

# Knowledge and attitudes about human papillomavirus, Pap smears, and cervical cancer among young women in Brazil: implications for health education and prevention

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**Abstract.** Moreira ED Jr, Oliveira BG, Ferraz FM, Costa S, Costa Filho JO, Karic G. Knowledge and attitudes about human papillomavirus, Pap smears, and cervical cancer among young women in Brazil: implications for health education and prevention. *Int J Gynecol Cancer* 2006;16:599–603.

The objective of the study was to assess knowledge and attitudes about human papillomavirus (HPV), cervical cancer, and Papanicolaou (Pap) smears among young women. A questionnaire was administered to 204 women aged 16–23 years, attending a public clinic. Data were gathered on sociodemographic characteristics, knowledge, and attitudes related to HPV. Overall, 92% of women reported current/previous sexual activity, 42% perceived themselves at high risk of acquiring a sexually transmitted disease, 67% did not know that HPV can cause cervical cancer/warts, and only 10% acknowledged that HPV might lead to cervical cancer. In general, women had a poor knowledge on HPV diagnosis/treatment, condyloma signs, and Pap smear test. The main reasons for not having a Pap smear test done before were embarrassment (63%) and fear of pain (61%). Knowledge of HPV infection and cervical cancer was low in this urban young population. Our findings recommend for greater HPV education of the public and health care practitioners.

KEYWORDS: cervical cancer, genital warts, human papillomavirus, knowledge, Pap smear screening, young women.

Human papillomavirus (HPV) is one of the most prevalent sexually transmitted viral diseases<sup>(1–4)</sup>. Several types of HPV infect the anogenital area and are spread through skin-to-skin contact that occurs during sex<sup>(5)</sup>. Types 16 and 18 are associated with 70% of the cervical dysplasia and cervical cancer cases<sup>(6–10)</sup>, whereas types 6 and 11 cause virtually all genital warts in both women and men<sup>(4,11)</sup>. Cervical cancer is second worldwide among malignancies for causing death among women<sup>(12,13)</sup>. While cervical cancer mortality has declined due to early detection by Papanicolaou (Pap) smears, treatment of precancerous lesions caused by HPV still causes considerable physical and psychologic morbidity as well as considerable expense<sup>(14,15)</sup>.

Despite the high prevalence and serious complications associated with HPV infection, most young women know very little about HPV<sup>(16–19)</sup>. Relatively few studies have examined knowledge of HPV. Almost all are US-based surveys and most sample only US college women<sup>(1,18,20–23)</sup>. In the United States, Koutsky *et al.*<sup>(1)</sup> found that 11–46% of college women were infected with HPV. In another study by Hoover *et al.*, only 8% of the women between 15 and 17 years of age and 35% of those from 18 to 28 years of age knew about HPV<sup>(18)</sup>. Public awareness of HPV and its association with cervical cancer may motivate women to participate in HPV primary prevention efforts, as well as to engage in other risk-reduction programs such as routine Pap smear screening. Awareness and education are important prerequisites to efforts aimed at preventing the spread of HPV. The purpose of this study was to assess knowledge, beliefs, and attitudes

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about HPV infection, cervical cancer, and Pap smears among young women in an urban center in northeastern Brazil.

## Materials and methods

### Study population and site

We recruited a consecutive sample of women of age 16–23 years at the waiting room of the gynecological clinic at the Santo Antônio Hospital in Salvador city, in northeastern Brazil. This free, nongovernmental clinic delivers health care to uninsured women of lower socioeconomic status. Out of 237 eligible women, 33 refused to participate and 204 (86.1% response rate) were surveyed from May to July 2002. Respondents were approached by interviewers and invited to participate in the survey. The protocol was approved by the Hospital Ethical Committee. Informed consent was obtained from all participants.

### Data collection

There were three study interviewers (two males and one female), who were given an orientation on the protocol and specific details concerning participation in the study. Prior to study commencement, they carried out practice sessions with authentic respondents. These preliminary interviews were observed and critiqued by the investigators. The interview guides were developed from a review of the literature and contained sections of questions that addressed the major areas to be explored by the study: knowledge of HPV, genital warts, cervical cancer, and Pap smear screening<sup>(24–26)</sup>.

The 150-item questionnaire was divided into five sections that sought information about the following: (1) demographic data and social background; (2) use of the clinic; (3) awareness and understanding of HPV, genital warts, and cervical cancer, including signs and symptoms, routes of transmission, prevention, potential long-term complications, diagnosis, and treatment; (4) knowledge and understanding of Pap smear screening; and (5) sexual behavior and self-perceived risk of acquiring a sexually transmitted disease (STD). The questionnaire was piloted on a sample of 20 female volunteer patients attending the clinic. All items were assessed for face validity by health survey experts. The individual interviews lasted an average 20–25 min, and the sessions occurred in a private room.

### Data analysis

The data were analyzed using the Statistical Package for the Social Sciences. Basic descriptive statistics and

frequency calculations were performed on all variables,  $\chi^2$  test was used to assess differences in answers by categories of stratifying variables, with statistical significance at 5%.

## Results

The mean age (standard deviation) of women in our sample was 20.0 (2.0) years; 74.0% were single, 25.5% were married or living with a partner, 21.1% were currently employed, and 61.3% had a high school education or more. They were ethnically diverse: 2.0% white, 25.5% black, and 72.5% of mixed ethnicity. More than half of the participants were catholic (54.4%), and 40% were full-time students. Selected information on the study participants are depicted in Table 1. Ninety-two percent of women reported current or previous sexual activity and were classified as sexually experienced. Forty-two percent of the respondents perceived themselves at a high risk of acquiring an STD, notwithstanding 55% never or rarely used condom. The majority of women were first-time users of the clinic and had come for a Pap smear test.

Table 2 summarizes subjects' responses to questions about HPV, condyloma, and cervical cancer. More than two thirds of the respondents (68.6%) ignored

**Table 1.** Selected characteristics of 204 women in Salvador, Brazil, 2002

	N (%)
Sexual behavior	
Number of lifetime sexual partners	
None	16 (7.8)
One partner	78 (38.2)
Two partners	44 (21.6)
Three partners	30 (14.7)
Four partners	18 (8.8)
≥Five partners	18 (8.8)
How often do you use condom? <sup>a</sup>	
Never	45 (23.9)
Rarely	58 (30.9)
Often	34 (18.1)
Always	51 (27.1)
Self-perceived risk of acquiring an STD <sup>a</sup>	
None	34 (18.1)
Low	68 (36.2)
Moderate	7 (3.7)
High	79 (42.0)
Use of clinic	
First time at the clinic	121 (59.3)
Main reason for the consultation	
Pap smear screening test	103 (50.5)
Birth control	30 (14.7)
Other gynecological consultation	71 (34.8)

<sup>a</sup>Only for sexually active women (*n* = 188).

**Table 2.** Knowledge and awareness about HPV, genital warts, and cervical cancer among 204 women in Salvador, Brazil, 2002

	%
HPV	
What HPV causes?	
Do not know	68.6
Cervical cancer	9.8
Genital warts	4.9
Other	16.7
How HPV is contracted?	
Sexual contact	66.7
Do not know	24.5
Sharing underwear or towels	3.9
Toilet seats	2.0
Other	2.9
Condyloma	
What is the main sign of condyloma?	
Do not know	56.0
Genital warts	17.6
Genital ulcers	7.8
Vaginal discharge	4.9
Genital blisters	2.9
Other	10.8
How condyloma is contracted?	
Sexual contact	57.4
Do not know	39.6
Casual contact	1.5
Other	1.5
Cervical cancer	
What may lead to cervical cancer?	
Do not know	60.8
Fail to undergo Pap screening test	10.8
STDs	3.9
Other	24.5
Are you concerned about having/developing cervical cancer?	
No	6.8
A little	20.6
Moderately	42.2
Extremely	30.4
Self-perceived chance of developing cervical cancer	
Very low	16.7
Low	15.2
Average	56.8
High	11.3

what HPV may cause. Overall, less than 10% of the women acknowledged that HPV might lead to cervical cancer. In contrast, most women knew that HPV is sexually transmitted (66.7%). Study participants with some high school education were more likely to know about the association between HPV and cervical cancer than those with less than high school education, 17.0% and 6.1%, respectively ( $\chi^2 = 4.26, P = 0.04$ ). Subjects with higher educational attainment were also more likely to have knowledge on HPV transmission as compared to those less educated, 72.8% and 56.9%, respectively ( $\chi^2 = 5.46, P = 0.02$ ). In general, women

in our study demonstrated a poor knowledge on how HPV is diagnosed or treated (Table 2). More than half of the women were not aware of the presenting signs of condyloma, and only 17.6% acknowledged genital warts as a sign of this condition. Knowledge of cervical cancer was also poor. The majority of women (60.8%) did not realize what might lead to cervical cancer, and only 3.9% reported STDs, nonspecifically, as a possible reason for this cancer (Table 2). Risk factors, as noted by the respondents, included not having regular smear tests, lack of personal hygiene, and others. Of note, 72.6% of the participants were moderately to extremely concerned about cervical cancer, and 68.1% perceived themselves at moderate to high risk of developing this type of cancer.

As shown in Table 3, knowledge about Pap smear test among subjects in our survey was low. The majority of women in our study (78%) had limited knowledge about the purpose of this screening test. They either reported that it serves to prevent "diseases," nonspecifically, or were not sure why they should have a smear test done. Approximately 19% of the women had not undergone a Pap smear test before. The most common reason reported for not having a screening test performed was embarrassment (63.2%), followed closely by fear of pain (60.5%). The obstacles to undergo a Pap test were similarly prevalent among

**Table 3.** Knowledge and attitudes about Pap smear screening among 204 women in Salvador, Brazil, 2002

	N (%)
What is the Pap smear screening test used for?	
To prevent diseases (nonspecifically)	154 (75.5)
To prevent STDs	23 (11.3)
To prevent cervical cancer	15 (7.4)
To prevent cervical cancer and STDs	6 (2.8)
Do not know	5 (2.5)
Other	1 (0.5)
Have you already undergone a Pap smear test?	
No	38 (18.6)
Why not?	
Embarrassment	24 (63.2)
Fear of pain	23 (60.5)
Cannot get an appointment	13 (34.2)
Do not bother	12 (31.6)
Other	4 (10.6)
Yes	166 (81.4)
Do you feel embarrassed when undergoing a Pap smear test?	
Yes	96 (57.8)
No	70 (42.2)
Do you feel pain when undergoing Pap smear test?	
Yes	79 (47.6)
No	87 (52.4)

participants, despite their education. Among women who had already had a Pap test before, nearly half (48%) did report pain during the gynecological examination and 58% felt embarrassed while having the test done.

## Discussion

This is the first comprehensive survey on knowledge and attitudes about HPV infection and cervical cancer among young women in northeastern Brazil. Our results show that little is known about these health topics in the study population. Overall, more than two thirds of the women in our sample did not know the potential consequences of HPV and less than 10% knew that it might lead to cervical cancer. Similar findings have been reported among women attending college in the United States<sup>(20–22)</sup> and among female employees at a university in the UK<sup>(19)</sup>, where more than half of the respondents had low level of knowledge about genital HPV infections, thus indicating that HPV-related knowledge deficits also occur among subjects with higher educational attainment and suggesting that HPV educational programs may be needed in both developing and developed countries.

Knowledge of HPV transmission, presenting symptoms and signs, and HPV association with greater risk of cervical cancer were associated with years of school attendance. Women with higher educational attainment were more likely to have received information on these matters. However, the lack of knowledge on HPV diagnosis and treatment was prevalent in women, regardless of their education, suggesting that the amount of information they may receive at high school is still insufficient or limited. A high proportion of the women in our study (73%) reported that they were moderately/extremely worried about having/developing cervical cancer. Moreover, the majority of the respondents (68%) believed that they were at moderate to high risk for cervical cancer. In this scenario, where poor HPV-related knowledge coexists with high perceived susceptibility to cervical cancer, one may argue that HPV educational programs are not only needed but also likely to be welcomed.

Many women in our survey (81%) had already undergone a Pap smear screening. This may derive from the sampling strategy we used (based on a clinical setting) and may not reflect what probably happens in the general population. Despite that, most women in our study only knew that the Pap test was meant to prevent diseases nonspecifically, denoting an incomplete/partial knowledge of the rationale for this exam. It is conceivable that if women were given more

information about the purposes of the Pap screening test (prevention and early diagnosis/treatment of cervical cancer, the second most common cancer in women), this could improve their adherence to future visits in such programs. In fact, a study by Fernandez *et al.*<sup>(27)</sup> has demonstrated that a health promotion program that provided education for medically underserved women was successful in increasing mammography and Pap test screening among low-income and minority women.

The main reasons women reported for not having undergone a smear test before were embarrassment and fear of pain. In fact, 76% of the respondents cited either one as an obstacle to undergo a first smear test. Interestingly, among women who had already undergone a Pap smear test, a significant proportion still reported embarrassment (58%) and nearly half of them (48%) indeed felt pain during the gynecological exam for the Pap test. These issues should be targeted in programs to increase compliance to future cervical screening among women in this population.

Our study supports the National Institutes of Health Consensus Conference recommendations highlighting the need for greater HPV education of the public and health care providers<sup>(28)</sup>. Encouragingly, women's concerns about cervical cancer and interest in learning more about HPV were high among respondents in our survey. Designing and implementing HPV educational programs and measuring their effectiveness should be priorities. In addition, the main obstacles to a first Pap test women reported in our study (embarrassment and fear of pain) are both potentially modifiable through education of patients and practitioners and should be addressed in campaigns to incentive women to join and comply with Pap screening programs.

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