

**How to Cite:**

Abdo, E. S., Fahmy, N. M., & Mohamady, S. H. (2022). Instructional nursing guideline for prevention and early detection of vulvar infection among adolescent girls. *International Journal of Health Sciences*, 6(S6), 9880–9899.  
<https://doi.org/10.53730/ijhs.v6nS6.12555>

# **Instructional nursing guideline for prevention and early detection of vulvar infection among adolescent girls**

**Eman Salah Abdo**

Bachelor of Nursing - Mansoura University, Egypt

**Nadia Mohamed Fahmy**

Professor of Maternity and Newborn Health Nursing- Faculty of Nursing – Ain shams University, Egypt

**Shaimaa Hassan Mohamady**

Assistant Professor of Maternal and Newborn Health Nursing- Faculty of Nursing Helwan University, Egypt

**Abstract**--Background: Prevention and early detection of vulvar infection is a significant issue affecting the health of adolescent girls around the world. Aim: This study aims to evaluate the effect of instructional nursing guideline regarding prevention and early detection of vulvar infections among adolescent girls. Research design: A quasi-experimental design was used. Setting : This study was conducted at Baramon nursing school in Mansoura. Sample: A convenience sample of adolescent girls. Tools: Tool (I) Self Administrated Questionnaire included: demographic data and questionnaire to assess girls knowledge about vulvar infection. Tool (II) Self-care assessment sheet to assess self care reported practice. Tool (III) Early detection sheet for girls with vulvar infection. Tool (IV) follow up sheet regarding girls with vulvar infection. Results: result of the present study findings had revealed that a highly significant improvement in total knowledge and practice among the studied sample pre- instructional nursing guideline compared to post-instructional nursing guideline. Conclusion: The findings of the current study supported by the hypothesis. Recommendations: continuous educational program for adolescent girls related to vulvar infection should be widely provided for all adolescent girls.

**Keywords**--adolescent girls, infection, nursing guidelines, vulvar.

## **Introduction**

The vulvar infection is a global health problem which affects men, women, families and communities. Female adolescents alone have an estimated incidence of vaginitis of 10–25%. Vaginitis is one of the most prevalent infections among reproductive tract infections (RTIs), especially among adolescents. These infections threaten the adolescent's health and may have severe consequences such as infertility, ectopic pregnancy, chronic pelvic pain, abortion and an increased risk of HIV transmission. Therefore, proper prevention and treatment of this infection are of great importance (Abdelnaem&Hamido, 2019). Early detection and treatment aim to limit onward spread and prevent reproductive health problems in women (van Bergen, et al 2021). Adolescence is a period where adolescents experience the development and maturation of reproductive organs. Changes in maturity of the reproductive organs in women is menstruation. When adolescents are teenagers, students are not fully informed about menstruation. Knowledge about Menstruation is still considered taboo because access to information is still lacking from both the family and school environment. thus, it limits adolescent knowledge about menstruation especially vulva hygiene (Bulto, G. A. 2021). Vulva hygiene knowledge and skills are an effort to prevent and control infection, prevent skin damage, increase comfort and maintain personal hygiene. Vulva hygiene is done by cleaning the external genitalia area when bathing or urinating. If the implementation is not in accordance with the procedure or not even done, it will affect the vagina (Nikmah, &Ni'mah, 2020). Nurse provides and directs nursing care of the adolescent client that incorporates the knowledge of expected growth and development principles, prevention and/or early detection of health problems, and strategies to achieve optimal health. The nurse promotes physical health and wellness by providing care and comfort, reducing client risk potential and managing health alterations ( Ahmed, 2017).

## **Aim of the Study**

The aim of the current study was to evaluate the effect of instructional nursing guideline regarding prevention and early detection of vulvar infections among adolescent girls this aim achievement through:

- 1-Assess adolescent girls's knowledge regarding vulvar infections.
- 2-Assess adolescent girls's self care practice regarding vulvar infections.
- 3- Apply the instructional nursing guideline to adolescent girls's regarding vulvar infection.
- 4-Assess the early detection of vulvar infection.

5-Evaluate the effect of instructional nursing guideline on prevention and early detection of vulvar infection .

### **Research hypothesis**

Instructional nursing guidelines have positive effect on adolescent girls for prevention and early detection of vulvar infection.

### **Subject and Methods**

#### **Research design**

A quasi-experimental design (pretest, posttest) was used to carry out this study.

#### **Setting**

The study was conducted at Baramon nursing school in Mansoura, the school contain 3 classes first ,second and third year, each class contain 32 of adolescent girls. all sample size 96 of adolescent girls.

#### **Tools for data collection**

Data collection was obtained by using the following tools:

**Tool(I)Self Administrated Questionnaire:** Designed by the researcher included:

- **Part (1).**Demographic data such as (age,educational level, residence and mother education).
- **Part (2).** Questionnaire to assess adolescent girls knowledge about vulvar infection as (definition, causes, Symptoms, complication).

**Scoring system of knowledge:** Self administrated questionnaire include 9 questions (4 multiple choice questions and 5 right or wrong questions). for each answer was given 1 for correct and 0 for not correct. In addition, the score of total knowledge was divided into two levels, adequate Knowledge if the score was  $\geq 60\%$  , and inadequate if  $< 60\%$  .

**Tool (II) Self-care assessment sheet** to assess self care practice which designed and developed by researcher as reported by to adolescent girls including their general cleanness practices and practices regarding menstrual hygiene as measures taken by adolescent girls to prevent vulvar infection as (Clean genital

area after each toilet, dry after cleanliness, wear cotton underwear, wear loose under wear, etc...). (Said, Elbana, Salama 2019.)

**Scoring system of practices:** The score for self-care practice was ranged from 1 to 0 as follow, each statement took (1) score if done, (and (0) if not done. The total score of practices was divided into two levels, where the adolescent girl who was their practices scores  $\geq 60\%$ , they considered on the satisfactory level, and those who were score  $<60\%$  are on unsatisfactory level.

**Tool (III):** Early detection sheet for adolescent girls with vulvar infection regarding signs and symptoms, and action taken regarding vulvar infection.

**Tool (IV):** Follow up sheet regarding adolescent girls with vulvar infection include (numbers of girls with vulvar infections, numbers of girls who follow up and didn't follow up, causes of not follow up, result of follow up and diagnose).

### **Validity**

The developed tool was ascertained by a group of three experts in maternity and newborn health nursing, opinions elicited regarding the format, layout, consistency, accuracy and relevancy of the tools to measure the content validity of the tool. Modification was done according to revision tool for as rephrasing of some sentences.

### **Reliability**

Reliability of tools was tested by using Cronbach's alpha coefficient test, which revealed that the tools consisted of relatively homogenous items as showed by the moderate to high reliability of each tool. The Cronbach's alpha value of the reliability (internal consistency) for the knowledge domain was 0.852, for self-practice domain was 0.876.

### **Ethical considerations**

Ethical approval was obtained from the scientific research ethical committee at Faculty of nursing, Helwan University. The researcher was met the director of the selected school to clarify the aim of the study and take his approval. The researcher also met the study subject to explain the purpose of the study and to obtain their approval to participate. They were reassured about the Confidentiality of the data collected. The subject's right to refuse to participate or to withdraw from the study at any time.

### **Pilot study**

A pilot study was carried out on 10% of the adolescent girls (9 adolescent girls) to test the applicability, feasibility clarity of questions and time needed to complete the study tools. Based on the results. The pilot had also served to estimate the time needed for each subject to fill in the questionnaire. According to the results of the pilot, no corrections and omissions of items were performed, so the adolescent girls were included in the study sample.

## **Field work**

The current study was achieved through three phases: assessment phase (pre-test), implementation phase, evaluation phase (post-test) and follow up and early detection phase.

### **Assessment phase (pre-test)**

- The researcher hold the first meeting with each academic level (3 groups) in their school during one of their free classes or their break.
- The researcher followed the following steps with the 3 groups:
  - The researcher introduced herself and briefly explained the nature and the purpose of the study.
  - Oral approval of students to share in this study was achieved.
  - The researcher informed each student about the study in simple term then explained the tool content and the form was filled by the student.
  - The researcher gave the student tool (I) the first part to collect data about socio - demographic data, the second part to assess knowledge level of the student. This tool was fulfilled in about (15-20) minutes.
  - Then tool (II) was distributed to determine self care reported practices. This took about (10-15) minutes.
  - Finally, tool (III) was given to each student to assess signs and symptoms of vulvar infection to detect girls suffering from vulvar infection. This tool took about (5-10) minutes to be fulfilled.
- The booklet was given to adolescent girls after filling the tool.
- The assessment phase was completed in 3 weeks (one week for each group).
- After analysis of pretestdata students have:
  - Knowledge deficit of the causes and complications of vulvar infection .
  - Also there were deficit in reported practice as not drying before wearing underwear, not taking bath during menstruation and leaving pad long period .
  - Early detection of cases who having vulvar infection according to signs and symptoms (30 initial cases).

### **Implementation phase**

- The total sample (96) will be divided into small groups 6 groups each group r contained 13 students.
- All adolescent girls ( 6 groups) were given the theoretical and practical part .
- The theoretical part was given throw two sessions each session took 2 hours daily according to adolescent girls available free time .
- first session contained the anatomy of the vulva ,definition and causes second session contained the symptoms and complication of vulvar infection .
- After finishing the theoretical part the practical part took other 2 days to completed .
- The booklet was used to explain the theoretical part the practical part.
- 7.The implementation phase completed in 6 weeks each group spent one week in the theoretical and practical part .

### Evaluation phase (post-test)

Post-test was held using the same tool of pre-test at the end of the week after practical part.

### Follow up of initial cases and early detection of new cases

- The researcher used follow up sheet to follow the cases determined with vulvar infection ( 30 cases).
- The follow up lasted for 3 months started after assessment phase.
- In the first month, the researcher was communicated with the adolescent girls with vulvar infection individual interviewing .
- The researcher convinced some adolescent girls to seek treatment with doctor.
  - Some adolescent girls agree to visit the doctor with the researcher.
  - Other adolescent girls visit the doctor individually
  - Also some adolescent girls refused going to the doctor and follow the instructions only.
- The doctor examined the adolescent girls who visit her and give them the appropriate treatment.
- In the second month of follow up, the researcher detected new cases with vulvar infection and recurrent cases.
- The new cases of adolescent girls with vulvar infection reported early signs and symptoms .
- The researcher accompanied them to seek treatment with doctor .
- In the third month, the researcher also detected new cases and recurrent cases with vulvar infection.

### Result

#### Part I: Personal characteristics of the studied adolescent girls

Table 1  
Distribution of adolescent girls regarding the socio-demographic characteristics.  
(n= 96)

Items	N	%
Age (Years)		
14 < 15	41	42.7
15 ≤ 17	55	57.3
Mean ±SD	15.6 ±1.1	
Educational Level		
First	32	33.3
Second	32	33.3
Third	32	33.3
Residence		

Rural	85	88.5
Urban	11	11.5
<b>Mother's education</b>		
Illiterate	2	2.1
Read and write	4	4.2
Secondary	66	68.8
University	24	25.0

Table (1) revealed that , (42.7 %) of the adolescent girls aged between 14 to less than 15 years old. regarding educational level of the adolescent girls this table showed that third of them ( 33.3 %) in the first level ,third (33.3 %) in the second level and the last third (33.3%) in the third level. Furthermore the majority of the adolescent girls (88.5%) live in rural residence. This table showed that more than half of mothers education of studied students graduated from secondary schools.

## Part II: adolescent girls knowledge about vulvar infection

Table 2  
Distribution of adolescent girls knowledge regarding vulvar infection (n=96)

Items	pre-instructional guidelines				Post-instructional guidelines				Chi-squaer	
	Incorrect		Correct		Incorrect		Correct			
	N	%	N	%	N	%	N	%	X <sup>2</sup>	P
Definition of vulvar infection	24	25.0	72	75.0	4	4.2	92	95.8	16.725	<0.001**
Causes of vulvar infection	50	52.1	46	47.9	10	10.4	86	89.6	38.788	<0.001**
Symptoms of vulvar infection	65	67.7	31	32.3	7	7.3	89	92.7	74.756	<0.001**
Complication of vulvar infection	66	68.8	30	31.3	9	9.4	87	90.6	71.089	<0.001**
wearing tight underwear may prevent vulvar infection	53	55.2	43	44.8	7	7.3	89	92.7	51.297	<0.001**
Unnecessary use of antibiotics may increase the chance of developing a vulvar infection	61	63.5	35	36.5	5	5.2	91	94.8	72.404	<0.001**
Wet underwear good area for microorganisms	62	64.6	34	35.4	7	7.3	89	92.7	68.434	<0.001**
The use of vaginal	64	66.7	32	33.3	7	7.3	89	92.7	72.612	<0.001**

douches may remove some of the natural bacteria in the vagina										
Washing underwear with warm water and soap increases the chance of infection	50	52.1	46	47.9	9	9.4	87	90.6	41.131	<0.001**

\*\*highly Significance at 0.0001 levels

Table 2 illustrates distribution of adolescent girls regarding to their total knowledge about vulvar infection pre and post instructional guidelines. It showed that, there was a significant improvement in total knowledge about vulvar infection among adolescent girls in posttest as compared to pretest assessment ( $p < 0.0001$ ).

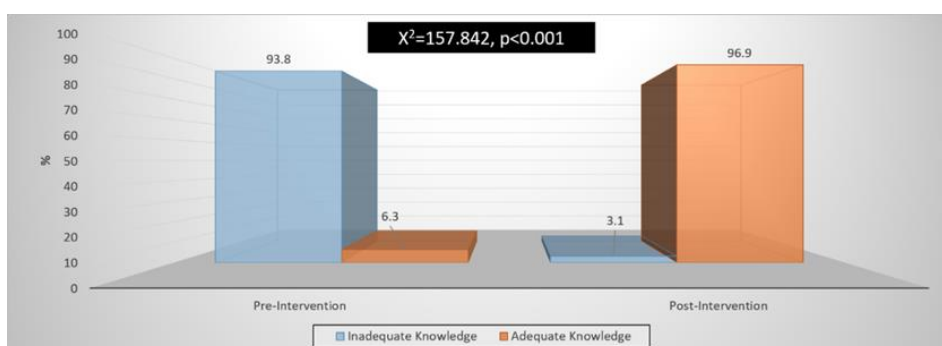


Figure 1. Distribution of adolescent girl's total knowledge level pre- and post-application of instructional nursing guidelines

Figure (1) showed that (93.8%) of adolescent girls had inadequate knowledge regarding vulvar infection pre- instructional nursing guidelines implementation and decreased to become 3.1% post- instructional nursing guidelines implementation. On the other hand, 6.3% of adolescent girls had adequate knowledge pre-instructional nursing guidelines implementation compared to 96.9% post- instructional nursing guidelines implementation with a highly statistically significant difference.

### Part III: Self care reported practice of adolescent girls

Table 3  
Distribution of adolescent girls Self-care reported practice domains scores

	Pre				Post				Chi-Square	
	Unsatisfactory		Satisfactory		Unsatisfactory		Satisfactory		X <sup>2</sup>	P
	n	%	N	%	N	%	N	%		
General Cleanness	86	89.6	10	10.4	6	6.3	90	93.7	133.565	<0.001**

Menstrual Hygiene	37	38.5	59	61.5	3	3.1	93	96.9	36.505	<0.001**
Self-Care Level	80	83.3	16	16.7	2	2.1	94	97.9	129.504	<0.001**

Table (3): Illustrated that an improvement in adolescent girls' self care reported practice was observed post implementing instructional nursing guidelines as compared to pre-implementing guidelines. There was a highly statistically significant difference between total practice pre/post of instructional nursing guidelines implementation (P- value<0.001).

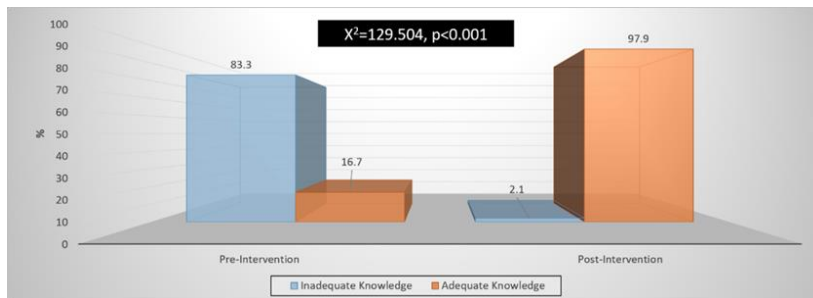


Figure 2. Distribution of the total self-care level pre- and post- application of instructional nursing guidelines

Figure (2) showed that (83.3%) of adolescent girls had inadequate practice regarding vulvar infection pre- instructional nursing guideline implementation and decreased to become 2.1 post- instructional nursing guidelines implementation. On the other hand, 16.7% of adolescent girls had adequate practice pre- instructional nursing guidelines implementation compared to 97.9 % post- instructional nursing guidelines implementation with a highly statistically significant difference.

**Part IV: Early detection for adolescent girls with vulvar infection**

Table 4

Distribution of adolescent girls regarding signs and symptoms of vulvar infection (n=96)

Items	Yes		No	
	N	%	N	%
<b>Symptoms adolescent girls suffering from</b>				
Itching	17	17.7	79	82.3
Burning	11	11.5	85	88.5
Malodors	15	15.6	81	84.4
Abnormal discharge	9	9.4	87	90.6
Inflammation around the labia and perineal areas	3	3.1	93	96.9
Discomfort while urinating	11	11.5	85	88.5
Thick white vaginal discharge	9	9.4	87	90.6

Action taken if adolescent girls have vulvar infection				
Go to private clinic to seek treatment	6	6.3	90	93.8
Tell my mother about complain	89	92.7	7	7.3
Ask my sister about complain	10	10.4	86	89.6
Ask my friends about complain	4	4.2	92	95.8
Cannot tell any person	7	7.3	89	92.7
Others	5	5.2	91	94.8
Barriers to seek gynecologist when adolescent girls exposed to vulvar infection				
Shyness	83	86.5	13	13.5
Tradition	2	2.1	94	97.9
No special girl centers	5	5.2	91	94.8
The belief that this is normal	28	29.2	68	70.8

N.B : adolescent girls may suffer from more symptoms of vulvar infection .

Table (4) indicated that there were cases of adolescent girls have symptoms of vulvar infection. this table showed that the majority of adolescent girls (92.7%) will tell mother about complain when having vulvar infection .As regard the barriers that prevent adolescent girls from seeking gynecologist when exposed to vulvar infection, it was observed that the shyness was the most pronounced barrier (86.5%). The belief that this is natural come the next barrier (29.2%), followed by there is no special girl's center (5.2%), and the tradition (2.1%).

#### **Part V: Prevention of vulvar infection of adolescent girls**

Table 5

Distribution of adolescent girls regarding prevention of vulvar infection. (n=96)

Items	Yes		No	
	N	%	N	%
Action taken to prevent vulvar infection				
Medication	5	5.2	91	94.8
Recurrent washing vulva	32	33.3	64	66.7
Cotton under wear	78	81.3	18	18.8
Not treated	10	10.4	86	89.6
Following the instructions	7	7.3	89	92.7
Dry after toilet	18	18.8	78	81.3
Clean vulva from front to back	5	5.2	91	94.8

Table (5) indicated that there were about (81.3%) of adolescent girls wearing cotton under wears to prevent vulvar infection .this table showed that the majority of adolescent girls (92.7%) didn't clean vulvar area from front to back. This table also showed that (18.8 %) of adolescent girls dry after toilet.

#### **Part (VI): follow up of initial cases with vulvar infection**

Table6  
Distribution of adolescent girls with vulvar infection during follow up.( n=30)

Items	Yes		No	
	N	%	N	%
After first month				
Follow up with doctor	16	53.3	14	46.6
Treated after follow up with doctor	13	81.25	3	18.75
Treated without follow up with doctor	2	14.28	12	85.71
After second month				
Recurrent cases	2	13.33	13	86.6
Follow up with doctor	11	64.70	6	35.29
Treated after follow up with doctor	9	81.81	3	27.27
Treated without follow up with doctor	3	50.0	3	50.0
After third month				
Recurrent cases	1	4.34	25	95.65
Follow up with doctor	7	100.0	0	0
Treated after follow up with doctor	6	85.71	1	14.28
Causes of not follow up with doctor ( n=14)				
Shyness	13	92.85	1	7.14
The belief that is normal	8	57.14	6	42.85
Parent refusing	4	28.57	10	71.42
Following the instructional guidelines	12	85.71	2	14.28
Practices adolescent girls with vulvar infection and didn't seek medical treatment ( n=14)				
Continuous change of underwear daily	12	85.71	2	14.28
Wear cotton underwear	13	92.85	1	7.14
Expose closes to sun rays	14	100.0	0	0
Dry after cleanliness	14	100.0	0	0

Table (6): illustrated distribution of adolescent girls with vulvar infection after follow up. It was noticed that, more than half of adolescent girls with vulvar infection (53.3 %) follow up with doctor during the first months and (81.25%) treated after follow up with doctor . also (81.18%) treated after follow up with doctor after second month. This table also showed that shyness was the most cause of not follow up with doctor.

Table 7  
Distribution of early detection of new cases with vulvar infection of adolescent girls

Items	Yes		No	
	N	%	N	%
First month (n=12)				

Signs and symptoms				
Itching	5	83.3	1	16.7
Burning	3	50.0	3	50.0
Malodorous	5	83.3	1	16.7
Abnormal discharge	6	100.0	0	0.0
Inflammation around the labia and perineal area	1	16.7	5	83.3
Discomfort while urination	2	33.3	4	66.7
Thick white vaginal discharge	2	33.3	4	66.7
Follow up with doctor	10	83.3	2	16.7
Second month (n=6)				
Signs and symptoms				
Itching	5	83.3	1	16.7
Burning	3	50.0	3	50.0
Malodorous	5	83.3	1	16.7
Abnormal discharge	6	100.0	0	0.0
Inflammation around the labia and perineal area	1	16.7	5	83.3
Discomfort while urination	2	33.3	4	66.7
Thick white vaginal discharge	2	33.3	4	66.7
Follow up with doctor	6	100.0	0	0.0
Third month (n=0)	0	0.0	0	0.0

Table (7): revealed that revealed that in the first month of follow up ,This table showed that abnormal discharge the most signs and symptoms student suffering from (83.3%) followed by malodorous (75.0%) and itching (58.3%). The majority of students with vulvar infection were having diagnosis and taking treatment (83.3%). The table showed that the causes of not follow up was shyness (100.0%). This table also showed in the second month of follow up nearly all students with vulvar infection were follow up. all student with vulvar infection having abnormal discharge (100.0%) followed by itching and malodours (83.3%).

Table 8

Association between the socio-demographic characteristics and total knowledge level

	Pre				Post			
	Inadequate Knowledge(n=90)		Adequate Knowledge (n=6)		Inadequate Knowledge (n=3)		Adequate Knowledge (n=93)	
	N	%	N	%	N	%	N	%
Age (Years)								
14 < 15	39	43.3	2	33.3	1	33.3	40	43.0
15 ≤ 17	51	56.7	4	66.7	2	66.7	53	57.0
Chi-Square	X <sup>2</sup> =0.230		P=0.632		X <sup>2</sup> =0.111		P=0.739	
Educational Level								

First	29	32.2	3	50.0	3	100.0	29	31.2				
Second	30	33.3	2	33.3	0	0.0	32	34.4				
Third	31	34.4	1	16.7	0	0.0	32	34.4				
Chi-Square	X <sup>2</sup> =1.067				P=0.586				X <sup>2</sup> =6.194		P=0.045*	
Residence												
Rural	81	90.0	4	66.7	3	100.0	82	88.2				
Urban	9	10.0	2	33.3	0	0.0	11	11.8				
Chi-Square	X <sup>2</sup> =3.019				P=0.082				X <sup>2</sup> =0.401		P=0.527	
Mother's education												
Illiterate	2	2.2	0	0.0	0	0.0	2	2.2				
Read and write	4	4.4	0	0.0	3	100.0	1	1.1				
Secondary	61	67.8	5	83.3	0	0.0	66	71.0				
University	23	25.6	1	16.7	0	0.0	24	25.8				
Chi-Square	X <sup>2</sup> =0.776				P=0.855				X <sup>2</sup> =71.226		P<0.001**	

\*\*highly Significance at 0.0001 levels

Table(8) illustrates the relationship between students' total knowledge with their socio-demographic characteristics. It was noticed there was no statistically significant ( $p>0.05$ ) relation between students' total knowledge score with students' socio-demographic data. While in posttest there was a highly statistically significant relation between the students' total knowledge score with their mother's education ( $P<0.005, 0.01$ ), respectively.

Table 9

Association between the socio-demographic characteristics and total self-practice level

	Pre				Post							
	Unsatisfactory level (n=80)		Satisfactory level (n=16)		Unsatisfactory level (n=2)		Satisfactory level (n=94)					
	N	%	N	%	N	%	N	%				
Age (Years)												
14 < 15	35	43.8	6	37.5	0	0.0	41	43.6				
15 ≤ 17	45	56.3	10	62.5	2	100.0	53	56.4				
Chi-Square	X <sup>2</sup> =0.213				P=0.645				X <sup>2</sup> =1.523		P=0.217	
Educational Level												
First	26	32.5	6	37.5	1	50.0	31	33.0				
Second	26	32.5	6	37.5	0	0.0	32	34.0				
Third	28	35.0	4	25.0	1	50.0	31	33.0				
Chi-Square	X <sup>2</sup> =0.600				P=0.740				X <sup>2</sup> =1.021		P=0.600	
Residence												
Rural	71	88.8	14	87.5	2	100.0	83	88.3				

Urban	9	11.3	2	12.5	0	0.0	11	11.7
Chi-Square	X <sup>2</sup> =0.021		P=0.886		X <sup>2</sup> =0.264		P=0.607	
Mother's education								
Illiterate	2	2.5	0	0.0	1	50.0	1	1.1
Read and write	4	5.0	0	0.0	1	50.0	3	3.2
Secondary	58	72.5	8	50.0	0	0.0	66	70.2
University	16	20.0	8	50.0	0	0.0	24	25.5
Chi-Square	X <sup>2</sup> =6.982		P=0.072		X <sup>2</sup> =34.723		P<0.001**	

\*\*highly Significance at 0.0001 levels

Table(9) illustrates the relationship between students' total self-practice level with their socio-demographic characteristics. It was noticed there was no statistically significant ( $p>0.05$ ) relation between students' total self-practice level with students' socio-demographic data. While in posttest there was a highly statistically significant relation between the students' total self-practice level with their mother's education ( $P<0.005, 0.01$ ), respectively.

Table 10  
Association between the total knowledge level and total self-practice level

	Pre				Post			
	Unsatisfactory level (n=80)		Satisfactory level (n=16)		Unsatisfactory level (n=2)		Satisfactory level (n=94)	
	N	%	N	%	N	%	N	%
Knowledge								
Inadequate Knowledge	76	95.0	14	87.5	2	100.0	1	1.1
Adequate Knowledge	4	5.0	2	12.5	0	0.0	93	98.9
Chi-Square	X <sup>2</sup> =1.280		P=0.257		X <sup>2</sup> =63.319		P<0.001**	

\*\*highly Significance at 0.0001 levels

Table(10) illustrates the relationship between total knowledge level and total self-practice level. It was noticed there was no statistically significant ( $p>0.05$ ) relation between students' total knowledge level and total self-practice level. While in posttest there was a highly statistically significant relation between the students' total knowledge level and total self-practice level ( $P<0.005, 0.01$ ), respectively.

## Discussion

vulvar Infections are a global health problem for adolescent girls at reproductive age. These infections threaten the girls's health and have negative impacts on their quality of life . because of the personal nature of vulvar infections, they are often avoided. Despite the fact that the symptoms have a severe influence on the quality of life for the girls who encounter them, vulvar infections have historically been a relatively underexplored subject and may have been seen as a minor problem (**Rashad, M. R., et al, 2021**). The current study was aimed to assess the effect of Instructional nursing guideline for prevention and early detection of vulvar infection among adolescent girls.

Regarding socio-demographic characteristics of the studied female students, the results presented that, the mean ages of the students were  $15.6 \pm 1.1$  years. this result is in line with (Shah, 2019) who considered this age as a risk factor to vulvar infection and also, he mentioned that younger female was vulnerable to significantly high rates of vulvar infections, and its complication., the result of the present study revealed that less than half of studied sample were in age group 14-17 years with a mean age of  $15.6 \pm 1.1$  years. As regards the residence, more than two-thirds of them lived in rural areas. This result is in accordance with (Youness& Omar, 2017), who applied their study in Egypt to assess the effectiveness of planned educational program on vaginitis and its preventive measures on adolescent female nursing student's knowledge, showed that the mean age of studied sample was  $19.2 \pm 0.53$ , and more than one half of studied students lived in rural areas.

This study showed a significant association between level of practice and mother's education status in post test ( $p < 0.05$ ). The correlation between knowledge and practice was also positive, the more knowledge the respondent has; better the practice is. This finding is similar to (Bajracharya, & Baniya, 2022) that showed that a significant association between level of practice and mother's education status ( $p < 0.05$ ). The correlation between knowledge and practice was also positive, the more knowledge the respondent has; better the practice is. Regarding the detection of vulvar infection among adolescent girls Regarding, the findings of the present study showed that, about one third (31.25%) suffer from vulvar infection from the total number of the adolescent girls. The findings of the current study are in contrast with the study conducted by Youness et al., 2017 in AlFayoum University which revealed that the prevalence of vaginal infection among faculty of nursing students was (76.0%). Moreover, the finding of the current study in contrast with the study conducted by Abdelnaem, et al. 2019, in Minia University which revealed that the prevalence of vaginal infection among girls at faculty of nursing students was about one quarter ( 25 %). The findings of the current study may be interpreted due to embarrassment of female students to participate in the present study due to culture difference in Egypt.

Meanwhile, there are barriers that prevent adolescent girls from seeking gynecologist when exposed to vaginal infection symptoms. It was observed that the shyness was the most pronounced barrier (86.5%). The belief that this is a

natural thing comes the second barrier (29.2%), This result is in agreement with (Abdelnaem, 2019) who conducted a study entitled (Effect of self-care guidelines on knowledge and quality of life among faculty of nursing students with vaginal infection). And found that barriers that prevent female students from seeking gynecologist when exposed to vaginal infection symptoms. It was observed that the shyness was the most pronounced barrier (58.0%). The belief that this is a natural thing comes the second barrier (28.5%). This might be due to the most studied sample in this study and in (Abdelnaem, 2019) were unmarried and in young age.

It was observed that 31.25% experienced problems in their genital area,itching (17.7%), burning (11.5%), abnormal odour (15.6%), abnormal discharge (9.4%) .Similarly, in the study of (Shah, 2019) it was observed that 36.8% experienced problems in their genital area (78.8%), itching (37.7%), vaginal discharge (24.7%) burning sensation and foul odour (19.9%) similarities also with a study conducted in India (2017) one third of the patients had symptoms of problems in their genital area such as 34% vaginal discharge and 28% burning micturition. As regards total knowledge score level at pretest and post-test, the current study findings reported that more than two-thirds of the studied students had inadequate knowledge related to vulvar infection and its preventive measures in pretest. Meanwhile, the great majority of them had adequate knowledge in post-test with a statistically significant difference ( $P < 0.001$ ). Hence, it is interpreted that the instructional nursing guidelines as regards vulvar infection and its preventive strategies was effective in increasing the level of students' knowledge. (Ahmed,, 2017 ) supported the current study results. They found that the mean post-test knowledge score of the women was higher compared with the mean pretest knowledge score.

According to self-care reported practices the present study showed that there were a highly statistically significant differences ( $P < .001$ ) in relation to all item of self-practice (general cleanness practice and menstrual hygienic practice before and after instructional nursing guidelines . In contrast with study by ( Said, 2019) "Education intervention guideline on knowledge and self-care practice for women with vulvovaginitis." reported that one third of sample good practice such as changing underwear, wearing cotton underwear and keeping the area dry completely to overcome vaginal infection.

According to knowledge of studied sample about vulvar infection, present study findings cleared that there was a highly statistical significant difference between the results of post-intervention phase compared to pre- intervention phase in favor of post- intervention regarding studied sample's knowledge about vulvar infection with  $p \leq 0.001$ . theses finding was matching with (Ebrahim Abd-Rabo, 2022), who revealed that the great majority of studied women don't know the correct answer about definition, causes, risk factors, and symptoms of vaginal infection in pretest. That transmitted to the majority of them know correct knowledge about all above items in posttest, with statistical significant difference between them  $p\text{-values} \leq 0.001$ . And (Said et al., 2019) showed statistical significant difference between pre and posttest regarding knowledge about vulvovaginitis  $p\text{-values} \leq 0.001$ .

Recurrent vaginal infection may impact negatively on adolescent Female's social, personal and work relationships significantly affecting Their quality of life. The primary role of the nurse in managing vaginal infections is to provide health education in order to modify the unhealthy behaviors and to prevent the occurrence as well as recurrence of vaginal infections to improve their quality of life (Rashad, M. R,et al 2022). Regarding the follow up the findings of the present study showed that, about (46.6%) of adolescent cases with vulvar infection didn't follow up with doctors during first months of follow up, and (35.29%) of adolescent girls with vulvar infection didn't follow up during the second month of follow up. the finding of the current study in contrast with the study conducted by Eid, Hassan 2019 which revealed that, the majority of the studied women refuse follow-up visit, Also, the majority of the women refused gynecological examination by a male physician.

### **Conclusion**

The findings of the current study supported by the hypothesis .

### **Recommendations**

- Continuous education programs for adolescent girls related to vulvar infection should be widely provided for all adolescent girls.
- The developed instructional guidelines regarding vulvar infection should be conducted and integrated into the rehabilitation programs.
- Replication of this study on a large sample and in different settings is recommended for generalization of results

**Further researches** are needed on a wide scale to assess What factors that affects the knowledge so that, will get inspired to prevent risk of vulvar infection and follow preventive measures.

### **References**

- Abdelnaem, S. A., &Hamido, S. (2019). Effect of self-care guidelines on knowledge and quality of life among faculty of nursing students with vaginal infection. *Obstet. Gynecol. Int. J*, 10.
- Ahmed, E. M. S., Esmat, O. M., Tantawi, H. R., & Sanad, H. M. (2017). Self-body Examination: Instructional Guide for Early Detection of Physical and Reproductive Health Problems among Adolescent Girls. *Life Science Journal*, 14(10).
- Bajracharya, S., & Baniya, A. (2022). Awareness of menstrual hygiene among adolescent girls at a government school, Chitwan, Nepal. *Journal of Chitwan Medical College*, 12(2), 14-18.

- Bulto, G. A. (2021). Knowledge on menstruation and practice of menstrual hygiene management among school adolescent girls in Central Ethiopia: a cross-sectional study. *Risk Management and Healthcare Policy*, 14, 911.
- Darmadi, N. M., Edi, D. G. S., Kawan, I. M., Semariyani, A. A. M., & Sudiarta, I. W. (2018). The changes in protein content, moisture content, and organoleptic pindang of auxis thazard due to re-boiling stored in cold temperatures. *International Journal of Life Sciences*, 2(3), 75–85. <https://doi.org/10.29332/ijls.v2n3.210>
- Ebrahim Abd-Rabo, E., Abd-ElsalamRamdan, S., Mohamed Abd El-Hakam, E., & Abdel-Wahab Afifi, O. (2022). Effectiveness of Baking Soda on Vaginal Yeast Infection among Adolescent Nursing Students. *Journal of Nursing Science Benha University*, 3(1), 108-122.
- Eid, S. R., Hassan, H. E., Fathy, W., & Abou-Shabana, K. R. (2019). Study women verbal and nonverbal response, during their first gynecological examination. *American Journal of Nursing Research*, 7(1), 1-7.
- Mohammed, S. J., & Salah, N. (2022). Study of the relationship between ferritin serum and thyroid function. *International Journal of Health Sciences*, 6(S5), 10873–10881. <https://doi.org/10.53730/ijhs.v6nS5.11143>
- Nikmah, K., & Ni'mah, M. (2020). The Relationship of Vulva Hygiene Behavior With Pruritus Vulvae Events When Menstruate in Adolescent Princess in Kalanganyar Village. *STRADA Jurnal Ilmiah Kesehatan*, 9(2), 1181-1185.
- Rashad, M. R., Mohamed, H. S. E., Emara, H. A., Elsabiey, F. I., & Salim, H. M. (2022). Quality Of Life among Women Diagnosed With Vaginal Infection. *Zagazig Nursing Journal*, 18(1), 52-69.
- Said, S. A. E., & Elbana, H. M. (2019). Education intervention guideline on knowledge and self-care practice for women with vulvovaginitis. *International Journal of Studies in Nursing*, 4(1), 73.
- Shah, S. K., Shrestha, S., Maharjan, P. L., Karki, K., Upadhayay, A., Subedi, S., & Gurung, M. (2019). Knowledge and practice of genital health and hygiene among adolescent girls of Lalitpur Metropolitan City, Nepal. *American Journal of Public Health Research*, 7(4), 151-156.
- Suryasa, I. W., Rodriguez-Gámez, M., & Koldoris, T. (2021). Get vaccinated when it is your turn and follow the local guidelines. *International Journal of Health Sciences*, 5(3), x-xv. <https://doi.org/10.53730/ijhs.v5n3.2938>
- Van Gerwen, O. T., & Muzny, C. A. (2019). Recent advances in the epidemiology, diagnosis, and management of *Trichomonas vaginalis* infection. *F1000Research*, 8.
- Youness, E. M., & Omar, A. M. (2017). Effectiveness of planned educational program on vaginitis and its preventive measures on adolescent female nursing student's knowledge. *Egyptian Nursing Journal | Published by Wolters Kluwer-Medknow*, 14(1).