CERVICAL CANCER SCREENING AMONG FEMALE CLIENTS AND RELATED FACTORS AT A VACCINATION UNIT IN HANOI, 2018

Tran Thi Thuy Linh[1,✉], Le Thi Thanh Xuan[1], Nguyen Van Thanh[1]

Ha Noi Medical University

Cervical cancer is really a public health problem that should be prioritized for prevention, interventions and early screening, especially in developing countries. A cross-sectional study was conducted at a Hanoi Medical University vaccination unit in 2018 to identify the prevalence of and related factors with cervical cancer screening among female clients in Hanoi, Vietnam. We collected data using a structured questionnaire among 405 female clients. The results showed that the prevalence of study participants who had the decision on cervical cancer screening was 79.5%. Associated factors of cervical cancer screening among female clients were have had sex with 1 person (OR= 42.5; 95%CI= 5.6-311.2), 2 people (OR= 29.7; 95%CI= 3.84- 230) and 3 people (OR= 41.6; 95%CI= 4.68- 369.9). There is a statistically significant relationship between two variables [average monthly income (OR= 2.79, 95%CI= 1.19- 6.56), and sex status (OR=20.9, 95%CI= 2.52- 173.39) with the decision to screen for cervical cancer. Enhancing the proportion of cervical cancer screening by fostering knowledge and awareness about human papillomavirus, and cervical cancer and using health services assessment will be highly recommended in Vietnam.

Keywords: Human papillomavirus, cervical cancer, screening, Vietnam.

I. INTRODUCTION

Cervical cancer is malignant cancer that forms in the tissues of the cervix (the organ that connects the uterus and vagina). It is the second most common cancer in women, most often in women aged 35 and over, but can also occur in women in their 20s.[1] Worldwide, every five minutes three more women die from cervical cancer. Every year, an estimated 500,000 new cases of cervical cancer are diagnosed and millions of women do not have access to information, prevention, and treatment services about this disease. Cervical cancer is really a public health problem that should be prioritized for prevention interventions and early screening, especially in developing countries. Although cervical cancer is a dangerous disease, we can reduce mortality and the burden on families and society if detected early at the precancerous stages, and treated promptly.[2]

Pre-cancer screening and treatment to prevent cervical cancer have been included in the Vietnam Population and Reproductive Health strategy for the period 2011-2020 with a very clear indicator of "Prevalence of Women (30-54 years old) are screened for cervical cancer reaching 20% in 2015 and 50% in 2020.[3] Along with screening and treatment, cervical cancer vaccines have also been introduced into the immunization service system since 2008 for women aged 9 to 26 years old females from 10 to 25 years old are vaccinated with Cervarix and females between 9 and 26 years old are vaccinated with Gardasil).[4]

The WHO 2030 target is to decrease cervical cancer to <4/100,000 /year and screen 70% of people between 35 and 45 years old and 90% of cases are treated.[5] To assess the current

Corresponding author: Tran Thi Thuy Linh
Hanoi Medical University
Email: thuylinhhmu97@gmail.com
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situation and strive for reaching this goal, we conducted this study to describe the knowledge about cervical cancer among female clients and identify the prevalence of the condition and associated factors leading to the decision on cervical cancer screening at the vaccination unit in Hanoi Medical University in Vietnam.

II. METHODS

1.Study population

Female clients came to the Vaccination Unit, Hanoi Medical University.

2. Methods

Study design

A descriptive cross-sectional study was applied.

Sample size

Apply the sample size formula to estimate a population proportion:

$$n = Z^2_{1-\alpha/2} \frac{p(1-p)}{d^2}$$

I set up p= 0.5 as the proportion of female clients with the decision for cervical cancer screening for maximum variability of the population as we did not find any similar previous study in the topic. Applying the formula, we have the following sample size rounded to 384 objects. A total of 405 subjects were recruited to collect data in 2018.

Sampling methods

A convenient sample was applied. Clients were recruited to be vaccinated at the Vaccination Unit of Hanoi Medical University and interviewed a set of questions while the clients wait for 30 minutes after injection in the post-injection room.

Place and time

Vaccination Unit of Hanoi Medical University, campus 1, address No. 1 Ton That Tung, Dong Da, Hanoi from August 2018 to October 2020, data collection time from 1st November 2018 to 31st December 2018.

Variables

Data was collected including demographic characteristics (age group, educational level, marital status, current occupation, monthly income), sexual history, cervical cancer screening (self-reported: Yes/No), and associated factors with the decision on cervical cancer screening (Yes/No).

Data collection method

The questionnaire was built on the study overview and documentation of CDC, and WHO.[6,7] The toolkit was tested on 5 clients, then edited before the official investigation. Data was collected using face-to-face interviews during the 30 minutes waiting period after vaccination at the aforementioned location.

Statistical analysis

The data were processed and entered using Microsoft Excel 2016. Descriptive statistics were performed and reported by frequency and proportion. The Chi-square test and Fisher exact test were used to test for differences between proportions. Statistical analyses were carried out using Stata 14.0 (Stata Corporation, College Station, TX, USA).

Age groups were defined as (1) 25 age; (2) 25<age≤30; (3) 30<age≤40; (4) >40 age-indicated through the following data:

(1)“Pilot project on screening for early detection of cervical cancer and treatment in some provinces in the period of 2019 - 2025”[8];

(2) Screening for cervical cancer in resource-limited settings.[9]

3. Ethical considerations

The research was ethically approved by the Research Scientific Committee at the School of Preventive Medicine and Public Health in 2018. The research complies with regulations on research ethics. The data was collected fully, accurately, honestly, and for research purposes only.

III. RESULTS

Table 1. Personal characteristics of respondents

	Variables	Frequency	%
Age groups	<=25 age	67	16.5
	25< age <=30	128	31.6
	30< age <=40	176	43.5
	>40 age	34	8.4
	Mean Age $\overline{X}$ ± SD $_{(min-max)}$: 31,7 ± 6,1 (25.6- 37.8)		
Education level	Secondary school	5	1.2
	High school	26	6.5
	College/ University	331	82.3
	Postgraduate degree	40	10.0
Marital status	Single	128	31.6
	Married	277	68.4
Current job	Worker	9	2.2
	Civil servant	156	38.5
	Free enterprise	71	17.5
	Student	72	17.8
	Housewife/ Stay at home/ unemployment	97	23.9
Average monthly income (VND)	<=5 million	209	51.6
	5<income<=10 million	159	39.3
	>10 million	37	9.1
	Mean income: $\overline{X}$ ± SD $_{(min-max)}$: 6,6 ± 7,7 ((-1.1)- 14.3)		
	Total	405	100

Table 1 presents the demographic characteristics of the 405 respondents in the research. The number of participants between 30 and 40 years old accounted for the highest respondents, 43.5%, followed by the 25-30 age group and under 25 years old (31.6% and 16.5%, respectively) with an average age of 31.7 years old (SD = 6.1). Respondents with college /university degrees was the highest percentage (82.3 %) meanwhile the lowest percentage were participants in secondary school (1.2%). The majority of study subjects were civil servants (38.5%), followed by the data of colleagues and free enterprise (17.8% and 17.5%, respectively).

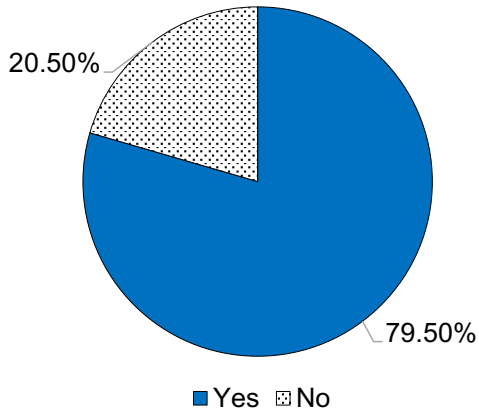

Figure 1. The proportion of cervical cancer screening (n=405)

The proportion of female clients who have experienced cervical cancer screening was nearly four-fold than the data of those who have never been screened for cervical cancer (79.5% and 20.5%, respectively).

Table 2. Characteristics of screening cervical cancer through age groups (n=405)

		Screening cervical cancer			
		Yes		No	
	Variables	Frequency	%	Frequency	%
Age groups	<=25 age	1	1.2	66	20.5
	25< age <=30	14	16.8	114	35.4
	30< age <=40	52	62.7	124	38.5
	>40 age	16	19.3	18	5.6
Occupation	Student	1	1.2	71	22.1
	Civil servant	50	60.2	106	33.0
	Free enterprise	16	19.3	55	17.1
	Worker	1	1.2	8	2.4
	Housewife/ Stay at home/ unemployment	15	18.1	82	25.4
	Total	**83**	**100.0**	**322**	**100.0**

The highest percentage of people who have been screened for cervical cancer was from 30 to 40 years old, with 62.7%; followed by over 40 years old and between 25 and 30 years old (19.3% and 16.8%, respectively). There was just 1 person under 25 age who has been screened for cervical cancer.

It was clear that civil servants accounted for the highest percentage of people who have been screened for cervical cancer, with

60.2%; followed by free enterprises and people staying at home/unemployment (19.3% and 12.1%, respectively). The lowest percentage of people who have experienced cervical cancer screening was students and workers, at 1.2%.

Table 3. Association between cervical cancer screening and the number of sexual partners of participants (n=405)

The number of sexual partners	Screening cervical cancer				OR (95% CI)	p
	Yes		No			
	Frequency	%	Frequency	%		
0	1	0.9	104	99.1	1	-
1 person	60	29	147	71	42.5 (5.6-311.2)	**0.00**
2 people	16	22.2	56	77.8	29.7 (3.84- 230)	**0.001**
3 people	6	28.6	15	71.4	41.6 (4.68- 369.9)	**0.001**

Table 3 shows that the association between cervical cancer screening and the number of sexual partners of participants. Participants who have had sex with 1 person (OR= 42.5; 95%CI= 5.6-311.2), 2 people (OR= 29.7; 95%CI= 3.84-230) and 3 people (OR= 41.6; 95%CI= 4.68-369.9) have a higher tendency to screen for cervical cancer than those have never had sex. The association between the number of sexual partners and screening for cervical cancer was statistically significant (p<0.05).

Table 4. Association among some factors of participants and cervical cancer screening (multi- analysis) (n=405)

Variables		Screening cervical cancer				OR (95% CI)	p
		Yes		No			
		Frequency	%	Frequency	%		
Age groups	<=25 age	1	1.5	66	98.5	1	-
	25< age <=30	14	10.9	114	89.1	1.87 (0.16- 22.16)	0.62
	30< age <=40	52	29.6	124	70.4	4.10 (0.34- 49.18)	0.27
	>40 age	16	47.1	18	52.9	8.93 (0.69- 115.53)	0.09

Variables		Screening cervical cancer				OR (95% CI)	p
		Yes		No			
		Frequency	%	Frequency	%		
Education level	Secondary/High school	3	8.8	31	91.2	1	-
	College/ University	68	20.5	263	79.5	2.12 (0.58- 7.81)	0.26
	Postgraduate degree	12	30.0	28	70.0	2.21 (0.50- 9.69)	0.3
Current occupation	Student	1	1.4	71	98.6	1	-
	Civil servant	50	32.1	106	67.9	1.95 (0.15- 24.50)	0.61
	Free enterprise	16	22.5	55	77.5	1.16 (0.09- 15.13)	0.90
	Worker	1	11.1	8	88.9	0.48 (0.02- 13.29)	0.67
	Housewife/ Stay at home/ unemployment	15	15.5	82	84.5	1.29 (0.07- 14.65)	0.95
Average monthly income (VND)	<=5 million	26	12.4	183	87.6	1	-
	5<income<=10 million	43	27.0	116	73.0	1.45 (0.78- 2.71)	0.24
	>10 million	14	37.8	23	62.2	2.79 (1.19- 6.56)	**0.019**
sexual history	Yes	82	27.3	218	72.7	20.9 (2.52- 173.39)	**0.005**
	No	1	0.9	104	99.1	1	-

Table 4 indicates the association among some factors of participants and cervical cancer screening. It was clear that those who have income more than 10 million VND with sexual experiences have more tendency to screen for cervical cancer than others. The association was statistically significant ($p<0.05$)

IV. DISCUSSION

This study showed the proportion of respondents who have experienced cervical cancer screening and the associated factors among 405 female clients interviewed at the vaccination unit in Hanoi Medical University.

Among the female clients, almost all are at the ideal age for cervical cancer screening

(30-40 years old), college/ university educated, married, and worked as civil servants.[8,9] The percentage of female clients who came to the HMU vaccination unit and had been screened for cervical cancer was 79.5%, which involved 62.7% being between the age of 30-40, and 60.2% being civil servants. It was clear that age (>30 years old) and college educated could affect the decision on cervical cancer screening. Through the latest decision of the Ministry of Health has approved decision 3877/QD-BYT in 2019 on the document "Pilot project on screening for early detection of cervical cancer and treatment in some provinces in the period of 2019 - 2025"[8]: cervical screening is indicated for women between the ages of 21 and 65 who are sexually active, with preference given to women aged 30 to 54 years.[8] Yohannes Dibaba Wado's study of 16.515 women about women's autonomy-seeking behavior in Ethiopia.[10] Nearly 32% of those were civil servants, and 69% said getting permission to go for medical care was not a large problem.[10] It could be explained that women's with higher education and better household economic status were more likely to take care of their health.

Among 405 respondents, there are 300 people who ever had sex and 105 people who have not ever experienced sexual intercourse. The median age at having sex the first time was 22.5 years old (SD= 5,9). Among 300 those who ever had sex, nearly 40% of participants often used condoms, and nearly 60% of those used contraception in general. The habit of using condoms when having sex depended on the choice of the couple and they could prevent unwanted pregnancy by other contraceptive methods.[11] Nevertheless, the percentage of those using contraception was not high (~60%). Participants who had sexual intercourse had a tendency to experience screening for cervical cancer more than others (OR= 20.9; 95%CI= 2.52- 173.39) ($p>0.05$). Moreover, people who have had sex with 1 person (OR= 42.5; 95%CI= 5.6-311.2), 2 people (OR= 29.7; 95%CI= 3.84-230) and 3 people (OR= 41.6; 95%CI= 4.68-369.9) have tendency to experience screening cervical cancer than those have never had sex ($p<0.05$). It was easily seen that people who had sexual intercourse with many partners would be more about their health status because they would be highly exposed to sexually transmitted diseases (STDs), so they were likely to go to a hospital for health assessment.[12]

Moreover, in our study, participants who have over 10 million VND per month were more likely to experience screening for cervical cancer than others (OR= 2.79; 95%CI= 1.19-6.56). Meanwhile, participants who had 5-10 million VND per month were less likely to screen for cervical cancer than those had under 5 million VND per month. This positive result had a similarity with the previous finding of women in United States.[13] Lower socioeconomic status is a risk factor for cervical neoplasia, and since participants in the CDC program are underinsured and of low income, our study is likely to reflect outcomes among women at higher-than-average risk who return for screening after multiple negative tests.[14] There was a statistically significant relationship between two variables (average monthly income, and sex status) with the decision to screen for cervical cancer. Women who have an income of more than 10 million VND (OR= 2.79, 95%CI= 1.19-6.56), and who have ever had sex (OR=20.9, 95%CI= 2.52-173.39) ranked higher than women in the other groups for cervical cancer screening. In conclusion, the decision to assess health status would be closely associated to economic status, educational level, occupation, sexual status and sexual habits.

Currently, the Ministry of Health has also issued a separate action plan for this field, which is the "National Action Plan for cervical cancer prevention and control for the period 2016 - 2025".[14] Along with screening and treatment, the 9-strain vaccine (Gardasil 9) is researched and developed by the world's leading corporation in pharmaceuticals and probiotics – Merck Sharp * Dohme (MSD – USA) – considered as a gender-equal vaccine that offers better HPV vaccination opportunities for both women and men, especially the gay community – MSM, the LGBT community, reducing the circulation of HPV, promoting benefits for the sexes through herd immunity. The promotion of communication, ensuring immunization safety, and strengthening the cervical cancer screening's proportion has been proven effective in increasing the HPV vaccination coverage in the period 2016-2025 and decreasing the exposure rate and mortality rate of cervical cancer on the down road.

Our study had some limitations. Firstly, the cross-sectional study design may limit the identification of a cause of such a perception, which did not express adequately causal-consequence relationship of decision on cervical cancer screening in the study. Secondly, the study only selected female customers for vaccination at the clinic in an urban area so it is not representative. More in-depth studies, larger sample sizes, and more representativeness are needed to understand factors related to cervical cancer screening.

V. CONCLUSION

The percentage of cervical cancer screening at the vaccination unit of Hanoi Medical University was quite high (79.5%), which involved the highest proportion of those who were 30-40 years old (62.7%) and civil servants (60.2%). There was a statistically significant relationship between two variables (average monthly income, and sex status) with the decision to screen for cervical cancer. Women who had an income of more than 10 million VND (OR= 2.79, 95%CI= 1.19- 6.56), and who have ever had sex (OR=20.9, 95%CI= 2.52-173.39) tend to be screened for cervical cancer at a higher rate than women from other groups.

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