there was a highly statistically significant negative correlation between the studied women' total POP symptoms score and total compliance score before nursing intervention and at follow up periods. On the other hand, a highly statistically significant positive correlation between the studied women'

total POP symptoms score and total POPIQ-7score before nursing intervention and at follow up periods. This may be due to a positive impact of nursing intervention that helps women to deal with POP symptoms. This is supported by **Kashyap et al., (2013)** found that provision of pelvic floor muscles training along with self-instruction manual effectively reduced symptoms, severity of POP and improved quality of life. In addition, **Berzuk and Shay (2015)** found that health education is associated with an increase in quality of life and a decrease in pelvic floor symptoms.

Conclusion

Based on the results of the present study, it can be concluded that nursing intervention was effective in improving women' knowledge regarding pelvic organ prolapse and compliance toward recommended nursing instructions. As well a reduction in prolapse symptoms and better quality of life at follow-up periods. Thus, the research hypotheses are supported.

Recommendations

Based on results of the present study, the following recommendations can be suggested:

- Provision of instructional booklets to women with pelvic organ prolapse for improving knowledge, compliance and reducing symptoms.
- Regular follow-up for women with pelvic organ prolapse to evaluate the impact of POP on quality of life and detect complications early.

Recommendations for furthers researches:

- Assess the impact of application nursing intervention on women' outcomes regarding different POP disorders.
- Long-term benefits should be investigated
- Replication of the study on a large sample and in different settings is recommended for generalization of results.

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From September 2008 to May 2010, 354 women were seen on a consultation basis for POP; for this study, 20 (5.6%) were excluded, 26 (7.4%) refused to participate or did not complete the study, and 308 (87.0%) completed.