

Effect of Instructional Guideline on the Psycho-sexual Aspect among Women with Human Papillomavirus

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ABSTRACT

Introduction: Among sexually transmitted infections, the most prevalent type is human papillomavirus. It's considered the primary cause for cervical cancer.

Objective: This study aimed to assess the effect of instructional guideline on the psychosexual aspect among women with HPV.

Methods: A quasi-experimental design was employed this study which was carried out on a purposeful sample of one hundred women who had been diagnosed with HPV at Maternity Hospital's Early Detection Unit. Two tools of data collection was used in this study as Structured interviewing questionnaire sheet and Psychosexual aspect assessment questionnaire through using World Health Organization Quality Of Life questionnaire [WHOQOL-BREEF.

Results of the study indicate that there were a high significant difference between studied women's psychological, sexual aspect pre instructional guideline, post one month and post three months of instructional guideline application as P-value < 0.001. as evidenced by, the good psychological, sexual aspect of the women increased from non of them pre-instructional guideline to roughly three quarters post three months of instructional guideline application. Moreover, there are a high significant relation between studied women's total psychological and sexual aspect one-month and three months post-instructional guideline application. The current study.

Conclusion: there are a high significant improvement of the studied women's psychological and sexual aspect post one month and post three months of instructional guideline application. Based on this finding, the researcher recommended; encourage routine follow up to provide psychological support to address anxiety, depression, and other psychological impact from HPV thereby improving overall women's health, develop tailor educational material that culturally and socially appropriate to ensure information is accessible and effective to deliver to all group of women.

KEYWORDS: Human Papillomavirus, Psychosexual Aspect, Instructional Guideline.

INTRODUCTION

Human papillomavirus [HPV] is regarded as one of the most common infections transmitted through sexual contact ^[1]. Between 50% and 80% of people who are sexually active worldwide will get HPV at some point in their lives ^[2]. Cervical cancer accounts for the majority of HPV-associated morbidity and mortality, with about 95% of instances of the disease being connected to the virus [Alessandro et al., 2018]. There are significant differences in the incidence of cervical cancer, with estimates indicating that 620,000 new cancer cases and 265,700 deaths annually in women were caused by HPV in 2020 on a global scale ^[3].

According to **Chabeda et al.** ^[4], there are two primary forms of human papillomavirus HPV genotypes: the low-risk type, which comprises HPV-6/11/40/42/43/44/54/61 and -72, which cause genital warts but not cervical cancer. 99.7% of occurrences of cervical cancer are caused by the high risk type and comprising HPV-16/18/31/35/39/45/51/ 52/56/58/66 and -68 ^[5]. There are additional risk factors that have been linked to HPV infection and the development of cervical cancer, including sexual behavior, abuse behavior [drinking alcohol and smoking], the mode of infection pathway, the long-term use of oral contraceptives, immunosuppression, and STIs ^[6].

Genital warts and changes in the cervical cellular are the two most frequent clinically meaningful signs of HPV infection. Dyspareunia, pruritis, and searing pain are signs of vulvar warts. Additionally, due to increased wart growth during pregnancy, vaginal warts can occasionally cause discharge, bleeding, or birth canal obstruction. Similarly, perianal and intra-anal warts can occasionally cause pain, bleeding during defecation, or pruritis ^[7]. A Pap smear, cytology screening, and an HPV test can all be used to diagnose human papillomavirus infection. Treatment and medical follow-up were key components of the effective management of HPV infection ^[8].

Actually, because of the discomfort associated with constant testing, intrusive and unpleasant treatments, and consultations, HPV infection has a worldwide effect on women's health and psychosexual component ^[9]. Additionally, HPV is linked to sadness, anxiety, and a fear of getting cervical cancer ^[10].

Moreover, the negative effects on sexual aspect as upon receiving the diagnosis of HPV, many women cease sexual intercourse due to several factors as physical symptoms such as pruritus, discharge, and dyspareunia, or emotional changes such as worry, fear from transmission of infection to her husband. Additionally social stigmas from infection ^[8].

So that, WHO emphasizes the importance of implementing guidelines for prevention, early detection, and management of medical conditions to enhance the psychological and sexual satisfaction, and overall life satisfaction. So that, [WHO] has initiated a worldwide initiative to eliminate HPV by 2030 ^[11].

A key objective of this endeavor is the development and implementation of HPV vaccines before initiation of sexual activity that can be applied through educator and counselor role of nurse by dissemination of the instructional guideline focus on improving awareness about healthy life style, psychological, and sexual wellbeing. On the other side, early detection for HPV and premalignant gynecological lesions can play a substantial role in reducing progress to cervical cancer and minimizing the need for extensive treatment ^[12]. On the other hand, nurses play a vital role in applied a holistic approach that include physical, emotional, and social aspects of the disease and discuss the various treatment options and self-care measures and follow-up care ^[13].

Significance of the study

Human Papillomavirus poses a significant financial burden because of the high expense of therapy, inability to find a definitive treatment option that offers a full cure, and recurrence of benign lesions. Due to the increasing prevalence of HPV infection worldwide, particularly among young people who engage in sexual

activity, these infections have also grown more noticeable in recent years. There were 43 million infections worldwide in 2020, with the majority of those affected being in their late teens and early twenties ^[14]. About 36.7 million women in Egypt who are 15 years of age or older are at risk of HPV-related cervical cancer. According to current estimates, 744 women lose their lives to cervical cancer each year, while 1320 women receive a diagnosis. In Egypt Every year, around 866 new instances of HPV-related cervical cancer are detected. In Egypt, cervical cancer is the 13th most common cancer between women and the 10th most common among women between the ages of 15 and 44 ^[15].

Various studies as *Bennett [2021]; Nady, El-Sherbiny, Youness, & Hassan., [2018]; Nahidi et al., [2020]* demonstrate that women infected with HPV have a range of physical, mental, affective-sexual, and social changes that impact their quality of life. These changes may be brought on by the stigma and shame associated with the diagnosis, which can cause stress and interfere with sexual activity. In order to assess the impact of instructional guidelines on the psychosexual component of women with HPV, the current study was conducted ^[16]. Based on these significant negative effects of HPV on psychosexual aspect of women ^[8]. Therefore, it is crucial to implement advanced nursing guidelines that raise awareness among women infected with the human papilloma virus infection. These guidelines should include education, vaccination, screening, and treatment. By raising women's awareness, the morbidities and fatalities associated with the human papilloma virus that causes cervical cancer will decrease, which will improve the psychosexual aspect of women's lives ^[9].

Methods

The Study aimed to evaluate the effect of the instructional guidelines on the psychosexual aspect among women diagnosed with human papillomavirus this aim will be achieved by assessing the impact of HPV on the psychosexual aspect before applying instruction guideline, then developing and implementing instructional guideline regarding HPV and evaluating its impact on the psychosexual aspect post one month and post three months of instructional guideline application.

Research hypothesis

Instructional guideline will affect the psychosexual aspect among women diagnosed with human papillomavirus.

SUBJECTS AND METHODS

Research Design

this study which was conducted at the early detection unit at Maternity and Gynecological Hospital used A quasi-experimental design. A purposive sample of 100 women was selected from the study setting who fulfilled the selected inclusion criteria as being diagnosed with HPV, free from other gynecological disorders or chronic medical disorders, married and educated women.

Data collecting tools:

Tool [I]: Human papillomavirus Structured Interviewing Arabic Questionnaire

It was created by the researcher following a review of recent relevant literature as Bennett, [2021], and it was used to evaluate the women under study before and after the instructional guideline was implemented. Both open-ended and closed-ended questions were included in this tool. It is separated into the following two sections:

Section 1: It discussed the sociodemographic information of the women under study [from questions No.1 to 7].

Part two: This part focused on the previous gynecological history of the studied women as previous gynecological complaints and current gynecological data such as signs and symptoms of HPV infection, management, etc, [from questions No.1 to 18].

Tool [2]: Psycho-sexual aspect assessment questionnaire using World Health Organization Quality of

Life Brief [WHOQOL [BREF]: Adapted from WHO, [2012]. It included 22 questions as follows; psychological aspect [10 items] [anxiety, stress and hopefulness, etc], and sexual aspect for women and their husbands [22 items]. This tool was used pre instructional- and post one month and post three months of instructional guideline application.

Scoring system:

Items are scored through Lickert scale type 1, 2, 3, 4, and 5 where [1] represented all times, [2] represents most of times, [3] represented sometimes, [4] represented few times [5] represented never times. For each dimension and for the total scale, the scores of items are summed up and the total is divided by the number of the items, giving the mean score for the part. So that the total quality score level was categorized as follows:

Good psycho-sexual aspect: $\leq 75\%$

Average psycho-sexual aspect: $50\% < 75\%$

Poor psychosexual aspect: $> 50\%$

In addition, an Arabic Instructional Guideline was developed by the researcher in Arabic form to improve the psycho-sexual aspect of the women diagnosed with HPV. Include the theoretical background of HPV and instructions for the improvement of psychological and sexual aspects of women.

Validity of the Tools

The tools used in data collection were reviewed by three specialists in obstetrics and gynecology to assess the content validity of the tools.

Internal consistency reliability

Reliability statistics using Cronbach's Alpha test for the tools. Testing the reliability of proposed tools was done by Cronbach's alpha test through the SPSS computer package. It was 0.742 for the "Structured Interviewing Arabic Questionnaire", and 0.981 for the "World Health Organization Quality of Life-Brief". This indicates that the two tools were reliable in detecting the objectives of the study.

Ethical Considerations include

The research approval was obtained from the Scientific Research Ethical Committee at the Faculty of Nursing before starting the study. Also, official permission was obtained from the director of the maternity and gynecological hospital in which the study will be conducted. The researcher clarified the objective and aim of the study to women included in the study. The researcher maintains the anonymity and confidentiality of the subject data. Women were informed that they were allowed to choose to participate or not in the study and that they had the right to withdraw from the study at any time.

Pilot Study

The pilot study was carried out on 10% of the total sample size including 10 women to test the study process and evaluate the applicability of the study and the validity of the tools and all research process steps to find the possible obstacles that might be faced during data collection. There's no modification done So that, this sample is included in the total study sample.

Field Work

The study was carried out over 18 months from 1st March 2022 to 1st September 2023 in three phases: assessment & planning, implementation, and evaluation.

Assessment and planning phase; It involved the obtaining an official written approval letter, which included the study title and outlined its objectives. This letter was issued by the Dean of the Faculty of Nursing and addressed to the director of the Early Detection Unit at the Maternity & Gynecological Hospital, requesting permission to carry out the study. Following approval, the researcher attended the Early Detection Unit three days per week, from 9:00 a.m. to 1:00 p.m., during which all women who met the inclusion criteria were enrolled in the study.

First, all participants were informed about the aim of the study, and oral and written consent was obtained from each woman; Then the researcher met each woman individually in the private, clean room **twice/a day**; The first time interview before the examination, the researcher provided emotional support to the women explained the form of a structured questionnaire, and told them how to fill in tools of data collection to gain a baseline assessment of the psychosexual aspect before applying the instructional guideline. Each women fill out the questionnaire form within 20-25 minutes each and return it to the researcher.

Implementation phase

The second time interview; after the woman's examination, The researcher explained instructional guidelines regarding improving the psychosexual aspect which was divided into two sessions; the 1st session on the same day and the other session on the next visit to the women. The researcher used different teaching methods for each session as audio-visual aids material including "PowerPoint, videos, short films, posters, colored brochures, and printed booklets given to women. Each session ranged from 30 to 45 minutes with women individually in a private and calm room for each session.

1st session was concerned with the "theoretical background regarding HPV as; the concept of HPV, types, mode of transmission, signs and symptoms, diagnosis, prevention, treatment, complication, warning signs of cervical lesions and follow up of women diagnosed with HPV and how to deal with associated health problems with HPV. This teaching session ranged from 30 - 45 minutes. The researcher responded to the woman's questions explored the difficulties facing her and listened to her attentively. The majority of women during this session reported that the knowledge provided was simple, clear, and attracted their attention.

The 2nd session: when the women attended follow-up, the researcher conducted an instructional guideline session based on the women's needs from baseline assessment. This session was concerned with instructions to improve of psychosexual aspect as follows; improve the psychological aspect through "relaxation and control of stress via deep breathing exercise, self-hypnosis, yoga, meditation as well as android applications to enhance relaxation" and improve the sexual aspect as practice safe sex, how to deal with sexual problems to improve sexual desire this session ranged from 30 to 45 minutes with woman individually.

Also, the researcher demonstrates the procedures needed for application such as deep breathing exercises, relaxation techniques, and yoga women demonstrate it tell be competent and apply it correctly at home. This session ranged from 60 to 75 minutes with women individually.

After that, the researcher registered the date of periodic follow-up for each woman separately, and during this period contact with the women by telephone or other social media every week to ensure they read the guidelines and use them regularly and that all the instructions are clear and understandable.

Evaluation phase

The researcher interviews the studied women on the day of periodic follow-up for assessing women's psychosexual aspect post one month and post three months of instructional guideline application. A comparison was done to assess its effect.

Statistical design

Data was entered and analyzed by using SPSS [Statistical Package for Social Science] statistical package version 22. Graphics were done using the Excel program. Quantitative data were presented by mean [X] and standard deviation [SD]. Qualitative data were presented in the form of frequency distribution tables, numbers, and percentages. It was analyzed by chi-square [χ^2] test and t-test. The level of significance was set as P value <0.05 for all significant tests.

RESULTS

Table [1]: Distribution of the studied women regarding their general characteristics [n=100].

Item	No	%
Age in years		
25 -	20	20
36-	56	56
>45 years	24	24
Mean± SD 40.28±5.16		
Place of Residence		
Urban	62	62
Rural	38	38
Level of Education		
Preparatory	30	30
Secondary	46	46
University	24	24
Occupation		
Housewife	60	60
Employee	40	40
Family Income		
Enough and save	8	8
Enough	44	44
Not enough	48	48
Age at marriage in years		
16 -	72	72
25 -	22	22
> 35	6	6
Number of previous marriages		
1 st marriage	91	91
More than one marriage	9	9

Table [1]: reveals that [**56%**] of the studied women are in the age category 36-45 years with a mean age [of **40.28±5.16**], [**62%**] of them are living in an urban area, [**46%**] have graduated from secondary school, and [**48%**] of them have not enough income. In addition, [**72%**] of them get married between the ages of 16-24.

Table [2]: Distribution of the studied women regarding gynecological history of predisposing factors for HPV infection [n=100].

Item	No	%
Predisposing risk factors for HPV infection		
*Previous gynecological complaints related to HPV		
Recurrent vaginal infection	90	90
Vaginal bleeding	59	59
Vaginal discharge	50	50
Genital pruritus	12	12
History of previous HPV infection		
Previous and recurrent infection	48	48
Newly diagnosed infection	52	52
Received HPV vaccine		
Incomplete the full dose of the vaccine	36	36

Complete all recommended doses of vaccine	46	46
Not receiving the vaccine	18	18
Family history of cervical cancer		
Present family history of cervical cancer	48	48
No history of cervical cancer	52	52
History of contraceptive methods		
Use hormonal	69	69
Use nonhormonal	31	31
Behavioral abuse		
Smoker	3	3

Table [2] shows that [90%], [59%], [and 50%], of the studied women have a previous history of recurrent vaginal infection, vaginal bleeding, and vaginal discharge respectively. Also, [52%] of them newly diagnosed with HPV infection, [64%] of them received all recommended dose of vaccine against HPV. As well, [69%] of them used hormonal contraceptive methods.

Table [3]: Distribution of the studied women according to the total mean score of their psychological aspect pre-, and post-instructional guideline application [n=100].

Psychological aspect	Pre-instructional guideline application			Post instructional guideline application						F	Sig.
	Mean±S D	Mean percent score	Ra nk	Post 1 month			Post 3 months				
				Mean±SD	Mean percent score	Rank	Mean±SD	Mean percent score	Rank		
Negative feelings such as nervousness, tension.....	1.52±0.61	30.4%	12	2.85±0.66	57%	12	4.01±0.99	80.2%	6	258	0.000**
Negative feelings about health status	1.54±0.61	30.8%	11	3.16±0.79	63.2%	9	3.38±0.96	67.6%	12	157.9	0.000**
Fear of the spread of infection to the entire reproductive system	1.56±0.61	31.2%	10	3.05±0.81	61%	11	3.42±0.90	68.4%	11	158.4	0.000**
Fear from transmission of infection to husband	2.04±0.83	40.8%	5	3.17±0.74	63.4%	8	3.90±1.03	78%	7	114.9	0.000**
Low self-esteem	1.84±0.76	36.8%	6	3.19±0.56	63.8%	7	3.78±0.96	75.6%	9	163.2	0.000**
Disturbed self-image	3.71±1.20	74.2%	2	3.89±0.94	77.8%	4	4.38±0.91	87.6%	3	430.3	0.000**
Feeling of depression	1.64±0.69	32.8%	8	4.32±0.79	86.4%	1	4.41±0.79	88.2%	1	154	0.000**
Dissatisfaction with her health status	1.38±0.53	27.6%	13	3.07±0.97	61.4%	10	3.54±1.14	70.8%	10	320.4	0.000**
Dissatisfaction with herself & low self-confidence	1.70±0.70	34%	7	3.92±0.93	78.4%	2	4.27±0.68	85.4%	4	11.0	0.000**
Dissatisfaction with the ability to carry out daily activity	3.72±1.22	74.4%	1	3.89±0.94	77.8%	4	4.38±0.91	87.6%	3	493.7	0.000**
Dissatisfaction with friends or family support	1.60±0.57	32%	9	3.88±0.67	77.6%	5	4.38±0.75	87.6%	3	125.2	0.000**
Feeling embarrassed by gynecological procedures	2.07±0.84	41.4%	4	3.52±0.70	70.4%	6	4.24±0.68	84.8%	5	219	0.000**
Unable to relax & enjoy life	2.12±0.79	42.4%	3	2.20±0.85	44%	13	3.78±1.32	75.6%	9	84.6	0.000**
Total	26.44±9.96	40.7%	3	44.11±10.35	67.9%	2	51.87±12.0	79.8%	1	1077	0.000**
Mean percent score poor < 50% Average 50% > 75% good ≤ 75%											
Anova test [P-value > 0.05 NS *P-value < 0.05 S **P-value < 0.001 HS]											

Table [3]: Indicates that the total mean percent score of the psychological aspect is [26.44±9.96] pre-, improved to [44.11±10.35] post-one month, and [51.87±12.0] post-three months of instructional guideline application, which means that there is a significant improvement in the studied women's psychological aspect after instructional guideline application as [P-value<0.001].

Table [4]: Distribution of the studied women according to the total mean score of their sexual aspect pre-, and post-instructional guideline application [n=100].

Women’s sexual aspect	Pre-instructional guideline application			Post-instructional guideline application						F	Sig.
	Mean±SD	Mean percent score	Rank	post 1 month			Post 3 months				
				Mean±SD	Mean percent score	Rank	Mean±SD	Mean percent score	Rank		
Dyspareunia	1.66±0.54	33.2%	13	3.09±0.74	63.2%	12	3.94±0.886	78.8%	8	246	0.000**
Post-coital bleeding	2.35±0.74	47%	4	2.60±0.78	52.8%	5	3.54±0.90	70.8%	4	59.8	0.000**
Vaginal dryness	2.20±0.71	44%	6	3.47±0.72	71.2%	6	4.12±0.74	82.4%	11	182.2	0.000**
Fear of hurting during intercourse	2.28±1.19	45.6%	5	2.80±0.74	56.8%	13	3.28±0.78	65.6%	13	29.2	0.000**
Genital skin scars cause aversion to intimacy	2.14±0.80	71.3%	8	3.27±0.68	67.2%	9	3.70±0.81	74%	9	110.3	0.000**
Infrequent intercourse per week	2.20±0.71	44%	6	3.47±0.72	71.2%	6	4.12±0.74	82.4%	4	182.2	0.000**
Feel not sexually attractive	2.00±0.93	40%	10	3.22±0.72	65.6%	11	4.17±0.73	83.4%	3	185.7	0.000**
Sexual dissatisfaction	1.77±0.57	35.4%	12	3.63±0.71	74.4%	4	4.02±0.72	84.8%	6	322.9	0.000**
Lack of sexual desire	2.14±0.80	71.3%	8	3.27±0.68	67.2%	9	3.70±0.810	74%	9	110.3	0.000**
Lack of sexual arousal	2.43±1.18	48.6%	3	4.20±0.90	85.6%	1	4.49±0.674	89.8%	1	140.2	0.000**
Difficult reach orgasm	2.00±0.67	40%	10	3.85±0.74	78.4%	2	4.19±0.692	83.8%	2	282.3	0.000**
Lack of intimacy	2.85±1.04	57%	1	3.72±0.85	76%	3	4.00±0.667	80%	7	47.9	0.000**
Lack of sexual combinability & communication	2.62±0.87	52.4%	2	3.38±0.92	68.8%	8	3.46±0.83	69.2%	12	28	0.000**
Total	28.64±10.75	44.1%	3	43.97±9.9	67.65%	2	50.73±10.25	78%	1	545.9	0.000**

Mean percent score poor < 50% Average 50% < 75% good ≥ 75%
Anova test [P-value >0.05 NS; *P-value <0.05 S; **P-value <0.001 HS]

Table [4] Indicates that the total mean percent score of women's sexual aspect is [28.64±10.75] at pre-, improved to [43.97±9.9] post one month and [50.73±10.25] post three months of instructional guideline application. This means that there is a significant improvement in the studied women's sexual aspect after instructional guideline application [P-value<0.001].

Table [5]: Correlation between total psychological and sexual aspects of the studied women post-instructional guideline application.

Items	Psychological aspect		Sexual aspect	
	r	P-value	R	P-value
	Post one month		post three months	
Psychological aspect			0.33	0.001*
Sexual aspect	0.12	0.24		

Using: t-test [P-value >0.05 NS; *P-value <0.05 S; **P-value <0.001 HS]

Table [5] reveals that there is a highly significant relation between studied women's total psychosexual and sexual aspects after three months of instructional guideline application as P-value <0.01.

DISCUSSION

As an overview of the general characteristics of the study sample, the results revealed that more than half of the studied women were aged between 36 and 45 years, with a mean ± SD of age of 40.28 ± 5.16 years old, and slightly less than two third of them live in urban areas.

In terms of the level of education, slightly less than half graduated from secondary school. Additionally, slightly less than half of them reported that they didn't have enough family income to their basic needs. Less than three-quarters were married at age [of 16-22 years old] which represents an increased risk of exposure to infection due to early initiation of sexual life and most of them were married only once and were non-smokers.

These findings agreed with *Abdallah et al., [2020]* who conducted the study in an early detection unit at a Maternity Hospital to evaluate the "Effectiveness of Instructional Guidelines on Early Detection of Human Papilloma Virus among High-Risk Group Women" and reported that the participants' ages ranged from 22 to 62 years, with an average age of 35.70 ± 8.16 years and the majority of the sample lived in urban areas. Also, roughly more than one-third had a secondary education. Conversely, about two-thirds of women considered their family income sufficient for their needs which may be justified that the majority of them were employed. Conversely, the study results disagreed with *Torres-Poveda, et al. [19]* who conducted a study regarding "High-risk HPV infection prevalence and associated cofactors: a population-based study in females attending the HPV screening and early detection of cervical cancer program" and reported that the prevalence of high-risk human papillomavirus [HR-HPV] shown that the maximum peak of HR-HPV prevalence was in ages from 18 to 24 years, with a decrease in older ranges. This finding can be correlated with cultural differences which allow sexual initiation in younger women, when they are exposed to HPV for the first time and their adaptive immune response has yet to develop, showing a gradual descent from the age of 25 years.

Concerning the predisposing factors for HPV infection the present study revealed that the majority of the studied women complaining of a recurrent vaginal infection, slightly less than three-quarters complained of genital warts, more than half complained of vaginal bleeding and half of them complained of vaginal discharge. While more than a tenth of genital pruritus.

This finding aligns with a study conducted by *Misra et al. [21]*, focusing on the prevalence of high-risk HPV among women in Pakistan with cervical dysplasia and cancer samples. This earlier study found that a majority of participants exhibited symptoms associated with precancerous gynecological conditions, including pronounced and malodorous vaginal discharge and vaginal bleeding between menstrual periods.

Moreover, these results are dis-agreed with *Abdallah, et al [2020]* who reported that less than one-third of the women in the study experienced heavy vaginal discharge, as documented in their diaries. Also, less than one-quarter of them complained of vaginal bleeding. Additionally, a minority of women reported vulval warts. In addition, it partially agrees with *Torres-Poveda et al. [2019]* who reported that the minority suffer from vaginal bleeding. While the minority of the studied women have vaginal discharge. The variability in symptoms can be attributed to individual variations among women.

Concerning the psychological aspect, there is a highly significant difference between studied women's psychological aspect pre-, post-one month, and post-three months of instructional guideline application [P-value < 0.001].

This result was parallel to *Escalas et al. [2009]* who conducted a study regarding the "Impact of HPV Infection on the Quality of Life in Young Women" and reported that HPV infection can cause emotional upheaval and anxiety for many, adversely affecting self-image and creating a perception of being stigmatized and alienated. Also, two-thirds or more experienced depression, isolation, or shame, feared rejection or felt less desirable. The study concluded that HPV diagnosis caused emotional reactions, especially fear and anxiety, in most subjects of the sample.

Furthermore, this result was supported by *Nahidi et al., [2018]* who reported that more than half of the women with abnormal Pap smear CIN, high-risk HPV test positive, and genital wart had the highest psychological negative impact scores as anxiety and depression are significantly higher compared to women with a normal Pap.

This result was in the same line with *Ngu et al., [2018]* who conducted a study on Hong Kong Chinese women regarding the Impact of different educational interventions on the psychosocial well-being of women with a positive high-risk human papillomavirus and normal cervical cytology: and reported there were significant improvement of the psychological symptoms regarding HPV after application of the educational intervention. Additionally, these findings are in agreement with those of *Han et al. [2021]*, who investigated the "Effect of

multidisciplinary collaborative continuous nursing on the psychological state and quality of life of patients with cervical cancer." Their study revealed that patients in the observation group experienced significantly lower levels of anxiety, depression, cognitive, and mood disturbances compared to the control group. This indicates that multidisciplinary collaborative nursing may help reduce fatigue associated with HPV infection and support patients in coping with the illness more positively while minimizing psychological distress.

This result was supported by *Nady et al [2018]* who conducted a study at an oncology institute, in El-Minia governorate regarding the "Effectiveness of quality of life planned teaching program on women undergoing gynecologic cancer treatment" and reported that Less than 25% of the study group's female participants had severe traumatic stress disorder, indicating a clear impact of the training program on traumatic stress reactions to cancer diagnosis and treatment. In the control group, however, it rose to more than two-thirds. According to the study's findings, the educational program is effective in raising psychological status and, as a result, cancer patients' quality of life.

From the researcher's point of view, the women with HPV associated with AGW or premalignant lesions have higher levels of anxiety because of the impaired social and sexual relationships and fears about sexual transmission which affects their self-image and life control perception, and sexual enjoyment and activity are negatively affected.

The connection between HPV and cervical cancer also makes many women feel scared and angry. In addition, they experience anxiety, guilt, and depression. In order to manage HPV and improve the psychosexual component of women, nurses must communicate with women and educate them about the disease and good lifestyle choices. The endeavor to pinpoint patients' unique capabilities, increase their awareness of the issue and its contributing elements, and teach them the necessary skills was also crucial to the interventions' success since it encourages the application of the right skills to address the problem.

This study represents there were significant improvements in the studied women's sexual aspect after instructional guideline application [P-value<0.001] as the total good sexual aspect increased from none of the women pre-instructional guideline to less than three-quarters post three months of instructional guideline application.

This result agreed with *Mercan et al., [2019]* who conducted a study regarding Sexual dysfunction in women with HPV in the Turkish population and reported that positive HPV is associated with a significant impairment in sexual functions.

Furthermore, these findings are in line with those reported by *Farag et al. [2024]*, who found that most women experienced sexual dysfunction before the intervention. However, following the intervention, half of the participants demonstrated improved sexual function, with noticeable enhancements across FSFI domains including desire, arousal, lubrication, orgasm, satisfaction, and pain. Additionally, there was a highly significant statistical difference in the overall FSFI scores between the pre- and post-intervention assessments among the study participants.

This is further supported by the findings of *Afiyanti et al. [2016]*, who conducted a study titled "Evaluating sexual nursing care intervention for reducing sexual dysfunction in Indonesian cervical cancer survivors." The study demonstrated that nursing interventions focused on sexuality, as measured by the Female Sexual Function Index [FSFI], showed statistically significant results, particularly in reducing dyspareunia. The intervention also led to increased sexual satisfaction, which was identified as the second most improved domain. Improvements were also observed in vaginal lubrication and sexual desire among both participants and their spouses, as well as in the ability to reach orgasm. These outcomes may be attributed to the relatively high educational level of the women and their partners in the study.

Consistent with the findings of our study, *Emam et al. [2018]*, in their research titled "Effectiveness of

Application of the PLISSIT Counseling Model on Sexuality among Women with Dyspareunia" conducted in Egypt, reported statistically significant differences between the pre- and post-intervention phases following the application of the PLISSIT model.

Moreover, *Nady et al. [2018]* provided support for the findings, stating that while the sexual function index did improve and change following program implementation, there was no statistically significant difference in the program's impact on sexual function. Further corroboration of these results comes from a study conducted in *Seib et al., [2022]* which tried to help women with cancer manage menopausal symptoms by facilitating lifestyle modifications. The intervention group showed improvements in sexual function when compared to the control group.

The findings of *Escalas et al., [2009]* who investigated the impact of HPV infection on young women's quality of life, corroborated these findings. They found that there was a significant frequency of reports on the influence of HPV infection on sexual behavior and relationships. The majority stated that their infection makes it harder for them to approach a new partner after the first diagnosis; somewhat fewer than three-quarters reported engaging in regular sexual activity and having fewer sex sessions. Most of them also claimed that their infection made it harder for them to approach potential new partners.

Additionally, the results are consistent with *Membrilla-Beltran et al., [2023]* who investigated the sexual function, and compared the results to healthy women. The results showed a decrease in sexual function in HPV-infected women.

In the researcher's point of view decrease in the sexual functions of women with HPV may be related to embarrassment from the transmission of infection to the partner, lack of access to information regarding the coping mechanism of infection and preventive measures of transmission, insufficient sexual education, and the lack of open communication about sexual health concerns by healthcare providers.

However, other elements affecting a woman's sexual function after a confirmed HPV infection include the disease's carcinogenic nature, the discomfort experienced during sexual activity, and psychological issues like feelings of helplessness, guilt, and doubts about her partner's loyalty. Furthermore, it worries the ladies that having sex will exacerbate any abnormal cervical cells. Sexual health issues are likely to arise from HPV-related precancerous genital lesions, particularly of the vulva.

From the researcher's opinion, the improvement of the sexual domain after the application of instructional guidelines may be due to continuous education and support among study samples about sexual concerns with HPV that provided great support and encouraged women to decrease impressment about talking about their sexual problems. In addition, instruct the women regarding the measures to improve sexual desire and satisfaction.

Moreover, clear and supportive information, along with effective communication, play a vital role in reducing the negative sexual impacts and anxiety. Moreover, women diagnosed with anogenital warts often experience concerns about sexual transmission, which can impact their self-perception, sense of control over their lives, and lead to a decline in both sexual satisfaction and activity.

Increased psychological morbidity and emotional suppression in women resulted in a stronger correlation between psychosocial and sexual aspects of their lives, as well as an exaggerated impact of HPV on women's health. Increased psychiatric morbidity and emotional suppression, advanced age, lower educational attainment, and non-usage of condoms were linked to higher levels of sexual dissatisfaction.

In light of this, the current study shows that there is a highly significant relation between studied women's total psychological aspect and sexual aspect after three months of instructional guideline application as P-value < 0.001.

From the researcher's point of view psychological status has potent effects on sexual activities depression is always associated with sexual dysfunction in women diagnosed with HPV. The results of the current study agreed with *Mohamed et al., [2019]* who studied Snyder's hope theory for women with cervical cancer and reported that there was a highly statistically significant positive correlation between total hope score and sexual aspect in both groups at pre-intervention, post-intervention and follow up phases.

The findings are also consistent with those of *Zhao et al. [2021]*, who found that factors such as resilience, hope, optimism, self-esteem, and self-efficacy were positively associated with sexual quality in cancer patients. Similarly, a systematic review of 33 studies conducted by Nierop-van *Baalen et al. [2020]* concluded that individuals with higher levels of hope reported greater life satisfaction and better overall health compared to those with lower levels of hope. The review further highlighted a negative correlation between hope and both symptom burden and mental fatigue.

The findings of the current study supported the stated hypothesis that instructional guidelines will affect the psychosexual aspect of the studied women.

CONCLUSION

The instructional guideline application has a significant improvement of the public health strategies and women's health outcomes as evidenced by there is significant improvement of studied women's psychosexual aspects pre and post-instructional guideline application as the total good psychological, and sexual aspects respectively were none of them pre instructional guideline, improved to roughly three quarters post three months of instructional guideline application.

RECOMMENDATIONS

- Encourage routine follow-up to provide psychological support to address anxiety, depression, and other psychological impact from HPV thereby improving the overall quality of a woman's life.
- Develop tailored educational material regarding the improvement of the psychosexual aspect that is culturally and socially appropriate to ensure information is accessible and effective to deliver to all groups of women.
- Further research is recommended to refine the instructional methods and explore the long-term effects of HPV on women's psychological and sexual aspects.

Author contributions

SMS was involved in the concept, design, planning, conduct, data analysis, and manuscript writing of this research project. MAE was involved in the concept, design, planning, conduct, data analysis, and manuscript writing of this research project. WFM was involved in the concept, design, planning, conduct, data analysis, and manuscript writing of this research project. HMM was involved in the design, planning, conduct, data analysis, manuscript writing of this research project and conduct, data analysis, and manuscript writing of this research project.

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Data availability

All datasets generated and analysed, including the study protocol, search strategy, list of included and excluded studies, data extracted, analysis plans, and quality assessment, are available in the article and upon request from the corresponding author.

Declarations

The authors declared no potential conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper concerning the research, authorship, and/or publication of this article.

Ethics approval and consent to participate

Ethical committee code: 24.11.392. Ethical approval was obtained from ethical committee for this study.

Abbreviation

HPV: Human Papillomavirus

WHOQOL: World Health Organization Quality Of Life

QOL: Quality Of Life

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