

Effect of Instructional Supportive Guideline for Improving Women's Awareness towards Endometriosis

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Abstract Background: Endometriosis is when the tissue that makes up the uterine lining is present on other organs inside your body. Endometriosis is estimated to affect between 3.0% and 10.0% of reproductive-aged women. Endometriosis is rarely found in girls before they start their period. **Aim:** The study aimed to evaluate the effect of instructional supportive guideline for improving women's awareness towards endometriosis. **Subjects and Methods:** This was a quasi-experimental study. Pre-post and follow-up by time series analysis study which was conducted among 300 women fulfilled criteria attending the gynecological outpatient clinic and inpatient units at Ain-Shams-Maternity-University-Hospital. Data collection tools were a Structured Interviewing Questionnaire, Andera-Mankoski-Pain-Scale, and written Arabic instructional guideline about endometriosis. **Result:** The present study showed that the majority of the studied women had incorrect knowledge about endometriosis. Meanwhile, there was statistically significant difference of the women's knowledge about the endometriosis after educational session and at follow up-time compared to their knowledge before it (P-value <0.001). A statistically significant relationship between women's level of Andera-Mankoski-Pain-Scale and their knowledge regarding endometriosis was found (P<0.05). **Conclusion:** Designing and implementing an instructional supportive guideline about endometriosis indicated a significant effect with a remarkable improving women's awareness level about it. **Recommendations:** Provision of the instructional guideline in a simple Arabic language with timely education and increased awareness for women seeking gynecological health care services. Moreover, engagement with schools and employers through health education campaign to increase their awareness about endometriosis and its impact on the quality of the reproductive health.

Keywords: endometriosis, pain, awareness, guideline

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1. Introduction

Endometriosis is defined as the presence of endometrial-like tissue outside the uterus. Endometriosis triggers a chronic inflammatory reaction resulting in pain and adhesions. Adhesions develop when scar tissue attaches separate structures or organs. The activity and the complaints due to endometriosis may vary during the woman's menstrual cycle as hormone levels fluctuate [1,2]. Consequently, symptoms may be worse at certain times in the cycle, particularly just before and during the woman's menstrual period. While some women with endometriosis experience severe pelvic pain, others have no symptoms at all or regard their symptoms as simply being 'ordinary menstrual pain'. It can also significantly impact the families, partners and careers of those with endometriosis, as well as the social and economic participation, physiological, mental and psychosocial health of those affected [3,4].

The prevalence of endometriosis has been difficult to assess for many reasons, including the following: (i) diagnosis can be definitively made only by direct visualization during laparoscopy or laparotomy and critically depends on the clinical expertise of the surgeon; (ii) a large proportion of women with the disease may be asymptomatic, which may lead to an underestimation in the number of cases; and (iii) culturally, pain symptoms related to periods are usually considered natural where women are often misguidedly taught to view severe pain during menses as normal, so that they do not seek medical care. Consequently, many affected women remain undiagnosed; therefore, the true incidence rate of this disease is unknown [5].

It was estimated that 176 million women globally, and in North America 8.5 million women are affected with endometriosis [6]. Up to 50.0% of women with infertility, 10.0% of women of childbearing age, and 70.0% to 90.0% of women with pelvic pain have endometriosis [7]. Furthermore, in Dakahlia Governorate, Egyptian prevalence of endometriosis in adolescents with severe

dysmenorrhea was 12.3% from January 2012 to October 2014 [8]. Endometriosis can be staged I-IV; (I-minimal, II-mild, III-moderate, and IV severe) according to the American Society of Reproductive Medicine (ASRM), based on; the location, extent, and depth of endometrial implants, a presence, and severity of adhesions and size of ovarian endometriosis. The ovaries, tubes, and walls of the pelvis are common targets. The bladder and bowel can be affected and, on rare occasions far-flung body parts such as the liver can be involved. With every period the deposits bleed, setting off a vicious cycle of inflammation and scarring [9].

Endometriosis is usually found in the lower abdomen, or pelvis, but can appear anywhere in the body. Women with endometriosis commonly experience very painful menstruation and dyspareunia (painful coitus). Some will also have pelvic pain which can last throughout the cycle. Bowel symptoms, such as bloating and diarrhea, are common and are often put down to irritable bowel syndrome. Symptoms of bladder irritation are experienced by two-thirds of sufferers. Fertility is often reduced. On the other hand, some women with endometriosis may not have any symptoms at all. In advanced cases, scarring in the pelvis makes it difficult for an egg and sperm to meet and fertilize. Even in mild cases, a kind of inflammatory substances in the pelvis can be toxic to eggs and embryos which are resulting in infertility [10,11].

The causes of endometriosis remain unclear. There is likely no single cause; genetic, biological, and environmental factors may influence the condition. Although treatments are available, they are not always effective. There is currently no cure for endometriosis, with symptom recurrence following medical or surgical treatments common. However, it is recognized that early assessment and intervention can lead to better long-term management, including lessening the impact of symptoms and improving quality of life, helping women affected by endometriosis to live normal healthy lives [12].

Furthermore, women often have misconceptions and myths about endometriosis that prevents them from seeking gynecological advice. Therefore, gynecological nurses are one of the main health care providers who play important roles in increasing women's awareness regarding endometriosis and dissemination of information. Additionally, nurses are in a good position to help deliver key correct health messages to women. In particular, nurses can provide advice on preventive further complications resulting from misdiagnosis of endometriosis and can refer women to gynecologists for examinations. Hence through better recognition of the common symptoms, women can receive a timely diagnosis and can then start to consider their management options [13].

1.1. Aim of the Study

This study aims to evaluate the effect of instructional supportive guideline for improving women's awareness of endometriosis. This aim was achieved through:

- a. Assessing women's knowledge about endometriosis.
- b. Designing and implementing educational sessions using the instructional guideline.
- c. Evaluating the effect of an instructional guideline on women's awareness.

1.2. Research Hypothesis

Women's awareness of endometriosis will improve after conducting the educational sessions using the instructional guideline.

2. Subjects and Methods

The methodology followed for achieving this aim was elaborated under the following four main topics namely:

- 2.1. Technical design
- 2.2. Administrative design
- 2.3. Operational design
- 2.4. Statistical design.

2.1. Technical Design

The technical design used for the study involved the following items; research design, the setting of the study, the sample of the study and tools for data collection.

2.1.1. Research Design

A quasi-experimental study design was used.

2.1.2. Setting

The study was conducted at the obstetrics & gynecology outpatient clinic and inpatient units in Ain-Shams-Maternity-University-Hospital, Cairo, Egypt.

2.1.3. Subjects

2.1.3.1. *Sample type*: Convenient sample

2.1.3.2. *Sample Size*: The above-mentioned study setting received 300 women during the six months of data collection period (five months for sample collection and one month for follow up) by using time series analysis.

2.1.3.3. *Samples' inclusion criteria*: All women diagnosed with endometriosis regardless of their age, educational level, socio-demographic status, parity and stage of the disease, women with different stages of endometriosis. After diagnostic laparoscopy for endometriosis, under the management of endometriosis-related pain, during her reproductive years, married or single

2.1.3.4. *Samples' exclusion criteria*: history of any chronic medical or gynecological disorder.

2.1.3.5. *Sample technique*: All available women fulfilling inclusion criteria were attending the gynecology outpatient clinic and/or admitted at inpatient units at Ain-Shams-Maternity-University-Hospital, Cairo, Egypt. The sample was collected in the predetermined duration that was six months from 1st November 2018 to 30th April 2019.

2.1.4. Tools of Data Collection

They were adopted by the researchers based on the review of literature considering the aim of the study and the data needed to be collected.

2.1.4.1. Tool (A): A structured interview questionnaire includes 3 parts

a. **First part**: Concerned with bio-socio-demographic data that covered women age, address, education level, occupation, marital status, residence, and social level

b. Second part: Concerned with obstetrical and gynecological history (gravity, parity, type, stages & duration of endometriosis, and types of surgery for its treatment).

c. Third part: Concerned with assessment of women's knowledge regarding endometriosis (definition, risk factors, causes, common sites, symptoms, and the impact of endometriosis on life, question about endometriosis including stages, duration of disease, dysmenorrhea, pain with intercourse, and pain with bowel movement, excessive bleeding, infertility, etc).

Scoring of the questions

Each question was scored as (2) for a correct answer & (1) for an incorrect answer. The total score of knowledge was classified into: satisfactory knowledge was $\geq 60\%$ & unsatisfactory knowledge was $< 60\%$.

2.1.4.2. (B): Andera-Mankoski-Pain-Scale [14].

Assessment of pain for women was done by with endometriosis using Andera-Mankoski-Pain-Scale. It devised this pain scale to help a woman to describe the subjective experience of pain in more concrete terms. When ones are asked to score pain on a scale of 1 to 10, a lot of people, especially women find this difficult. Here at last is something with words not numbers that helps us to explain degrees of pain.

0- Pain Free

1- Very minor annoyance - occasional minor twinges. No medication needed.

2- Minor Annoyance - occasional strong twinges. No medication needed.

3- Annoying enough to be distracting. Mild painkillers take care of it (Aspirin, Ibuprofen).

4- Can be ignored if you are involved in your work, but still distracting. Mild painkillers remove pain for 3-4 hours.

5- Can't be ignored for more than 30 minutes. Mild painkillers ameliorate pain for 3-4 hours.

6- Can't be ignored for any length of time, but you can still go to work and participate in social activities. Stronger painkillers (Codeine, narcotics) reduce pain for 3-4 hours.

7- Makes it difficult to concentrate, interferes with sleep. You can still function with effort. Stronger painkillers are only partially effective.

8- Physical activity severely limited. You can read and converse with effort. Nausea and dizziness set in as factors of pain.

9- Unable to speak. Crying out or moaning uncontrollably - near delirium.

10- Unconscious. Pain makes you pass out.

Scoring system:

The total score for severity of pain was 10 score. The patient's responses were given on a scale ranging from one to ten and the total scores were categorized into three levels as mild pain = 1- 3, moderate pain = 4 - 6 and sever pain = > 7 score.

2.1.4.3. (C): An Arabic Instructional Guideline

Developed by the researchers supported by colored illustrated pictures about endometriosis

2.1.5. Ethical Consideration

The ethical research considerations in this study include that the research approval was obtained from the Scientific Research Ethical Committee in the Faculty of Nursing at

Ain Shams University before starting the study. Then, the researcher clarified the objective and aim of the study to the participants included in the study. After that, written consent was obtained from participants after explaining the purpose of the study based on that no harmful methodology was used and that each participant had the right to withdraw from the study at any time. At the same time, all human rights were secured and data as confidential and using coding system form data.

2.2. Administrative Design

Official approval to conduct this study was obtained from the Dean of faculty of nursing Ain-Shams University, a letter containing the title and aim was directed to the director of the study setting for data collection.

2.3. Operational Design

The operational design includes a preparatory phase, pilot study, and fieldwork.

2.3.1. Preparatory Phase

It includes reviewing recent and past, national & international related literature and theoretical knowledge of various aspects of the study using books, articles, internet, periodicals, and magazines to develop tools for data collection related to the aim of the study. The adopted tools were examined by a group of three experts (specialized university professors) in field of maternity & gynecological nursing to measure validity and reliability of tools and necessary according to their opinions and comments modifications were done.

2.3.2. Pilot Study

A pilot study was carried out on 30 participants attended the study setting for one month. The pilot study was aimed to test clarity, arrangement of the items, applicability of the data collection tools and time-consuming to fill in the tools. After analyzing the results of the pilot study the items were been rearranged and tools modifications were done based on the findings of the pilot study. Some questions were excluded, rephrased and then the final form was developed.

2.3.3. Field Work

After approval was taken from the director of the previously mentioned study setting, the researcher attended the previously mentioned setting for 3 days per week from 10:00 am to 2:00 pm for 6 months from 1st November 2018 to 30th April 2019.. The researcher started small educational sessions consisted of 15 groups each group included 20 women. A pre-test was conducted by distributing the structured questionnaire after sufficient clarification for the participants in each small group. Each group took 30-45 minutes to complete the study tool, after that one teaching session 1:30 to 2:00 hours, containing interactive group discussion and using power point presentation, followed by a break, and then closing by an overall summarization. Power point presentation and Arabic instructional guideline are giving for the participated women to be used in a later time and to help in awarding other relative personnel. The content was

included well-formed information about the definition, signs and symptoms, causes, risk factors, treatment, adverse effects, preventive measures of endometriosis. The final test was done immediately after conducting the educational session, then after one month of follow up was done by using the same pretest tool.

2.4. Statistical Design

Recorded data were analyzed using the statistical package for social sciences, version 20.0 (SPSS Inc., Chicago, Illinois, USA). Quantitative data were expressed as mean \pm standard deviation (SD). Qualitative data were expressed as frequency (n) and percentage (%).

2.4.1. The Following Tests Were Done

Chi-square (χ^2) test of significance was used to compare proportions between qualitative parameters. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the P-value was considered significant as the following:

2.4.2. Probability (P-value)

P-value ≤ 0.05 was considered significant.

P-value ≤ 0.001 was considered as highly significant.

P-value > 0.05 was considered insignificant.

3. Results

Table 1 show that the mean age of the studied women is 30.45 ± 6.29 . More than a half (56.3%) of the studied sample was a secondary level of education, around two-thirds (65.0%) were lived in a rural area and the majority (89%) were housewives. Concerning their income, 51.3% of them had not enough family income. Regarding their marital status, 92.7% of them were married.

Table 2 illustrates that 71.7% of the studied women had from 1 to 2 times pregnancy; while parity was 70.7%. Regarding types of endometriosis, 56.3% of the studied women had ovarian endometriosis with 51.3% of them had classified stage I. The mean duration of endometriosis of the studied women was 3.7 ± 0.95 years.

Table 3 reveals that there was a statistically significant difference of the studied women's knowledge about endometriosis symptoms after the educational session and at follow up time compared to their knowledge before it (p-value < 0.001).

Table 4 demonstrates that there was a statistically significant difference of the studied women's knowledge about the endometriosis after the educational session and at follow up time compared to their knowledge before it (p-value < 0.001).

Table 5 and Figure 1 indicate that there was a statistically significant difference between total pre and post knowledge regarding total knowledge among the studied women (p-value < 0.001).

Table 6 and Figure 2 indicate that there was no statistically significant difference between pre and post & follow-up total Andrea Mankoksi Pain Scale among the studied women.

Table 7 displays that there were statistically significant relations between the women's total level of knowledge

and their age, women's educational level, residence, occupation, and family income, with p-value < 0.05 .

Table 8 indicates that there were statistically significant relations between the studied women's level of Andrea Mankoksi Pain Scale and their age, educational level, marital status, and occupation with p-value < 0.05 .

Table 9 points out that there were statistically significant relations between the studied women's level of Andrea Mankoksi Pain Scale and their knowledge regarding endometriosis with p-value < 0.05 .

Table 1. Distribution of the studied women according to their general characteristics (n = 300)

Socio-demographic data	No	%
Age (in years)		
20-30	99	33.0
30-	138	46.0
>40-45	63	21.0
Mean \pm SD	30.45 \pm 6.29	
Women's Educational level		
Primary education	75	25.0
Secondary education	169	56.3
University education	56	18.7
Residence		
Rural	195	65.0
Urban	105	35.0
Occupation		
Employed	33	11.0
House wife	267	89.0
Family Income level		
Enough	30	10.0
Not enough	154	51.3
Barely enough	116	38.7
Marital status		
Single	7	2.3
Married	278	92.7
Divorced	15	5.0

Table 2. Distribution the studied women according to their obstetrical and gynecological history (N = 300).

Obstetrical and gynecological History	No.	%
Gravidity		
None	33	11.0
1 to 2	215	71.7
≥ 2	52	17.3
Parity		
None	38	12.7
1 to 2	212	70.7
≥ 2	50	16.6
Type of Endometriosis		
Ovarian	169	56.3
Recto-vaginal	131	43.7
Stages of Endometriosis		
Stage I (Minimal)	154	51.3
Stage II (Mild)	116	38.7
Stage III (Moderate)	30	10.0
Duration of Endometriosis (Years)		
2-	169	56.3
3-	75	25.0
5-	56	18.7
Mean \pm SD	3.7 \pm 0.95	
Types of Surgery (N= 293)		
C-section	45	15.4
Hysteroscopy	34	11.6
Laparoscopy	90	30.7
Myomectomy	88	30.0
Cystectomy	16	5.5
Cyst Drilling or Cauterization	20	6.8

Table 3. Distribution of the studied women regarding their knowledge about endometriosis symptoms (N = 300).

Endometriosis Symptoms		Pre		Post		Follow-Up		p-value	
		No.	%	No.	%	No.	%	Pre & Post	Post & Follow-Up
1. Pain with bowel movement or urination.	Correct	69	23.0	258	86.0	246	82.0	< 0.001**	0.221
	Incorrect	231	77.0	42	14.0	54	18.0		
2. Excessive bleeding (heavy menstruation).	Correct	27	9.0	204	68.0	189	63.0	< 0.001**	0.229
	Incorrect	273	91.0	96	32.0	111	37.0		
3. Dysmenorrhea	Correct	54	18.0	267	89.0	261	87.0	< 0.001**	0.529
	Incorrect	246	82.0	33	11.0	39	13.0		
4. Dyspareunia	Correct	84	28.0	264	88.0	255	85.0	< 0.001**	0.339
	Incorrect	216	72.0	36	12.0	45	15.0		
5. Infertility	Correct	60	20.0	255	85.0	237	79.0	< 0.001**	0.072
	Incorrect	240	80.0	45	15.0	63	21.0		
6. Fatigue	Correct	45	15.0	249	83.0	234	78.0	< 0.001**	0.149
	Incorrect	255	85.0	51	17.0	66	22.0		
7. Constipation or diarrhea	Correct	96	32.0	276	92.0	267	89.0	< 0.001**	0.265
	Incorrect	204	68.0	24	8.0	33	11.0		
8. Nausea & vomiting	Correct	108	36.0	246	82.0	228	76.0	< 0.001**	0.088
	Incorrect	192	64.0	54	18.0	72	24.0		
Total knowledge	Satisfactory	68	22.7	252	84.0	240	80.0	< 0.001**	0.242
	Unsatisfactory	232	77.3	48	16.0	60	20.0		

Using: Chi-square test (χ^2); P-value>0.05 (NS); *P-value <0.05 (S); ** P-value <0.001 (HS).

Table 4. Distribution of the studied women regarding their knowledge about endometriosis (N=300)

Knowledge about Endometriosis		Pre		Post		Follow-Up		p-value	
		No.	%	No.	%	No.	%	Pre & Post	Post & Follow-Up
1. Concept	Correct	57	19.0	255	85.0	240	80.0	< 0.001**	0.133
	Incorrect	243	81.0	45	15.0	60	20.0		
2. Risk Factors	Correct	51	17.0	261	87.0	246	82.0	< 0.001**	0.114
	Incorrect	249	83.0	39	13.0	54	18.0		
3. Manifestation	Correct	69	23.0	243	81.0	228	76.0	< 0.001**	0.164
	Incorrect	231	77.0	57	19.0	72	24.0		
4. Causes	Correct	36	12.0	264	88.0	249	83.0	< 0.001**	0.105
	Incorrect	264	88.0	36	12.0	51	17.0		
5. Common Sites	Correct	66	22.0	246	82.0	231	77.0	< 0.001**	0.157
	Incorrect	234	78.0	54	18.0	69	23.0		
6. Complications	Correct	51	17.0	261	87.0	246	82.0	< 0.001**	0.114
	Incorrect	249	83.0	39	13.0	54	18.0		
7. Treatment	Correct	45	15.0	267	89.0	252	84.0	< 0.001**	0.094
	Incorrect	255	85.0	33	11.0	48	16.0		
8. Time to visit gynecologist	Correct	54	18.0	258	86.0	243	81.0	< 0.001**	0.124
	Incorrect	246	82.0	42	14.0	57	19.0		
9. Prevention	Correct	75	25.0	237	79.0	222	74.0	< 0.001**	0.178
	Incorrect	225	75.0	63	21.0	78	26.0		
Total knowledge	Satisfactory	56	18.7	255	85.0	240	80.0	< 0.001**	0.133
	Unsatisfactory	244	81.3	45	15.0	60	20.0		

Using: Chi-square test (χ^2) P-value>0.05 NS; *p-value <0.05 S; **p-value <0.001 HS

Table 5. Descriptive statistics for cumulative total knowledge among the studied women regarding Endometriosis (N=300).

Total knowledge	Pre		Post		Follow-Up		p-value	
	No.	%	No.	%	No.	%	Pre & Post	Post & Follow Up
Satisfactory	62	20.7	254	84.7	240	80.0	< 0.001**	323.477
Unsatisfactory	238	79.3	46	15.3	60	20.0		

Using: Chi-square test (χ^2) P-value>0.05 (NS); *P-value <0.05 (S); ** P-value <0.001 (HS).

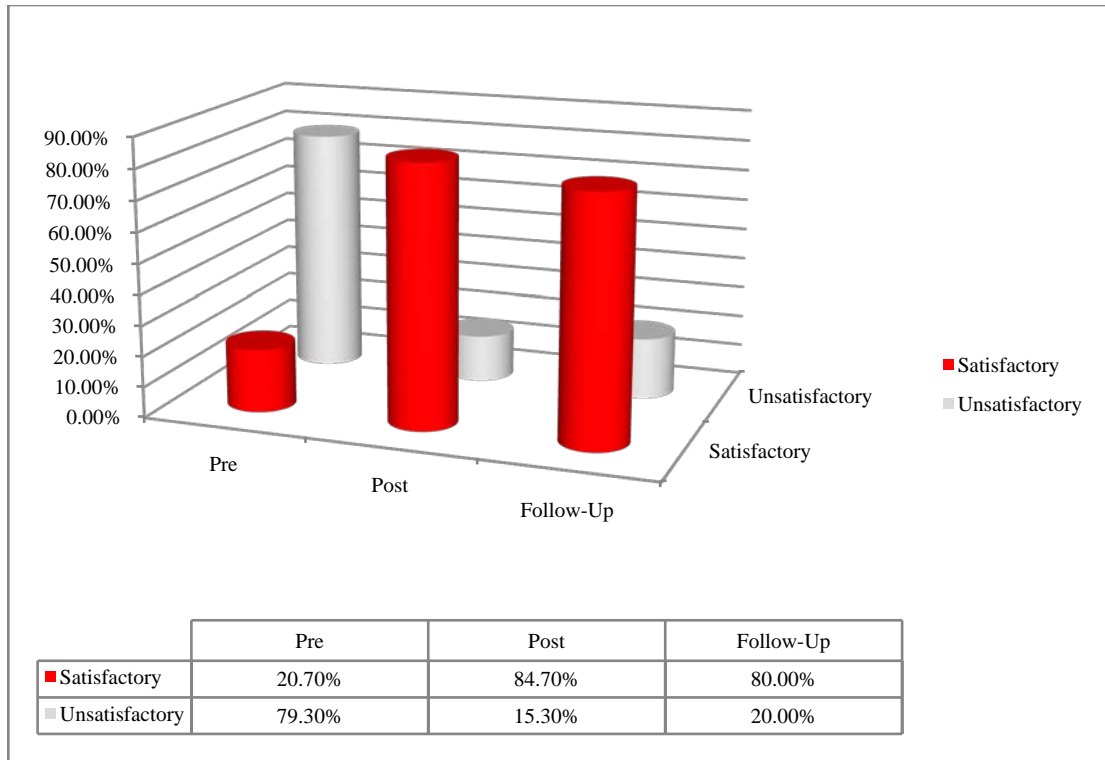


Figure 1. Women’s cumulative total knowledge regarding Endometriosis

Table 6. Distribution of the studied women regarding their total score of Andrea Mankoksi Pain Scale (N = 300).

Andrea Mankoksi Pain Scale	Pre		Post		Follow-Up		P-value	
	No.	%	No.	%	No.	%	Pre & Post	Post & Follow Up
Mild	270	90.0	272	90.7	275	91.7	0.777	0.504343
Moderate	30	10.0	28	9.3	25	8.3		
Severe	0	0.0	0	0.0	0	0.0		

Using: Chi-square test (χ^2) P-value>0.05 (NS); *P-value <0.05 (S); ** P-value <0.001 (HS).

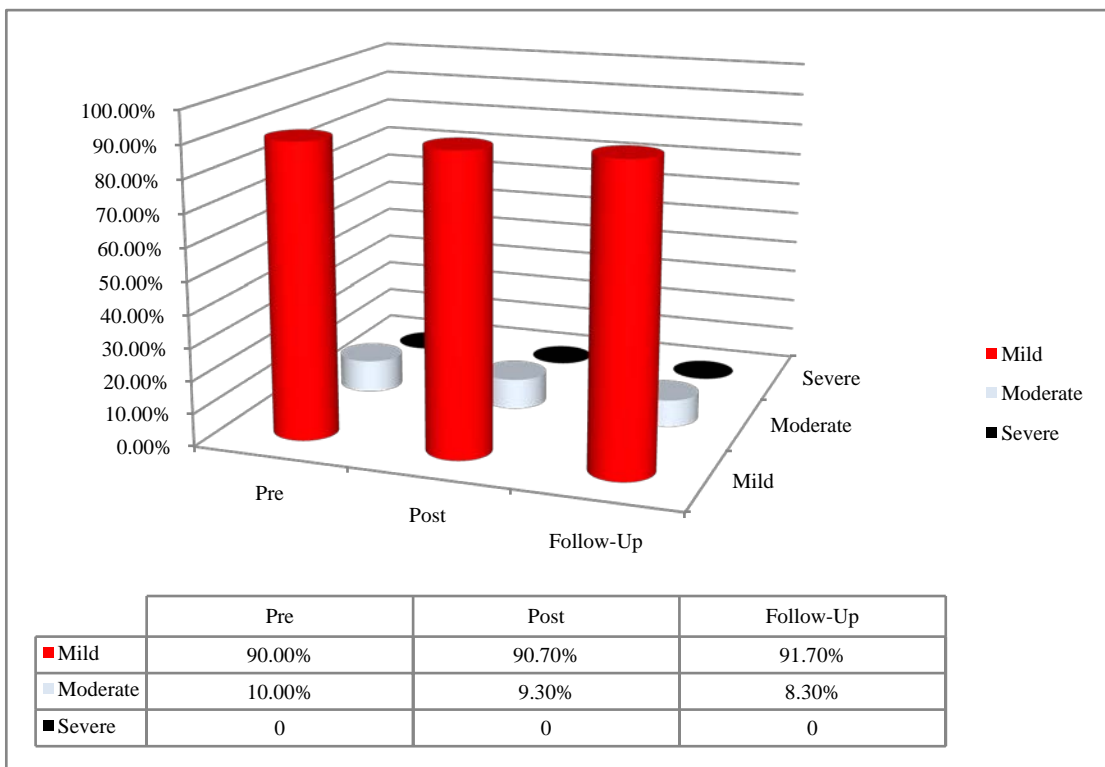


Figure 2. Women’s total score of Andrea Mankoksi Pain Scale

Table 7. Relation between the studied women's correct and incorrect total level of knowledge regarding endometriosis and their socio-demographic data (n=300).

Socio-demographic data	Total knowledge												
	Pre				Post				Follow-Up				
	Satisfactory (n = 62)		unsatisfactory (n = 238)		Satisfactory (n = 254)		unsatisfactory (n = 46)		Satisfactory (n = 240)		unsatisfactory (n = 60)		
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Age (in years)													
20-30	18	29.1	81	34.1	92	36.2	7	15.2	90	37.5	9	15.0	
30-	27	43.5	111	46.6	126	49.6	12	26.1	124	51.7	14	23.3	
>40-45	17	27.4	46	19.3	36	14.2	27	58.7	26	10.8	37	61.7	
Chi-square test	2.0085				46.6524				74.8039				
p-value	0.3663				< 0.001 **				< 0.001 **				
Educational level													
Primary education	12	19.4	63	26.5	73	28.7	2	4.4	70	29.2	5	8.3	
Secondary education	37	59.7	132	55.5	158	62.2	11	23.9	150	62.5	19	31.7	
University education	13	20.9	43	18.0	23	9.1	33	71.7	20	8.3	36	60.0	
Chi-square test	1.37303				101.388				85.0768				
p-value	0.5033				< 0.001 **				< 0.001 **				
Residence													
Rural	34	54.8	161	67.6	185	72.8	10	21.7	183	76.3	12	20.0	
Urban	28	45.2	77	32.4	69	27.2	36	78.3	57	23.7	48	80.0	
Chi-square test	3.54693				44.6945				66.7582				
p-value	0.0596				< 0.001 **				< 0.001 **				
Occupation													
Employed	9	14.5	24	10.0	8	3.1	25	54.3	5	2.1	28	46.7	
House wife	53	85.5	214	90.0	246	96.9	21	45.7	235	97.9	32	53.3	
Chi-square test	0.986922				104.279				97.4549				
p-value	0.320				< 0.001 **				< 0.001 **				
Family Income level													
Enough	10	16.1	20	8.4	7	2.8	23	50.0	5	2.0	25	41.7	
Not enough	32	51.6	122	51.3	144	56.7	10	21.7	142	59.2	12	20.0	
Barely enough	20	32.3	96	40.3	103	40.5	13	28.3	93	38.8	23	38.3	
Chi-square test	3.76704				97.7202				89.5546				
p-value	0.152				< 0.001 **				< 0.001 **				

Using: Chi-square test (χ^2) P-value>0.05 (NS); *P-value <0.05 (S); ** P-value <0.001 (HS).

Table 8. Relation between the studied women's level of Andrea Mankoksi Pain Scale and socio-demographic data among the studied sample (N=300)

Socio-Demographic data	Andrea Mankoksi Pain Scale													
	Pre				Post				Follow-Up					
	Mild (n = 270)		Moderate (n = 30)		Severe (n = 0)		Mild (n = 272)		Moderate (n = 28)		Mild (n = 275)		Moderate (n = 25)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Age (in years)														
20-30	80	29.6	19	63.3	0	0.0	81	29.8	18	64.3	82	29.9	17	68.0
30-	133	49.3	5	16.7	0	0.0	134	49.3	4	14.3	134	48.7	4	16.0
>40-45	57	21.1	6	20.0	0	0.0	57	20.9	6	21.4	59	21.4	4	16.0
Chi-square test	15.545				15.915				15.784					
p-value	0.0004 **				0.0003 **				0.0003 **					
Educational level														
Primary education	63	23.3	12	40.0	0	0.0	63	23.2	12	42.8	63	22.9	12	48.0
Secondary education	159	58.9	10	33.3	0	0.0	161	59.2	8	28.6	164	59.6	5	20.0
University education	48	17.8	8	26.7	0	0.0	48	17.6	8	28.6	48	17.5	8	32.0
Chi-square test	7.273				9.78729				14.7594					
p-value	0.0263				0.007 *				0.0006 **					
Marital Status														
Single	4	1.5	3	10.0	0	0.0	4	1.5	3	10.7	4	1.5	3	12.0
Married	256	94.8	22	73.3	0	0.0	258	94.8	20	71.4	261	94.9	17	68.0
Divorced	10	3.7	5	16.7	0	0.0	10	3.7	5	17.9	10	3.6	5	20.0
Chi-square test	18.815				21.0098				24.9855					
p-value	0.00008 **				0.00002 **				0.00003 **					
Occupation														
Employed	13	4.8	20	66.7	0	0.0	15	5.5	18	64.3	16	5.8	17	68.0
House wife	257	95.2	10	33.3	0	0.0	257	94.5	10	35.7	259	94.2	8	32.0
Chi-square test	105.508				89.5673				90.5098					
p-value	< 0.001 **				< 0.001 **				< 0.001 **					

Using: Chi-square test (χ^2) P-value>0.05 (NS); *P-value <0.05 (S); ** P-value <0.001 (HS).

Table 9. Relation between level of Andrea Mankoksi Pain Scale and the total level of knowledge regarding endometriosis among the studied women (N = 300)

Knowledge Regarding endometriosis	Andrea Mankoksi Pain Scale													
	Pre						Post				Follow-up			
	Mild (n = 270)		Moderate (n = 30)		Severe (n = 0)		Mild (n = 272)		Moderate (n = 28)		Mild (n = 275)		Moderate (n = 25)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Satisfactory	52	19.3	10	33.3	0	0.0	235	86.4	19	67.9	237	86.2	3	12.0
Unsatisfactory	218	80.7	20	66.7	0	0.0	37	13.6	9	32.1	38	13.8	22	88.00
<i>Chi-square test</i>	3.26195						6.72159				78.8182			
<i>p-value</i>	0.070						0.009 *				< 0.001 **			

Using: Chi-square test (χ^2) P-value>0.05 (NS); *P-value <0.05 (S); ** P-value <0.001 (HS).

4. Discussion

There are many myths around what endometriosis is, what is effective treatment and the options for a woman who has the disease. Through the scientific researches, many of these myths have been debunked; however, misinformation continues to be delivered to women by both healthcare professionals and the general public. Moreover, women living with endometriosis and chronic pelvic pain want to be recognized and have their condition taken seriously. At home and internationally, there is a pressing need to strengthen the response to the condition and to improve the quality of life (QOL) for those affected [15].

Therefore, the current study was aimed to evaluate the effect of instructional supportive guideline for improving women's awareness towards endometriosis; this aim was significantly achieved within the framework of the present study research hypothesis which was the application of guideline will expect to improve women's awareness. The finding of the present study had revealed that the majority among studied women had incorrect knowledge about the definition, risk factors, symptoms, common sites, prevention, complications, and treatment. This is revealed that the Egyptian women had no information and did not hear before about endometriosis. The majority was from a rural area in which it was shameless to discuss issues related to reproductive organ among them, the present study finding had pointed out our attention toward the significant improvement of women's awareness pre-intervention compared to post and follow-up intervention. Also, endometriosis vague and not easy to detect, diagnose and differentiate it from other similar manifestation of other diseases.

The finding of the current study revealed that the mean age of the studied women was 30.45 ± 6.29 . However, this was nearly congruent with Mishra et al. (2016) who reported that the mean age of women was 28.51 ± 5.15 years [16], it was in contrast with El-Maraghy et al. (2017) who reported that the mean age of the women with endometriosis was 37.3 years (range: 24 to 45 years) [17]. More than half (56.3%) of the studied women had a secondary education with a percentage of 65.0% of them live in rural areas. Concerning to occupation, more than three-quarter (89.0%) of the studied women were housewives. More than half (51.3%) of them had no enough monthly income. Furthermore, less than one-fifth (11.0% & 12.7%) of them were nulligravidae and nulliparae, respectively. Regarding the type of endometriosis, more than half of them had ovarian

endometriosis with stage I endometriosis. This was in the same line with Facchin et al, (2015) who found that overall 70.0% of the women had ovarian endometriosis, and 17.3% had recto-vaginal endometriosis. The mean duration of endometriosis of the studied women was 3.7 ± 0.95 years [18].

Meanwhile, the current findings reveal that there was a statistically significant difference of the studied women's knowledge about endometriosis symptoms after the educational session and at follow up time compared to their knowledge before it (p-value <0.001). This might be due to women interested with contents of instructional supportive guidelines used during the educational session that included a healthy diet, exercise and non-pharmacological management strategies that help them to acquire knowledge of how to adapt with endometriosis for overcoming the symptoms. This result was consistent with Moradi et al (2014) who pointed out that lifestyle changes such as exercise, diet, and sleep are used for the management of endometriosis [19]. Also, this is in agreement with Brandes et al. (2019), who stated that in gynecological practice, special attention should be given to the women, as the early onset of endometriosis symptoms and a long delay in diagnosis may indicate the risk of an unfavorable course of the patient's medical and socio-medical history over time [20].

Regarding to the knowledge of the studied women about endometriosis concept, risk factors, causes, complications, time to visit the gynecologist, treatment and prevention, the current findings demonstrates that there was a statistically significant difference of the studied women's knowledge about the endometriosis after the educational session and at follow-up time compared to their knowledge before it (p-value <0.001). This may be due to simple language and clarity of instructional supportive guideline which can be clearly understood by study sample which supported them to remove cloudiness, ambiguity understands and regarding endometriosis and enhancing their awareness about endometriosis and seek gynecological health services for management and diagnosis. Furthermore, may be due to fear about a negative effect on their future reproductive quality of life. Additionally, the current study findings display that there were statistically significant relations between the women's total level of correct and incorrect knowledge and their age, women's educational level, residence, occupation, and family income, with p-value<0.05. These findings are supported by Medical-Research-Funding (MRF) to accelerate action on endometriosis (2018) who stated that lack of awareness and understanding of the

endometriosis have a negative impact on the course of the disease so become worsens [21].

The results of the present study regarding the women's total knowledge of endometriosis; the pre-test of the present study revealed that most of the women had unsatisfactory knowledge about. This lack of knowledge may be attributed that this disease is not common among a large slid of women. After attending the guidelines, the results indicated that there is a significant increase in women's knowledge. This improvement was also maintained up to the follow-up test through the observed results. This improvement could be attributed to the attendance the guidelines sessions and the lecture and positive reinforcement or the long-term retention of knowledge, as well as wide verities of used educational used methods [22-25]. The distributed Arabic booklets, also, play a crucial role in attain and retain knowledge about endometriosis. Booklets are best used when they are brief, written in plain language, full of good pictures and when they are used to back-up other forms of education. This is, in accordance, with Edgar Dale's or the NTL's Pyramid of Learning as cited by Masters as the pyramid illustrated that individuals can retain 10.0% of what he read and 20.0% of what he sees and hear (audiovisual). The same author added that ones can retain 50.0% of what he learned by discussion [26-30].

Moreover, the current findings indicate that there were statistically significant relations between the studied women's level of Andrea Mankoksi Pain Scale and their age, educational level, marital status and occupation with p -value <0.05 . This result diverts our attention to improving awareness among women regarding endometriosis as a health problem which affects the quality of life of them such as work, study, marital status, through affecting physical and social and psychological aspect. Moreover, Egyptian women didn't make follow-up regularly and annually checkup, besides this silently endure pain without complaint. This was in agreement with Gupta et al. (2015) who reported that endometriosis affects health on general, physical, mental and social wellbeing, sexually life, work, relationship, all daily life, and mention that there is a necessitate for more potent spread awareness sessions about the disease manifestations [31].

Also, the current findings point out that there was a statistically significant relations between the studied women's level of Andrea Mankoksi Pain Scale and knowledge regarding endometriosis ($p<0.05$). This was supported by Horne et al. (2017), who reported that designing a health education programs about endometriosis and its related risk factors should be a priority to ensure early diagnosis of the disease [32]. Also, congruent with Ghonemy et al. (2017) who found a significant reduction of endometriosis-related pain; mean pain score pre and three months after completion of a health education program; 7.44 ± 1.45 and 5.7 ± 1.34 , respectively ($t = 10.798$, $p<0.001$) [33]. Findings of the current study showed that using instructional supportive guideline in the educational session was improving the women's awareness as revealed in both post and follow up scores. Finally, the present study finding had directed our attention that the supportive guideline is the most key

excessively adopted health promotion strategies used for women to improve their awareness regarding health problem for early detection, management, and prevention of further complications of endometriosis.

5. Conclusion

Designing and implementing an instructional supportive guideline about endometriosis indicated a significant effect with a remarkable improving women's awareness level about it.

6. Recommendations

Based on the findings of this study:

- Provision of the instructional guideline in a simple Arabic language with timely education and increased awareness for women seeking gynecological health care services.
- Engagement with schools and employers through health education campaign to increase their awareness about endometriosis and its impact on the quality of the reproductive health.
- Greater clarity about the patient care pathway and where women and girls with endometriosis and their support networks can seek help.

References

- [1] Dunselman, G.A., Vermeulen, N., Becker, C., Calhaz-Jorge, C., D'Hooghe, T., De Bie, B., Nelen, W. (2014): European Society of Human Reproduction and Embryology. ESHRE guideline: management of women with endometriosis. *Hum Reprod*, 29, 400-412.
- [2] Greene, A.D., Lang, S.A., Kendzioriski, J.A., Sroga-Rios, J.M., Herzog, T.J., & Burns, K.A. (2016): Endometriosis: where are we and where are we going? *Reproduction*, 152(3), R63-R78. <https://doi.org/10.1530/REP-16-0052>
- [3] National Institute for Health and Care Excellence, "Endometriosis: diagnosis and management," (2017) <http://nice.org.uk/guidance/ng73/resources>.
- [4] Ferreira, A.L.L., Bessaa, M.M.M., Drezett, J., & Abreub, L.C.D. (2016): Quality of life of the woman carrier of endometriosis: systematized review. *Peprodclim*, 3, 48-54.
- [5] Semedo, D, "Early detection and intervention in adolescent ovarian endometriosis," *Endometriosis News* (2015) <http://endometriosisnews.com/2015/06/24/>.
- [6] World Endometriosis Research Foundation: "Facts about endometriosis" <http://endometriosisfoundation.org/Facts-about-endometriosis>, 2015.
- [7] American Society for Reproductive Medicine Treatment of pelvic pain associated with endometriosis (2014): a committee opinion. *Fertil Steril*; 101(4): 927-935.
- [8] Ragab A, Shams M, Badawy A, Alkhatim M. (2015): Prevalence of endometriosis among adolescent school girls with severe dysmenorrhea: A cross sectional prospective study, *International Journal of Health Sciences*, Qassim University, 9(3): 273-281
- [9] Mechsner S. (2016): Endometriosis: An often unrecognized pain disorder, *Schmerz*. 2016 Oct; 30(5): 477-490.
- [10] Giuliani, M., Cosmia, V., Pierleonia, L., Recinea, A., Pieronia, M., Ticino, A., Simonelli C. (2016): Quality of life and sexual satisfaction in women suffering from endometriosis: An Italian preliminary study. *Sexologies*, 25, e12-e19.
- [11] Taylor RN, Lebovic DI. (2014): Endometriosis. In: Strauss JF, Barbieri RL (eds). *Yen & Jaffe's Reproductive Endocrinology*, 7th ed. Philadelphia, PA: Elsevier Saunders, pp. 565-585.

- [12] Posadzka, E., Jach, R., Pityński, K., & Jablonski, M. (2015): Treatment efficacy for pain complaints in women with endometriosis of the lesser pelvis after laparoscopic electro ablation vs. CO2 laser ablation, *Lasers Med Sci.*, 30(1): 147-152.
- [13] Anne M B, Mette B R, Axel F, and Lene S. (2016): Practices and Attitudes Concerning Endometriosis Among Nurses Specializing in Gynecology, *Global Qualitative Nursing Research*, 3: 1-12
- [14] Mankoski Pain Scale. Copyright © 1995, 1996, 1997 Andrea Mankoski. All rights reserved. Right to copy with attribution freely granted. Reprinted from the newsletter of the Post Polio Assn of South Florida May 2006.
<http://shsskip.swan.ac.uk/Information/Mankoski%20Pain%20Scale.htm>.
- [15] Taylor, H. S., Giudice, L. C., Lessey, B. A., Abrao, M. S., Kotarski, J., Archer, D. F., & Gallagher, J. C. (2017): Treatment of endometriosis-associated pain with elagolix, an oral GnRH antagonist. *New England Journal of Medicine*, 377(1): 28-40.
- [16] Mishra, V., Nanda, S., Gandhi, K., Aggarwal, R., Choudhary, S., & Gondhali, R. (2016): Female sexual dysfunction in patients with endometriosis: Indian scenario. *J Hum Reprod Sci.*, 9(4): 250-253.
- [17] El-Maraghy, M., Labib, K., El-Din, W.S., & Ahmed, A.B. (2017): The impact of endometriosis symptoms on health related quality of life and work productivity in Egypt. *Austin J Obstet Gynecol*, 4(3): 1078-1086.
- [18] Facchin, F., Barbara, G., Saita, E., Mosconi, P., Roberto, A., Fedele, L., & Vercellini, P. (2015): Impact of endometriosis on quality of life and mental health: pelvic pain makes the difference. *J Psychosom Obstet Gynaecol*, 36(4): 135-141.
- [19] Moradi, M., Parker, M., Sneddon, A., Lopez, V., & Ellwood, D. (2014): Impact of endometriosis on women's lives: a qualitative study. *BMC Women's Health*, 14: 123.
- [20] Brandes I, Hillemanns P, Schippert C. (2017): Differences in the Time Course of Disease Progression, Quality of Life and Health Service Utilization in Women with Endometriosis, *J Endometr Pelvic Pain Disord.*, 9(1): 50-55.
- [21] Commonwealth of Australia, "Medical research funding to accelerate action on endometriosis," 2 March 2018, health.gov.au/internet/ministers/publishing.nsf/Content/health-mediarel-yr2018-hunt021.htm.
- [22] Hassan H & Farag D. (2019): The impact of polycystic ovary syndrome on women's quality of life: Nursing guidelines for its management. *Clinical Nursing Studies*; 7(3): 42-57.
- [23] Mostafa H., Yousef F., Hassan H. (2018): Health Related Quality of Life Educational Interventions: Effect on Chronic Hepatitis C Patients'. *Saudi Journal of Nursing and Health Care*; 1(2): 56-67.
- [24] Hassan H. (2018): Effectiveness of a structured teaching program on anxiety and perception regarding toxoplasmosis among seropositive pregnant women in Northern Upper Egypt. *Clinical Nursing Studies*; 6(1): 1-19.
- [25] Hassanine Sh., Hassan H., Alkotb Z. (2017): Effect of Preventive Program on Progression of Osteoporosis among Female Patients over 40 years at El-Fayoum City. *American Research Journal of Nursing*; 3(1): 1-15.
- [26] Masters K. Edgar Dale's Pyramid of Learning in medical education: A literature review, *Medical Teacher*. 2013; 35(11): e1584-e1593.
- [27] Hassan H., Mohamady Sh., & Abd El-Gawad N. (2017): Protocol for improving nursing performance towards placental examination at labor units. *Clinical Nursing Studies*; 5(2): 1-11.
- [28] Farg D. and Hassan H. (2019): Study Hyperemesis Gravidarum Requiring Hospital Admission during Pregnancy: Effect of Nursing Implication on Its Progress. *American Journal of Nursing Research*; 7(3): 328-341.
- [29] Hassan H, Nasr E. (2017): Improving nurses' knowledge and skills regarding tocolytics for inhibiting preterm labor. *Clinical Nursing Studies*; 5(1): 1-12.
- [30] Mohamed W., Hassan H. Educational Program to Enhance Pregnant Women's Knowledge about Dental Care and Periodontitis Outcomes. *ARC Journal of Nursing and Healthcare*, 2019; 5(3): 23-33.
- [31] Gupta, S., Harlev, A., Agarwal, A., Reynolds, N., Beydola, T., & Haroun, N. (2015): Endometriosis: Impact on Patient Quality of Life. In *Endometriosis a comprehensive update*: (pp.75-78). Springer.
- [32] Horne et al., "Top ten endometriosis research priorities in the UK and Ireland," *Lancet* 389 (2017): 2191-2192.
- [33] Ghonemy, G.E., & El Sharkawy, N.B. (2017): Impact of changing lifestyle on endometriosis related pain. *IOSR Journal of Nursing and Health Science*, 6(2) 120-129.

