Effectiveness of Instructional Guidelines on Early Detection of Human Papilloma Virus among High-Risk Group Women

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ABSTRACT

Background: Human papillomavirus infection (HPV infection) is a result of a DNA virus belonging to the Papilloma viridian family, comprising over 170 subtypes, and is widely recognized as the most prevalent sexually transmitted viral infection globally. Prolonged infection with specific HPV strains can lead to the development of cervical cancer. **Aim:** The study aimed to evaluate the effectiveness of Instructional Guidelines on the early detection of human papillomavirus among high-risk group women, it utilized a Quasi-experimental design. **Setting:** The study took place at the Early Detection Unit in Ain Shams University Maternity Hospital. A purposive sample of 85 women participated in the study. **Tools of data collection:** Data was collected using two tools: **1st Tool;** a structured questionnaire sheet that consisted of three parts, socio-demographic characteristics, obstetric history, and assessing knowledge about HPV. **2nd tool** to assess women's attitudes towards HPV. **Results:** The main findings revealed that before using the instructional guidelines, the participants had low scores in knowledge and attitude towards HPV. However, after implementing the guidelines, there was a significant improvement in both knowledge and attitude scores. The study also found a significant positive correlation between the participants' knowledge levels and their attitudes towards HPV immediately and three months post-intervention (P< 0.0001 & 0.004) respectively. **Conclusion:** the instructional guideline on HPV was effective in enhancing knowledge and attitudes among the participants. **Recommendation:** Urgent action is required to implement educational programs for women, delivered by trained healthcare providers, to disseminate information about Human Papilloma Virus and emphasizing the importance of such initiatives.

Keywords: Instructional Guidelines, Human papillomavirus. High-risk group women

Introduction

The most widespread sexually transmitted infection globally is Human papillomavirus (HPV), and it comprises a family of over 200 closely associated viruses, each identified by a unique number corresponding to its virus type. Certain HPV types, like HPV5, can establish persistent infections in individuals without showing any clinical symptoms throughout their lifetime. On the other hand, HPV1 and HPV2 can cause common warts, while HPV6 and HPV11 are responsible for genital warts. Approximately 604,127 new cases of cervical cancer arise annually, with 88% occurring in low- and middle-income countries. Cervical cancer also accounts for an estimated 341,831 deaths each year, predominantly in developing nations **(WHO, 2020).**

Types of HPV that cause disease infect over 42 million individuals in the United States. Additionally, approximately 13 million Americans, including teenagers, acquire HPV infections each year. The transmission of HPV occurs through close skin-to-skin contact, and anyone can contract the virus through vaginal, anal, or oral sexual activity with an infected individual, regardless of the presence of visible symptoms **(Jin, et al., 2020).**

Specific groups of individuals face an increased susceptibility to HPV-related health complications. This includes bisexual men and individuals with compromised immune systems, including those living with HIV/AIDS. Additionally, women are disproportionately exposed to avoidable risk factors for cancer, such as environmental carcinogens, tobacco usage, alcohol misuse, and infectious agents. These marginalized groups often encounter challenges in terms of political representation, limited access to healthcare services, and insufficient education, impeding their ability to make informed choices to safeguard and enhance their well-being **(Harper, et al., 2019).**

The World Health Organization (WHO) has initiated a worldwide initiative to eliminate HPV by 2030. A key objective of this endeavor is the development and implementation of HPV vaccines that offer protection against the most prevalent types of infections. For optimal efficacy, vaccination is advised prior to the initiation of sexual activity, hence it is recommended for individuals aged 9-13 years **(WHO, 2020).**

The early identification of human papillomavirus plays a vital role in the prevention, management, and cure of various diseases. Timely detection enhances the effectiveness of treatment, rendering it more responsive. Furthermore, early detection and prompt treatment can halt the progression of human papillomavirus and mitigate the risk of its development into cervical cancer, thereby reducing complications and promoting long-term well-being **(Meyers, et al., 2019).** Moreover, early detection is cost-effective compared to treating advanced stages of a disease, which may necessitate more invasive interventions or hospitalization. It also diminishes the need for expensive diagnostic procedures such as MRIs or biopsies. Ultimately, early detection saves lives, particularly through regular check-ups and medical screenings that enable the early identification of potential health issues, preventing the spread of diseases to other parts of the body and facilitating timely treatment **(Hortlund, et al., 2018).**

Cervical cancer screening methods like the Papanicolaou test (commonly known as the "pap smear") or cervical examination with acetic acid application can identify early-stage cancer and abnormal cells with the potential to develop into cancer. Timely treatment enabled by early screening leads to better outcomes and a decrease in both the occurrence and death rates associated with cervical cancer.

Freezing is an effective method for removing genital warts. Therefore, instructional guidelines encompass various approaches, including aligning educational objectives, assessment tools, teaching practices, and educational resources that support literacy development. These guidelines aim to empower women to make informed decisions regarding appropriate healthcare for specific gynecological conditions **(WHO, 2019).**

Furthermore, nursing guidelines offer specific recommendations for the proactive management of clinical conditions, ensuring consistency in care delivery across the country. These recommendations are primarily intended for individuals in the public health sector, including policymakers, managers, program officers, and healthcare professionals who are tasked with the responsibility of choosing preventive measures for human papillomavirus **(Pati, 2017).**

Therefore, instructional guidelines play a valuable role in promoting women's well-being in both health and illness. Additionally, nurses can have a more significant impact by participating in all aspects of the human papillomavirus prevention triad, which includes screening, diagnosis, and treatment **(Pati, 2017).**

Significance of the Study

Globally, human papillomavirus (HPV) is the most prevalent sexually transmitted infection, with approximately 43 million infections reported in 2019, primarily affecting individuals in their late teens and early twenties. HPV encompasses various types, some of which can lead to health issues like genital warts and cancers. High-risk (HR) HPV infection's prolonged presence is closely linked to the development of precancerous lesions and cervical cancer. Cervical cancer is the third most prevalent cancer in women globally and the second most common in Egypt. Developing countries, including Egypt, bear the majority of deaths related to cervical cancer. In Egypt, an estimated 25.76 million women aged 15 years and older are at risk of developing cervical cancer, with approximately 514 new cases and 299 deaths attributed to the disease annually. As a result, Egyptian women face the second highest occurrence of cervical cancer. According to the HPV Center's findings, there are approximately 30.55 million women aged 15 and above in Egypt who are at risk of developing cervical cancer **(Villanueva et al., 2019).**

Most women experience an HPV infection at some point in their lives, although the majority of these infections are temporary, with

only a small percentage becoming persistent **(Arbyn, et al., 2018).**

The World Health Organization **(WHO, 2019)** emphasizes the importance of implementing guidelines for prevention, early detection, and management of medical conditions to alleviate their impact and enhance the quality of life for patients. This is particularly relevant in terms of psychosocial coping, sexual satisfaction, and overall life satisfaction. While there is a growing body of research on gynecological cancer and HPV, there is currently insufficient data regarding the prevalence of HPV infection among women in Egypt, and its effects on women's psychosocial well-being and sexual activity are often overlooked **(WHO, 2019).**

Aim of the Study:

The main aim of the current study is to evaluate the effectiveness of Instructional Guidelines on the early detection of human papillomavirus among high-risk group women.

Research Hypotheses: Instructional guidelines will improve women's knowledge and attitude regarding early detection of human papillomavirus.

Subject and Methods

Study Design, Setting & Sampling:

A quasi-experimental study was conducted to evaluate the effectiveness of Instructional Guidelines on the early detection of human papillomavirus among high-risk group women. The research was carried out in the Early Detection Unit at Ain Shams University Maternity Hospital. The early detection unit of oncology is a specialized unit focuses on identifying early symptoms to detect cancer at an early stage and prevent complications. It is situated on the first floor beside the outpatient clinic of Ain Shams University Maternity Hospital.

A purposive sample based on the following criteria: targeting all women under-diagnosed with human papillomavirus.

Sample Size:

The sample size consisted of 85 women diagnosed with HPV and pre-malignant gynecological lesions, who received care at the aforementioned setting for a duration of three

months. The study included a total of eighty-five women who attended the early detection unit for three months and underwent a follow-up period of three months using the provided guidelines (booklet) and assessing its impact. The entire process of collecting the study sample, implementing the guidelines, and evaluating their effects was completed within a three-month time frame.

$$n = \frac{N \times p(1-p)}{[N-1 \times (d^2 \div z^2)] + p(1-p)]}$$

The standard normal deviate for $\alpha = Z\alpha = 1.960$

The standard normal deviate for $\beta = Z\beta = 0.892$

$A = 2.500$

$B = (Z\alpha + Z\beta)\,2 = 8.122$

$C = (E/S\,(\Delta))\,2 = 0.1024$

$AB/C = 84.4173.$

$n = 85 = (1.96 + 0.89)2 = 84.4173 \approx 85$ women.

Rosner, B., (2016): Fundamentals of Biostatistics.8th ed. Duxbury Press; Page 281.

Tools of Data Collection:

Data collection utilized two tools:

(I): The First Tool: Structured interviewing referred to "Human Papilloma Virus" Arabic questionnaire sheet:

This tool was a combination of multiple-choice, open-ended, and closed-ended questions. It consisted of three main parts:

Part (1): Focused on gathering general information about the women participating in the study, including personal characteristics and bio-sociodemographic data such as age, occupation (if applicable), educational level, socioeconomic status, and family income.

Part (2): Designed to assess the participants' previous obstetric history.

Part (3): Aimed to assess the women's knowledge regarding Human Papilloma Virus.

The Scoring System for Women's Knowledge Regarding Human Papilloma Virus was established as follows:

Scores were assigned on a scale of 3, 2, or 1, reflecting good, fair, and poor levels of knowledge, respectively.

- Knowledge was categorized as "good" for scores ranging from 33 to 48.
- "Fair" knowledge fell within the score range of 17 to 32.
- Knowledge was considered "poor" for scores below 17.

[II]: The second tool was a structured interview schedule developed by the researcher to assess women's attitudes toward Human Papilloma Virus (HPV). To gauge subjective parameters like attitudes, beliefs, and opinions regarding HPV and its sociocultural factors, a 5-point Likert scale was used, including options of "agree," "strongly agree," "disagree," "strongly disagree," and "undecided."

Attitude Scoring:

For each attitude item, points were assigned as follows:

For negative statements, "disagree" and "strongly disagree" were awarded 3 points, "undecided" received 2 points, and "agree" and "strongly agree" were given 1 point. Conversely, for positive statements, "disagree" and "strongly disagree" earned 1 point, "undecided" received 2 points, and "agree" and "strongly agree" were awarded 3 points.

The total attitude score ranged from 17 points, and it was categorized into three categories as follows:

- "Negative" if the score was less than 33% of the total attitude score.
- "Undecided" if the score fell between 33% and 66% of the total attitude score.
- "Positive" if the score exceeded 66% of the total attitude score.

Validity and reliability:

The data collection tools developed by a jury consisting of three experts in the fields of maternity and gynecological nursing, as well as oncology, from Ain Shams University's Faculty of Nursing. This review aimed to ensure the questionnaire's content validity. Based on the jury's feedback, some questions were modified. To assess reliability, the Cronbach's Alpha coefficient test was conducted.

Items	Cronbach's alpha coefficients
Questionnaire about Knowledge	0.710
Questionnaire about Attitude	0.870

Ethical Consideration:

Ethical considerations in this research encompassed the following steps

- Prior to commencing the study, official approval was secured from the Scientific Research Ethical Committee within the Faculty of Nursing at Ain Shams University.
- The researcher personally introduced herself to the women who were part of the study and proceeded to explain the study's objectives in order to establish trust and confidence, encouraging their willingness to participate.
- Prior to their participation, verbal consent was obtained from each woman, accompanied by an assurance that their collected data would be treated with utmost confidentiality.
- Furthermore, the women were informed that they possessed the right to withdraw from the study at any point without needing to provide a reason.

Data collection technique (fieldwork):

The researcher obtained official written permission from the Dean of the Faculty of Nursing at Ain Shams University, addressed to the director of the Early Detection Unit at Ain Shams University Maternity Hospital, to conduct data collection. The data collection period covered three days a week, from September 2019 to December 2019, in accordance with the director's approved schedule. The researcher was present at the clinic from 9 am to 1 pm on these specified days. Initially, the researcher examined the early detection unit's register book and identified all eligible women who met the study's criteria.

A- Preparatory phase:

In the preparatory phase, the researcher informed the participants about the study's purpose and obtained oral consent from each woman before participating in the study. Each woman was individually interviewed twice a day in a private room **twice / a day.**

The first interview occurred prior to the women's entered the clinic for examination. In this interview, the researcher provided explanations about the questionnaire form, the dedicated diary for recording current complaints, and the application of the Likert scale to assess high-risk group women's attitudes toward the human papillomavirus. The women were given guidance on how to

complete the data collection tools, including reading the instructional guidelines, before using them. Subsequently, the participants filled out the questionnaire, which typically took about 20 minutes to complete.

B- Implementation phase:

The second interview occurred after the examination, where the researcher informed the women about frequent follow-up appointments scheduled by the oncologist. Additional instructions on how to utilize the guidelines and supplementary material were provided. This meeting lasted approximately 15 minutes.

*Following the assessment, the researcher recorded the date of periodic follow-up for each woman separately to make sure they read and routinely used the instruction manual. The researcher re-interviewed the studied women two days after the women received their test results to compare and assess their knowledge. This interview aimed to assess the impact of the instructional guideline on the early detection of the Human Papilloma Virus.

C- Follow-up phase:

*The follow-up phase involved explaining the method of follow-up care and communication between the researcher and the women via telephone until their participation in regular check-ups, as determined by an oncologist.

*Regular follow-up examinations were planned based on the test results, with some women requiring monthly check-ups due to cervical infection and others scheduled for check-ups every three months if Pap smears and colposcopy results were normal or negative.

*The researcher maintained regular contact with the women every two weeks to ensure their understanding of the guidelines and to arrange appointments for regular follow-up on the Human Papilloma Virus. Every three months, the women underwent a screening test for the virus, accompanied by the previously distributed guidelines and the Likert Scale application form, which the researcher collected for the second time after guideline application.

Results

Table (1): displays the demographic characteristics of the study sample. The participants' ages ranged from 22 to 62 years, with an average age of 35.70±8.16 years. The majority of the sample (83.5%) lived in urban areas, and a large proportion (90.6%) were married. In terms of education, roughly 42% of the participants had completed university, 38.8% had a secondary education, and 9.4% were illiterate. Concerning family income, 67.1% of the participants were homemakers and considered their income sufficient for their needs. Conversely, 83.5% of the women were employed.

Figure (1): illustrates that (31.0%) of the women in the study reported experiencing heavy vaginal discharge, as documented in their diaries.

Table (2): shows that 19 and 15 women complained of contact bleeding and disturbed bleeding, respectively, and sought follow-up for premalignant gynecological lesions related to the Human Papilloma Virus immediately after the intervention. Additionally, 16 and 3 women reported vulval warts and heavy vaginal discharge, respectively, and attended follow-up for premalignant gynecological lesions related to the Human Papilloma Virus during the first three months.

Table (3): illustrates a substantial improvement in the total knowledge levels of the study participants before, immediately after, and three months after the intervention. The observed differences were statistically significant (chi-square = 289.541, p = 0.0001). The mean scores reflecting the participants' total knowledge regarding premalignant gynecological lesions associated with the Human Papilloma Virus also displayed a noteworthy improvement. The mean score increased from 17.53±6.70 before the intervention to 49.46±3.34 immediately after the intervention and 42.55±5.92 three months after the intervention. These differences were statistically significant (F = 790.926, p = 0.0001).

Table (4): illustrates a substantial improvement in both the total attitude levels and the average scores among the study participants concerning the Human Papilloma Virus. The highest mean attitude scores were perceived immediate post the intervention (82.76±7.57) and three months following the intervention (82.67±7.65). These variances were statistically significant (F= 131.891, p= 0.0001).

Table (5): demonstrates a strong and positive correlation between the total knowledge levels and the total attitude of the study participants concerning the Human Papilloma Virus immediately after the intervention (p=0.0001). It is noteworthy that a significant relationship exists, with 95.2% of participants displaying a positive attitude immediately after the intervention, particularly among those with good knowledge (p=0.007). Similarly, a positive and significant correlation persists between the total knowledge levels and the total attitude of the participants three months post-intervention (p=0.004). However,

it is important to note that no significant relationship was observed between the total knowledge levels and total attitude three months after the intervention, even though 96.2% of individuals with good knowledge maintained a positive attitude.

Figure (2): portrayed that the mean change in knowledge scores was highest immediate post intervention compared to pre-intervention (31.93±6.88). Similarly, the mean change in attitude scores was highest immediate post intervention compared to pre intervention (23.52±132.6).

Table (1): Bio-Socio Demographic Characteristics of the Studied Women (n=85)

Bio-Socio Demographic Characteristics	no	%
Age (years):		
< 30	20	23.5
30-<40	43	50.6
40-< 50	19	22.4
≥50	3	3.5
Mean ± SD	35.70 ± 8.16	
Marital status		
Married	77	90.6
Divorced	2	2.4
Widow	6	7.1
Residence:		
Urban	71	83.5
Rural	14	16.5
Educational level:		
Illiterate/ Read & write	10	11.8
Primary school	4	4.7
Secondary school	33	38.8
High educational level	38	44.7
Income:		
Enough	57	67.1
Enough and spare	15	17.6
Not enough	13	15.3
Working status:		
Working	14	16.5
Not working	71	83.5

Figure (1): Distribution of Studied Women According to Risk Factors of Human Papilloma Virus. (n=85)

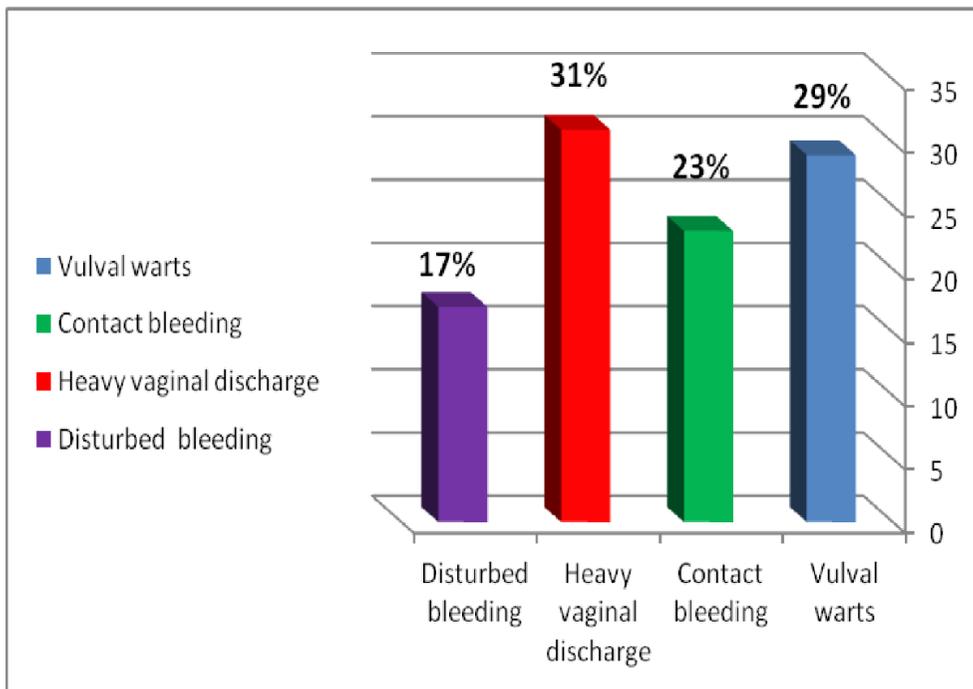**Table (2): Distribution of Studied Women According to Follow up of High Risk Group for Human Papilloma Virus (n=85)**

High Risk Group	Follow up			
	Immediate post		3 months post	
	no	%	No	%
Vulval Warts (n=24)	23	95.0	16	66.7
Contact Bleeding (n=19)	19	100.0	19	100.0
Heavy Vaginal Discharge (n=27)	22	81.5	3	11.1
Bleeding Disorder (n=15)	15	100.0	15	100.0

Table (3): Distribution of levels and mean scores of total knowledge of the studied sample regarding Human Papilloma Virus pre, immediate post and 3 months post intervention (n=85)

Levels of total knowledge	Knowledge of the studied sample pre, immediate post and 3 months post intervention (n=85)						χ²	P
	Pre		Immediate post		3 months post			
	N	%	n	%	n	%		
Levels of total knowledge:								
Poor	85	100	0	0	3	3.5	289.541	0.0001*
Fair	0	0	2	2.4	30	35.3		
Good	0	0	83	97.6	52	61.2		
Total knowledge scores:								
Range	10-29		36-53		29-52			
Mean±SD	17.53±6.70		49.46±3.34		42.55±5.92			
F value P	790.926 0.0001*							
Scheffe test	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.0001*							

* Significant (P<0.05)

Table (4): Distribution of levels and mean scores of total attitude of the studied sample regarding Human Papilloma Virus pre, immediate post and 3 months post intervention (n=85)

| Total attitude towards Human Papilloma Virus and its scores	Attitude of the studied sample pre, immediate post and 3 monthspost intervention (n=85)						c2 P
	Pre (I)		Immediate post (II)		3 months post (III)		
	N	%	n	%	n	%	
Total attitude level:							
Negative	29	34.1	0	0	0	0	106.693
Undecided	26	30.6	5	5.9	6	7.1	0.0001*
Positive	30	35.3	80	94.1	79	92.9	
Total attitude scores:							
Range	33-87		56-87		56-87		
Mean±SD	59.25±15.47		82.76±7.57		82.67±7.65		
F value **P**	131.891 0.0001*						
Scheffe test	I vs II, P=0.0001* I vs III, P=0.0001* II vs III, P=0.998						

*Significant (P<0.05)

Table (5): Correlation and relationship between levels of total knowledge of the studied sample and their attitude regarding Human Papilloma Virus immediate post intervention and 3 months post intervention (n=85)

Attitude towards Human Papilloma Virus immediate post intervention	Levels of total knowledge of the studied sample immediate post intervention (n=85)				χ^2 P	Levels of total knowledge of the studied sample 3 months post intervention (n=85)						χ^2 P
	Fair (n=2)		Good (n=83)			Poor (n=3)		Fair (n=30)		Good (n=52)		
	N	%	n	%		N	%	n	%	n	%	
Total attitude:												
Undecided	1	50	4	4.8	7.201	0	0	4	13.3	2	3.8	2.846
Positive	1	50	79	95.2	0.007*	3	100	26	86.7	50	96.2	0.241
r	0.455					0.312						
P	0.0001*					0.004*						

* Significant (P<0.05)   r=Correlation Coefficient

Figure (2): Mean change scores of knowledge and attitude sample regarding Human Papilloma Virus among the studied sample post and 3 months post intervention than pre intervention (n=85).
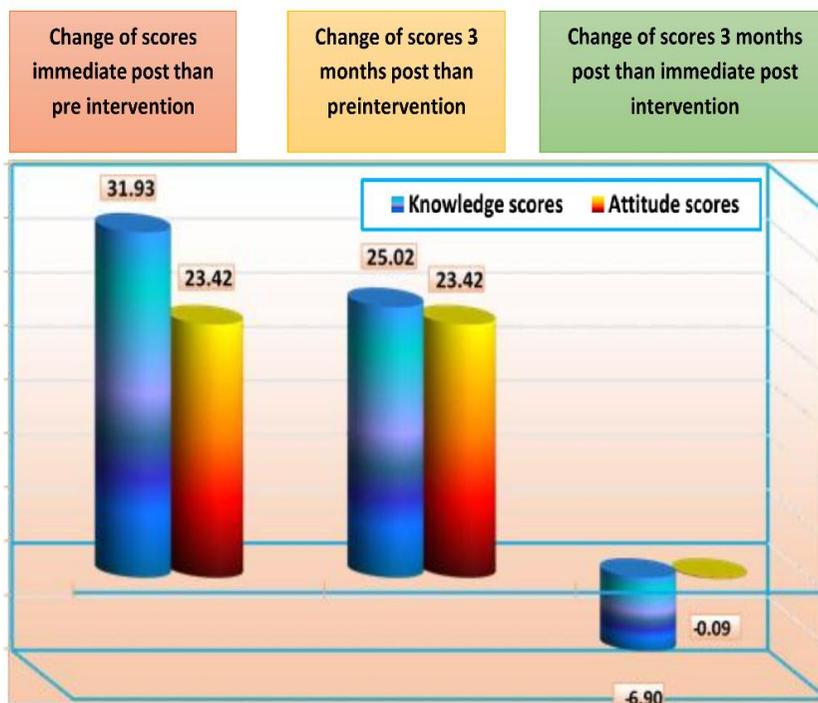
Discussion

Human Papilloma Virus (HPV) has a global impact on women's health. Early detection tests for premalignant gynecological lesions can play a crucial role in reducing deaths from the disease and minimizing the need for extensive treatment, which can lead to substantial side effects and long-term health complications. Therefore, the use of nursing guidelines can help in disseminating and improving awareness about screening tests for premalignant gynecological lesions, informing women about how to access and utilize these services, and expanding the availability and utilization of tests that have proven to reduce gynecological cancer mortality **(Winer, 2017).**

Regarding the socio-demographic characteristics of the women in the study, it was found that half of them fell within the age range of 30 to under 40 years, with a mean age of 35.70 ± 8.16. The majority of the participants resided in urban areas and were married. In terms of education, less than half of the sample had a university degree, while more than one-third had completed secondary education. Additionally, 9.4% of the participants were illiterate. When considering family income, over two-thirds of the women were housewives and considered their family income sufficient for their needs. Furthermore, the majority of the women were employed **(as shown in Table 1).**

These findings are consistent with a study conducted by **Nada, Awaad, and El Ayaat (2016)** on the knowledge of human papillomavirus and its socio-demographic determinants among Egyptian women. They reported that 53.0% of the participants were aged between 30 and 38, with 3.5% being divorced and 96.5% being married women. Additionally, around 48.0% of the women had attended secondary school.

However, these findings contrast with a study conducted by **Polman et al. (2019)** that aimed to evaluate women's knowledge and its association with socioeconomic and demographic profiles among women in the Jammu region. They found that the majority (58.7%) of the women had only received primary education. This difference could be attributed to the limited knowledge about

Human Papilloma Virus among women in the Jammu region, highlighting the urgent need to improve women's healthcare standards in that area. Consequently, efforts should be focused on enhancing social awareness and implementing educational strategies to mitigate risk factors.

With regards to family income, the findings of the current study indicated that the majority (67.1%) of women had a satisfactory income, and a significant portion (83.5%) were not employed. These results are in line with a study conducted by **Smith et al. (2016)** on the socioeconomic impact of HPV on patients and their families in Argentina, where a majority of respondents (65.0%) reported having a satisfactory family income, and the majority n=51 (73.9%) were unemployed, while only a small percentage n=18 (26.1%) were employed.

Regarding the distribution of women based on high-risk factors for HPV, the study revealed that less than one-third of the sample reported experiencing heavy vaginal discharge **(as shown in Figure 1).** This finding aligns with a study conducted by **Misra et al. in (2017),** 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 (86%), bleeding between menstrual periods (65%), and bleeding after menopause (74%). The variability in symptoms can be attributed to individual variations among women.

Regarding follow-up after the identification of high-risk factors for HPV, the study reported that approximately one-third or around one-fourth of the participants underwent follow-up for early detection of HPV every three months **(as shown in Table 2).**

The study's findings were in agreement with the results by **Sartori et al. (2015),** who conducted a study involving two hundred women. In their study, the participants were followed up every 3-4 months during the first 2 years, followed by semi-annual check-ups

every 6 months during the next 3 years, and then annual visits afterward, or for up to 5 years as advised by their attending physician. According to their report, only 28.0% of the women underwent follow-up examinations every 3-4 months. This correlation can be explained by the fact that many of the women examined did not participate in early detection of the human papillomavirus due to administrative oversights, particularly incorrect address information. Additionally, various factors hindered women's participation, including limited access to healthcare services, lack of symptoms or concern about undergoing a human papillomavirus test, inability to leave home, family issues such as lack of spousal consent, and a fatalistic attitude towards diseases like cancer.

The results of the current study demonstrated that the participants had poor knowledge of Human Papilloma Virus pre-intervention. However, after using the instructional guidelines, there was a significant improvement in their overall knowledge, with most of them possessing good knowledge **(as shown in table 3).** This indicates that the participants understood the information provided to them through the instructional guidelines. In addition, during the three months following the intervention, good knowledge was retained by less than two-thirds of the participants. The research also identified a notable rise in the average knowledge scores related to Human Papilloma Virus both immediately after the intervention and within three months post-intervention.

From the researchers' point of view, the topic of Human Papilloma Virus held great importance, leading them to retain the knowledge in their memory for an extended period. The program provided the participants with an opportunity to openly discuss this topic, as Egyptian society still imposes strong taboos on the free discussion of such subjects.

The current study has revealed that a significant number of participants in the sample showed significant improvement in their positive attitude towards Human Papilloma Virus (HPV) immediately after the intervention, and this positive change continued to be evident even three months later. Furthermore, there was a notable increase in the mean attitude scores of the participants both immediately after and three months post intervention **(as shown in table 4).**

These results highlight the influence of the instructional guideline on the participants' attitudes towards HPV. Through the educational sessions, the incorporation of interactive learning methods played a pivotal role where participants had the opportunity to share their own experiences, ideas, beliefs, and cultural values as much as possible. Moreover, the use of interactive learning methods helped reduce anxiety and facilitated communication and education about Human Papilloma Virus, which is crucial for changing attitudes towards such harmful practices.

Similar results were observed in a study conducted among Chinese college students in the United States, focusing on Human Papillomavirus knowledge, attitudes, and vaccination **(Tung et al., 2019).** The study found that the utilization of guidelines significantly improved students' attitudes post application nursing guideline. Furthermore, these findings align with a study conducted among female students at the University of Namibia, which explored awareness, knowledge, attitudes, and practices regarding Human Papilloma Virus **(Amukugo, 2018).** The study reported an improvement in students' overall attitude scores after the implementation of nursing guidelines, demonstrating a positive attitude towards HPV.

Moreover, this research established a remarkably strong positive correlation between the participants' total knowledge levels and their attitudes towards Human Papilloma Virus. This correlation was evident both immediately after the intervention and three months later, with statistical significance (P= 0.0001 and 0.004, respectively). Additionally, a significant relationship was found between total knowledge and attitude levels, as highlighted in **Table (5),** where 95.2% of participants who possessed a good knowledge of the participants also demonstrated a positive attitude immediate post intervention.

Through examining the study results, it became evident that there was a positive improvement in the mean scores for both

knowledge and attitude immediately after the intervention, compared to pre-intervention. Similarly, there was an improvement in these mean scores for knowledge and attitude three months after the intervention, again in comparison to the pre-intervention phase. However, it's worth noting that there was a subsequent decrease in the mean scores for both knowledge and attitude three months after the intervention when compared to the immediate post-intervention phase, as illustrated in **Figure (2).** These findings emphasize the significance of ongoing and consistent educational programs to maintain knowledge and attitudes concerning premalignant gynecological lesions associated with the Human Papilloma Virus.

The implementation of the instructional guideline played a significant role in advancing and updating the women's knowledge regarding Human Papilloma Virus infection and improving their attitudes. Additionally, most of the participants in the study recommended replicating the instructional guideline in a different settings in the future to enhance women's knowledge and attitudes. Furthermore, a majority of the studied sample expressed strong satisfaction with how the instructional guideline was implemented.

Conclusion

Based on the findings of this study, it can be concluded that the implementation of nursing instructional guidelines has a positive effect on the follow-up for early detection of Human Papilloma Virus among high-risk women. These guidelines effectively enhance women's knowledge and attitude towards the early detection of Human Papilloma Virus.

Recommendations

Building upon these findings, the researchers recommend the following:

- Urgent implementation of educational programs targeted at women, delivered by trained healthcare providers, to provide comprehensive information about Human Papilloma Virus.

- Dissemination of Human Papilloma Virus guidelines among women attending gynecological clinics to increase awareness and facilitate the identification of Human Papilloma Virus risk factors.

- **Encouragement for further research in this field,** specifically recommending the replication of the study on a larger sample to achieve more generalized results.

- Strengthening Human Papilloma Virus screening follow-up by increasing awareness through continuing nursing education programs.

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