

Risk Factors of Infection of Human Papillomavirus (HPV) in the Lekoumou and Niari Departments (Congo Brazzaville)

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ABSTRACT

Objective: To determine the prevalence of risk factors of infection of human papillomavirus (HPV) in women in Lekoumou and Niari departments.

Patients and Methods: We conducted a descriptive and cross-sectional study over a period of 7 months from January to July 2019 in the Lekoumou department. 100 women whose ages ranged from 16 to 73 years old. The variables studied were as follows: age, marital status, level of education, age of first intercourse, number of sexual partners, parity. The bivariate analysis was done between age, number of level of instruction, parity, age of first sexual intercourse and number of sexual Partners. The statistical analysis and the data processing were carried out by the Excel 2016 software and the graphpad prism version 5 software. The statistical test used was the chi-square test.

Results: During this study we collected 100 women. The mean age of the patients was 34.6 ± 11.9 with ranges ranging from 16 to 73 years. The most represented age groups were 20-29 years old (31%) and 30-39 years old (29%). The highest level of education was college level in 53% of cases followed by primary level in 25% of cases. Almost $\frac{3}{4}$ of our study population were married women (74%), single people made up only 22% of the study population. The mean age at first intercourse was 16.4 ± 2.3 with extremes ranging from 12 to 25 years. Almost all of the women (97%) had had their first sexual intercourse before the age of 20. The average number of sexual partners was 5.3 ± 3.2 with extremes ranging from 1 to 15 partners, 53% of women had at least 5 sexual partners. The mean number of deliveries (parity) was 3.6 ± 2.4 with extremes ranging from 0 to 12 deliveries. 36% of our study population had between 4 and 7 deliveries.

Bivariate analysis found a statistically significant difference between age and number of sexual partners, between age of first intercourse and level of education, but also between age and number of children.

Conclusion: Cervical cancer is a public health problem. Apart from HPV infection, several cofactors have shown an associative link for its occurrence. It can be in our context mainly the number of children, parity and the number of sexual partners and the age at first intercourse.

Keywords

Cervical cancer, Human papilloma Virus, Sexual partners.

Introduction

Cancer of the cervix is a health problem. Indeed, cervical cancer is the 4th most common cancer in women in the world [1], and the leading cause of cancer death in women in Africa. Today, thanks to perfect epidemiological and molecular knowledge of HPV types and variants in developed countries, the incidence of cervical cancer continues to decrease, unlike in developing countries, particularly in sub-Saharan Africa. or the incidence increases exponentially mainly because of the poor organization of screening and prevention policies [2]. In Congo, cervical cancer is the second most common cancer in women in terms of incidence and the first cancer in terms of mortality (GLOBOCAN 2020) [3]. Human papillomavirus (HPV) is the virtually necessary (but not sufficient) cause of cervical cancer [4] with 12 oncogenic types classified as group 1 carcinogens by the IARC Monographs [5]. Other important cofactors include immunosuppression (particularly human and immunodeficiency virus), smoking, parity (a higher number of full-term pregnancies increases risk), and oral contraceptive use [6]. Known risk factors for cervical cancer include HPV infection, age, early sexual exposure, multiple sexual partners, and sexual contact with high-risk males [7]. Besides sexual behavior, cigarette smoking has also been reported as an environmental risk factor for cervical cancer, which interacts with HPV as a carcinogenic co-factor [8,9]. To our knowledge, no study has been carried out on this subject. It is in this context that we set ourselves the objective of determining the prevalence of risk factors of infection of HPV in the departments of Lekoumou and Niari.

Patients and Methods

We conducted a descriptive and cross-sectional study over a period of 7 months from January to July 2019 in the Lekoumou department.

Our study involved a population of 100 women ranging in age from 16 to 73 years old.

Sexually active patients aged 16 and over who have given informed consent for adults and parental consent for minors were included.

We did not include patients who had undergone total hysterectomy as well as those who were menstruating. We carried out a simple random draw to constitute the size of our sample.

The variables studied were as follows:

- age,
- marital status,
- the level of education,
- the age of first sexual intercourse,
- the number of sexual partners,
- parity,

The collection of data was made from a previously written survey sheet, containing the different variables studied. The bivariate analysis was done between age, number of sexual partners, age of first sexual intercourse, level of instruction. Data entry was done using the Excel version 2016 software. Qualitative variables were represented in terms of number and percentage. Quantitative variables were represented effective and on average. The statistical analysis and the data processing were carried out by the Excel 2016 software and the graphpad prism version 5 software. The statistical test used was the chi-square test.

Results

During this study we collected 100 women. The mean age of the patients was 34.6 ± 11.9 years with ranges ranging from 16 to 73 years. The most represented age groups were that of 20-29 years (31%) and that of 30-39 years (29%) table 1. The most represented level of education was the college level in 53% of cases monitoring of the level of primary education in 25% of cases figure 1. Almost $\frac{3}{4}$ of our study population were married women (74%). Singles represented only 22% of the study population figure 2. The mean age at first intercourse was 16.4 ± 2.3 with extremes ranging from 12 to 25 years. The average number of sexual partners was 5.3 ± 3.2 with extremes ranging from 1 to 15 partners, 53% of the women had at least 5 sexual partners table 2. Almost all of the women (97%) constituting our study population had had their first sexual intercourse before age 20 figure 3. The mean number of deliveries was 3.6 ± 2.4 with extremes ranging from 0 to 12 deliveries. 36% of our study population had between 4 and 7 deliveries figure 4. The age group of those from 26 to 36 years old is the one who presented more sexual partners of more than 5, while the age group from 37 to 46 years represented 26% cases P <5% figure 5. The majority of patients who had an illiterate level of education, primary and college had their first sexual intercourse before the age of 18, this result was statistically significant table 3. A link association was established between the age and the number of children figure 6.

Sociodemographic characteristics

a) Age

Table 1: Distribution of patient according to Age.

Age Group	Number	Percentage
<20	8	8%
20-29	31	31%
30-39	29	29%
40-49	20	20%
≥ 50	12	12%
Total	100	100%

b) Level of instruction

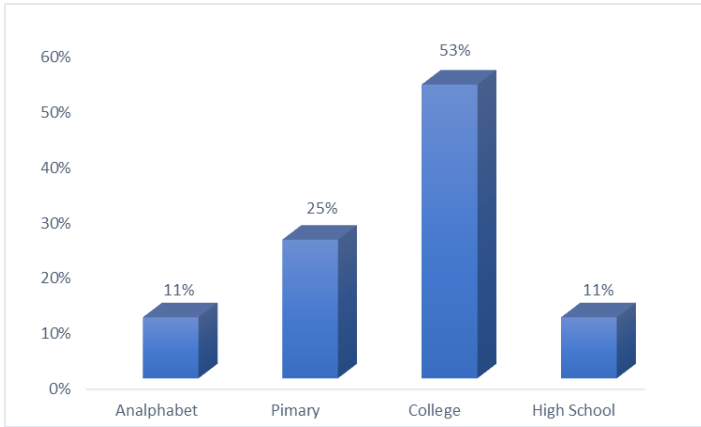


Figure 1: Distribution of patients according to level of instruction.

c) Marital Status

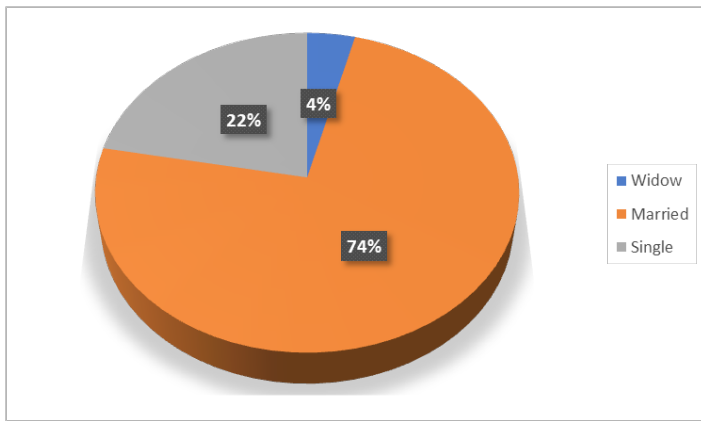


Figure 2: Distribution of patient according to marital status.

Risk faktors of HPV

a) Age of first intercourse

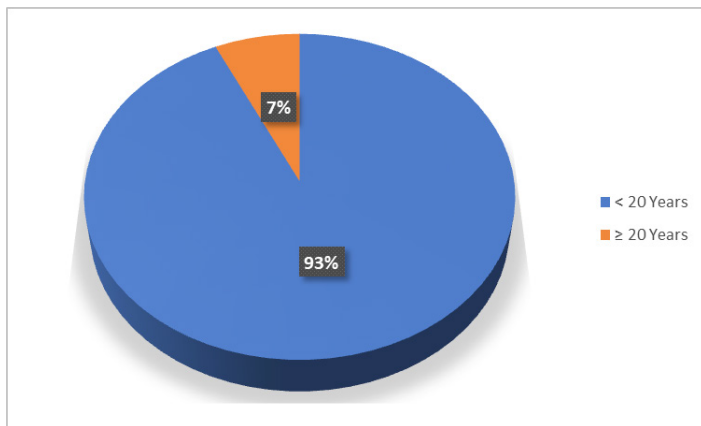


Figure 3: Distribution of patient according to age of first intercourse.

b) Number of sexual partners

Table 2: Distribution of patient according to sexual partners.

Partners	Number	Percentage
1 to 2	19	19%
2 to 4	28	28%
≥ to 5	53	53%
Total	100	100%

c) Parity

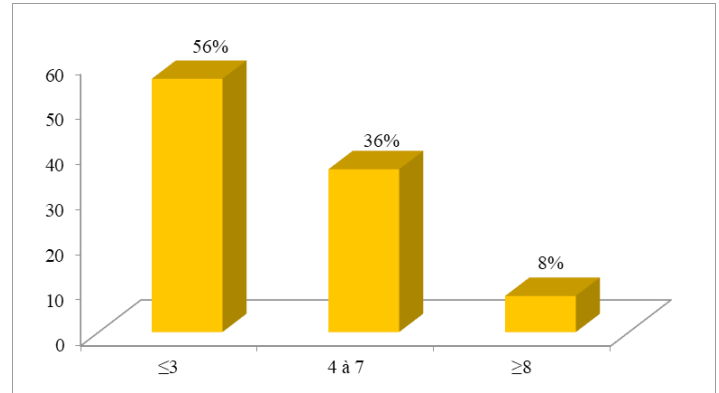


Figure 4: Distribution of patient according to parity.

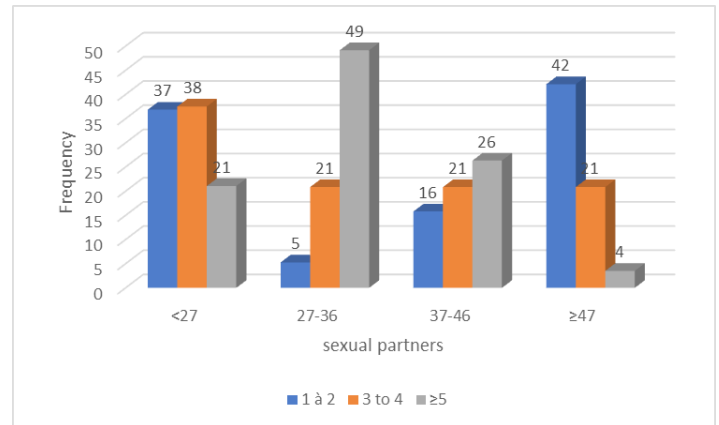


Figure 5: Distribution of patients according to sexual Partners and Age. P<5% Significant Results

Table 3: Distribution of patients according to age of first sexual intercourse and level of instruction.

Level of instruction	Age of first Sexual intercourse			Total
	<16	16-18	>18	
Illetrate	8 (21%)	3 (7%)	0 (0%)	11
Primary	11 (29%)	10(22%)	4 (24%)	25
College	18 (47%)	26 (58%)	9 (53%)	53
High School	1 (3%)	6 (13%)	4 (24%)	11
Total	38 (100%)	45 (100%)	17 (100%)	100

P<9% significant result.

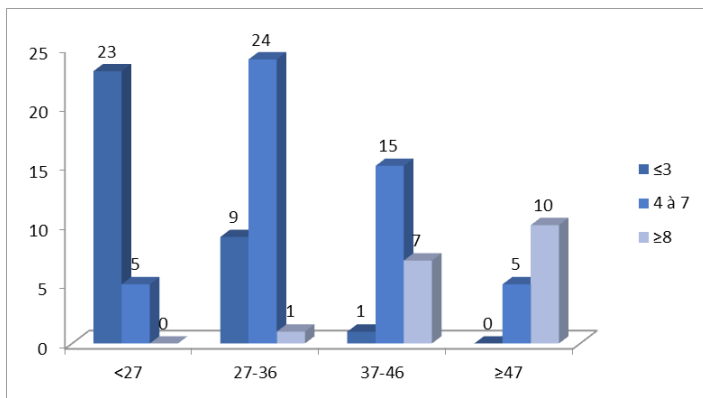


Figure 6: Distribution of patients according to number children and Age. P<5% Significant results

Discussion

Analysis of the Methodology

Type and period of the study: The descriptive and transversal nature of this study ensures an optimal quality of the results, because the collection of information was contemporaneous with the events described. The homogeneity of our study sample allowed us to make a simple analysis of the results obtained, representative of the general population of the study area.

Sampling strategy: The constitution of the sample consisted in making a simple random selection of women from the entire rural area of the Kouilou department, representing our sampling territory. The purpose of this random selection was to obtain a number of cases representative of the general population, in order to ensure statistical significance of the results. In total, we selected 100 cases for our studies. Elsewhere, but close to us in Kinshasa, in the Democratic Republic of Congo (DRC), Ali-Risasi in 2008 [10] using the same methodology, had recruited 272 cases to carry out this type of molecular study of HPV identification in the area urban.

Age: The mean age of women in our study population was lower than that observed in the Louie study population in 2009 [11] which was estimated to be 33.9 years.

But it has been observed that young women have a lot of precancerous lesions than older women, these findings have also been observed in the literature [12-16].

Sexual partners, age of first intercourse, parity, level of education: Therefore, this increasing incidence may also be related to changes in sexual behavior including early age at onset of sexual intercourse, multiple sexual partner and changes in sexual habits, and increasing transmission of HPV among younger women [17,18]. A well- documented report on premarital sexual activity among teenage women in the United States concluded that young teenagers continued to engage in intercourse at earlier ages and in increasing partner number since the sexual revolution of the late 1960s [19].

Present study limitations that must be addressed includes those inherent to cross- sectional studies, where exposures and outcomes are evaluated in a point of time. Thus, it is not possible to establish causal association between exposures and outcome. Nevertheless, because of the latency period for cervical cancer development, the prevalence of known co-factors that may cumulatively affect the risk of this neoplasia (e.g. tobacco smoking, oral contraceptive use); and of those behavioral characteristics that may be a proxy of HPV infection opportunity in a lifetime (eg number of sexual partners, early menarche, late menopause, parity), may enable us to hypothesize about the changes occurred in the society concerning to risk of cervical Cancer. Moreover, when such prevalence differ according to the generation based on a well described behavioral-impacting sociological event, such as the Sexual Revolution, such hypothesis become stronger. However, in order to test such hypothesis, analytical studies with greater sample size are required [20].

Several studies have shown that certain factors such as sexual behavior, parity, pregnancy, age, marital status, level of education are the risk factors most involved in the development of precancerous and cancerous lesions of the cervix. uterus.

In our study, statistical analysis between the majority of these risk factors (including parity, age, number of sexual partners, age at first sexual intercourse) found a statistically significant association. Indeed, these risk factors are reported in the literature as risk factors associated with HPV infection and these complications [21].

Conclusion

The infection has HPV which the main risk factor for cancer of the cervix presents, several risk factors, it can be mainly in our context has limited resources of the parity of the number of high sexual partners, the age at first intercourse. Knowledge of risk factors for infection would be an asset for the establishment and strengthening of health policies for primary prevention of cervical cancer.

References

1. Bzhalava D, Eklund C, Dillner J. International standardization and classification of human papillomavirus types. *Virology*. 2015; 476: 341-344.
2. Monsonego J. Papillomavirus et cancer du col de l'utérus. *Médecine/sciences*. 1996; 12: 733.
3. Sung H, Ferlay J, Siegel RL, et al. Global Cancer Statistics 2020 GLOBOCAN Estimates of Incidence and Mortality Worldwide for 36 Cancers in 185 Countries. *CA Cancer J Clin*. 2021; 71: 209-249.
4. Walboomers JM, Jacobs MV, Manos MM, et al. Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *J Pathol*. 1999; 189: 12-19.
5. IARC Working Group on the Evaluation of Carcinogenic Risks to Humans. Human papillomaviruses. *IARC Monogr Eval Carcinog Risks Hum*. 2007; 90: 1-636.
6. Herrero R, Murillo R, Thun MJ, et al. Cervical cancer. *Cancer*

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- Epidemiology and Prevention. 4th ed New York Oxford University Press. 2018: 925-946.
7. Ferenczy A, Franco E. Persistent Human Papillomavirus Infection and Cervical Neoplasia. *Lancet*. 2002 ; 3: 11-16.
 8. Eppel W, Worda C, Frigo P, et al. The Influence of Cotinine on Interleukin 6 Expression in Smokers with Cervical Preneoplasia. *Acta Obstetrica et Gynecologica Scandinavica*. 2000; 79: 1105-1111.
 9. Sierra-Torres CH, Tying SK, Au WW. Risk Contribution of Sexual Behavior and Cigarette Smoking to Cervical Neoplasia. *International Journal of Gynecological Cancer*. 2003; 13: 617-625.
 10. Sellors JW, Sankaranarayanan R. Colposcopie et traitement des néoplasies cervicales intraépithéliales manuel à l'usage des débutants. Lyon Cedex France Diamond Pocket Books. 2004.
 11. Koss LG, Durfee GR. Unusual patterns of squamous epithelium of the uterine cervix cytologic and pathologic study of koilocyticatyphia. *Annals of New York Sciences*. 1956; 63: 1245-1261.
 12. Ebatetou-Ataboho E, Alidjinou EK, Sané F, et al. Cervical samples dried on filter paper and dried vaginal tampons can be useful to investigate the circulation of high-risk HPV in Congo. *Journal of Clinical Virology*. 2013; 57: 161-164.
 13. Bukhari MH, Majeed M, Qamar S, et al. Clinicopathological study of Papanicolaou Pap smears for diagnosing of cervical infections. *Diagnostic cytopathology*. 2012; 40: 35-41.
 14. Louie KS, de Sanjose S, Mayaud P. Epidemiologie and prevention of human papillomavirus and cervical cancer in sub-saharan Africa a comprehensive review. *Tropical medicine and international health*. 2009; 10: 1287-1302.
 15. Sanad AS, Kamel HH, Hasan MM. Prevalence of Cervical Intraepithelialneoplasia CIN in Patients Attending Minia Maternity University Hospital. *Archives of Gynecology and Obstetrics*. 2014; 289: 1211-1217.
 16. Christine Bergeron, Isabelle Cartier, Laurence Guldner, et al. Lésions précancéreuses et cancers du col de l'utérus diagnostiqués par le frottis cervical, Ile-de-France, enquête Crisap, 2002 1 Centre de regroupement informatique et statistique de données d'anatomo-cytopathologie en Ile de France, Paris 2 Ecole nationale de santé publique, Rennes ; 3 Institut Curie, Paris BEH n° 2/2005.
 17. Arraiz GA, Wigle DT, Mao Y. Is Cervical Cancer Increasing among Women in Canada. *Canadian Journal of Public Health*. 1990; 81: 396-397.
 18. Bergstrom R, Sapren P, Adami HO. Trends in Cancer of the Cervix Uteri in Sweden Following Cytological Screening. *British Journal of Cancer*. 1999; 1: 159-166.
 19. Hofferth SL, Kahn JR, Baldwin W. Premarital Sexual activity among US Teenage Women over the Past Three Decades. *Family Planning Perspectives*. 1987; 19: 46-53.
 20. da Silva I, Koifman R, Parreira V, et al. Risk Factors for Cervical Cancer in a Sample Comprising Three Generations of Brazilian Women. *Journal of Cancer Therapy*. 2017; 8: 12-25.
 21. Buck CB, Cheng N, Thompson CD, et al. Arrangement of L2 within the papillomavirus capsid. *Journal of virology*. 2008; 82: 5190-5197.