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Knowledge, Attitudes, and Practices of University Students in a Cameroonian State University Regarding Cervical Cancer

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Abstract

Background: Cervical cancer (CC) is a major public health problem and a significant cause of morbidity and mortality in Cameroon, where it is the second most common cancer among women. The lack of data on the knowledge, attitudes, and practices (KAP) of young people regarding this disease justifies the implementation of tailored prevention and screening strategies. The objective of this study was to evaluate the KAP of students from the University of Yaoundé II concerning CC. **Methods:** A descriptive cross-sectional study was conducted from December 6 to 8, 2016, among male and female students at the University of Yaoundé II. Sampling was non-probabilistic and based on a consecutive and exhaustive recruitment of volunteers. An anonymous, self-administered questionnaire was used to collect data on participants' KAP. **Results:** The study included 136 participants, comprising 70 men and 66 women. The majority (81.0%, 95% CI: [74.1 - 87.9]) of participants had heard of CC. Less than half (43.4%, 95% CI: [35.1 - 51.7]) knew that the human papillomavirus (HPV) was the cause, and 52.2% (95% CI: [43.8 - 60.6]) were aware of the existence of a vaccine. A high proportion of participants (91.2%, 95% CI: [86.4 - 96.0]) considered modern medicine as the treatment of choice, while only 3.7% preferred traditional medicine. **Conclusion:** Despite a high level of awareness, significant gaps persist regarding the causes, prevention methods,

and screening for CC among students at the University of Yaoundé II. Targeted awareness efforts are necessary to improve knowledge of HPV, vaccination, and screening practices, in order to reduce the burden of the disease in Cameroon.

Keywords

Cervical Cancer, Knowledge, Attitudes, Practices, Screening, HPV, Prevention, Cameroon

1. Introduction

Cervical cancer (CC) is a global public health problem [1] [2]. In 2020, it was responsible for 604,127 new cases and 341,831 deaths worldwide, with the majority occurring in low- and middle-income countries (LMICs) [3]. Cameroon is no exception to this trend, with CC being the second most common cancer among women after breast cancer. According to cancer registry data from 2012, the age-adjusted incidence was 13.8% [4] [5]. GLOBOCAN 2020 estimates reveal that CC is the second leading cause of cancer mortality, all sexes combined, in Cameroon, with one in two women diagnosed with the disease dying from it [3].

The etiology of CC is well-established, with persistent infection by high-risk human papillomavirus (HPV) as the main causal factor [6]. Nearly 7.5 million Cameroonian women aged 15 and older are at risk of developing CC, and approximately 16.7% of those aged 20 to 89 are carriers of an HPV infection [7]. Hospital studies in Cameroon have also shown that the average age of first sexual intercourse is early (16.73 ± 2.16 years), which is a risk factor for HPV infection and the development of precancerous lesions [8].

The incidence and mortality of CC have decreased significantly in developed countries, thanks to the implementation of effective screening programs (cervical smear) and, more recently, HPV vaccination. However, in LMICs, the screening rate remains alarmingly low. According to the World Health Organization (WHO), fewer than one in ten women in Cameroon aged 30 to 49 has benefited from screening in the last five years. Furthermore, HPV vaccine coverage is also low, with less than 10% of girls aged 9 to 14 having received their first dose [9].

The low screening and vaccination rates are partly due to a lack of adherence from target populations. This adherence is strongly influenced by individuals' knowledge, attitudes, and practices (KAP) regarding CC and its prevention. Health education and awareness programs are therefore crucial to reverse this trend. In this context, it is imperative to evaluate the KAP of young people, who represent the future at-risk generation. The objective of our study was to evaluate these KAP among students at the University of Yaoundé II, to better target future public health interventions.

2. Materials and Methods

A descriptive cross-sectional study was conducted from December 6 to 8, 2016, on the campus of the University of Yaoundé II in Soa. The study was approved by the ethics committee of the University of Yaoundé II under reference N˚ 012/UY2/CE/2016 dated December 1, 2016. All participants gave their informed consent, and data confidentiality was respected.

2.1. Study Population and Sampling

The target population consisted of voluntary students of all genders and ages enrolled at the University of Yaoundé II. A non-probabilistic consecutive sampling was used, including all volunteers present on campus during the survey period. A *priori* sample size calculation was not performed; the final size of n = 136 is based on the exhaustive recruitment of volunteers during the study period, which is a limitation to consider for generalizability.

2.2. Data Collection

A structured, self-administered, and anonymous questionnaire was used to collect data. It was divided into sections covering the following variables:

- Sociodemographic data: age, gender, study level.
- Knowledge about CC: general knowledge of the disease, etiological factors (including the role of HPV), transmission modes, and symptoms.
- Attitudes toward prevention: opinion on the effectiveness of the HPV vaccine, the importance of screening, and available screening methods.
- Prevention practices: carrying out screening (smear), HPV vaccination, and adherence to management recommendations.

The questionnaire was developed by the authors based on standardized KAP tools from the WHO and existing literature on CC in Africa. It was pre-tested on a small pilot group of 15 students from the University of Yaoundé I to ensure the clarity and apparent validity of the questions.

2.3. Statistical Analysis

The collected data were entered and analyzed using Epi Info version 3.5.3 software. Qualitative variables were described in frequencies and percentages. For future analyses and discussion, a response was categorized as "knowledgeable" or "positive attitude" if the student answered correctly or showed an acceptance of modern prevention such as answering "Yes" to questions about HPV as a cause, the existence of the vaccine, and preference for modern treatment. "Good practice" was defined by self-reported use of a Pap smear or HPV vaccination.

3. Results

3.1. Sociodemographic Characteristics

We collected data from 136 participants, including 70 men (51.5%) and 66 women

(48.5%). Among them, 117 were students, representing a participation rate of 86.0% (Table 1).

Table 1. Sociodemographic characteristics of participants (N = 136).

Characteristic	Number (n)	Percentage (%)
Gender		
Men	70	51.5
Women	66	48.5
Status (Students)		
Students	117	86.0
Non-Students	19	14.0
Study Level		
Undergraduate Level/L1 - L3	71	60.7
Master's/Doctoral Level	46	39.4

3.2. Knowledge about Cervical Cancer

The majority of participants (81.0%, 95% CI: [74.1 - 87.9]) had already heard of CC, compared to 19.0% who had no knowledge. Details of knowledge about the causes and prevention methods are presented in Table 2.

Table 2. Participants' knowledge of the causes and prevention of cervical cancer.

Questions	Yes	No	Don't know	95% CI (Yes)
Is CC caused by a sexually transmitted virus?	46.3%	40.4%	13.2%	[38.0 - 54.6]
Is CC caused by the human papillomavirus (HPV)?	43.4%	32.4%	24.3%	[35.1 - 51.7]
Is there an effective vaccine against CC?	52.2%	33.8%	14.0%	[43.8 - 60.6]
Are there other prevention methods besides the vaccine?	70.6%	19.1%	10.3%	[63.0 - 78.2]

3.3. Attitudes and Practices

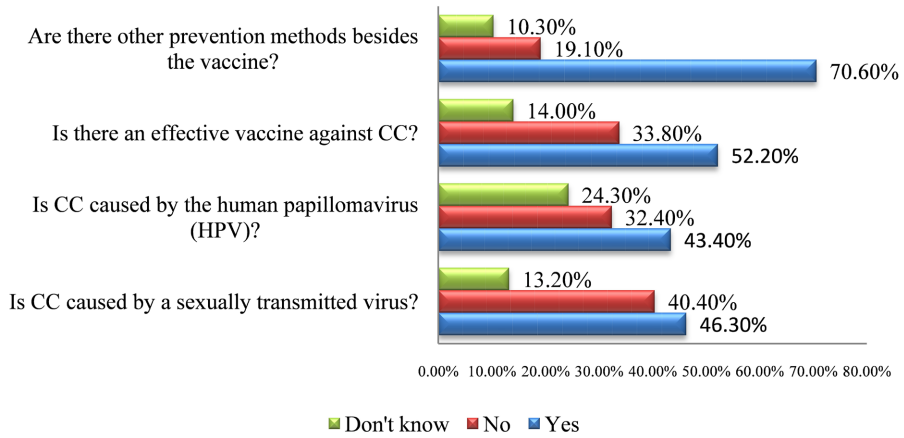

Figure 1. Participants' knowledge of the role of HPV and prevention.

Regarding attitudes toward treatment, 91.2% of participants believe that CC should preferably be treated in a hospital, while 2.2% oppose it and 6.6% have no opinion. Only 3.7% of participants believe that treatment should be performed by traditional medicine, while 84.6% are against it and 11.8% have no opinion. Personal screening and vaccination practices were not specifically measured due to their low prevalence, but the results on knowledge of these methods are illustrated in **Figure 1**.

4. Discussion

Our study evaluates the knowledge, attitudes, and practices (KAP) of young students at the University of Yaoundé II regarding cervical cancer. The results reveal a contrasting situation: a high general awareness of the disease's existence, but significant and persistent gaps in essential aspects of its prevention.

The overall knowledge of CC, reported by 81% of our participants, is comparable to that of other studies conducted in urban or university settings in sub-Saharan Africa. Similar figures have been reported in Ghana (74%) by Sampson *et al.* and in Ethiopia (90%) by Getaneh *et al.* [10] [11]. This awareness is likely due to public health campaigns conducted in major cities. However, it contrasts with studies conducted in rural areas, such as in India, where only 61.8% of women had heard of CC, highlighting the inequality in access to information between urban and rural areas [12] [13].

Despite this awareness, the understanding of etiological factors remains low. Only 43.4% of participants knew that CC was caused by the human papillomavirus (HPV). This figure, although slightly higher than the 35% reported by Tebeu *et al.* in Cameroon, remains insufficient for a university population [14]. The lack of knowledge of HPV as the main causal agent is a major obstacle to adherence to vaccination and screening, as young people do not grasp the importance of targeted prevention. The role of risk factors such as multiple partners and early sexual debut was better known, which is consistent with other studies conducted on the continent [13] [15].

The attitude toward prevention methods also shows gaps. Although a majority (52.2%) had heard of the HPV vaccine, this rate remains lower than that observed in other middle-income countries, where better education and access to health services have led to greater knowledge [16] [17] [18]. The actual vaccination rate was not measured in our study, but WHO data indicate that it is very low in Cameroon, suggesting a significant disparity between knowledge and practice. The ignorance of other prevention methods, such as Pap smears or visual inspection with acetic acid (VIA), is also concerning, as it limits prevention options for unvaccinated or ineligible women [19] [20].

The majority of participants (91.2%) had a positive attitude toward modern medicine for the treatment of CC, which is a strong point. This result is encouraging, as it suggests that the young population is receptive to hospital treatments and largely rejects traditional practices, which are often ineffective or dangerous

(only 3.7% preference for traditional medicine) [21] [22]. These attitudes are crucial for improving treatment outcomes, as early and appropriate management is essential for patient survival [23].

The main limitation of our study is its cross-sectional nature and the small number of participants, which limits the generalizability of the results. The non-probabilistic and consecutive sampling may also introduce a selection bias. Furthermore, the self-administered questionnaire does not allow for a direct evaluation of screening and vaccination practices, limiting it to a simple knowledge of their existence.

5. Conclusion

Although the majority of students at the University of Yaoundé II have heard of cervical cancer, significant gaps remain regarding knowledge of its etiology (HPV) and effective prevention methods such as vaccination. The positive attitude toward modern medicine for treatment is a strong point, but it must be reinforced by better education for early detection. Targeted information and education programs on HPV and screening methods are imperative within universities and higher education institutions in Cameroon to improve prevention and reduce the burden of the disease.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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