

ORIGINAL ARTICLE

ASSOCIATION BETWEEN KNOWLEDGE ABOUT CERVICAL CANCER AND HAVING A PAPANICOLAOU TEST IN PERUVIAN WOMEN

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ABSTRACT

Objectives: To estimate the association between having knowledge about cervical cancer (CC) and having a Papanicolaou (PAP) test in Peruvian women over 30 years old. **Materials and Methods:** A secondary analysis of the Demographic and Family Health Survey of the years 2015 to 2017 was carried out. The level of knowledge was evaluated using the questions, do you think that cancer can be prevented?, Have you ever heard of CC?, Have you ever heard of human papillomavirus (HPV)? And do you think HPV can cause CC? The dependent variable was the realization of a PAP in the last two years. To estimate the association, generalized linear models of the crude and adjusted Poisson family were used. The measure of association was the adjusted prevalence ratio (aPR) with its respective 95% confidence intervals (95% CI). **Results:** Data from 21 563 women were analyzed. The prevalence of having performed a PAP in the last two years was 52.4%. It was found that, those who responded that cancer can be prevented (aPR = 1.09; 95% CI: 1.01-1.17), who had heard of CC (aPR = 1.27; 95% CI: 1.14-1.40) or HPV (aPR = 1.20; 95% CI: 1.13-1.28) or who responded that HPV could cause CC (aPR = 1.21; 95% CI: 1.11-1.33) had a higher prevalence of having performed a PAP in the last two years. **Conclusions:** Having knowledge about CC and HPV has been associated with having performed a PAP in the last two years.

Keywords: Uterine Cervical Neoplasms; Papanicolaou Test; Papillomaviridae; Health Knowledge; Attitudes; Practice (source: MeSH NLM).

INTRODUCTION

Cervical cancer (CC) is a worldwide public health problem. In 2018, there were 570,000 cases (equivalent to 6.6% of all cancers in women) and a total of 311,000 deaths, making it the fourth most frequently diagnosed cancer in women and also the fourth most deadly. Approximately 90% of deaths caused by CC occurred in low- and middle-income countries ^(1,2).

By 2018, 4,103 new cases of cervical cancer were diagnosed in Peru, with an age-adjusted annual incidence rate of 23.2 per 100,000 women, second only to breast cancer, in women ⁽³⁾. CC causes high mortality in Peru, with an estimate of 1,836 deaths in 2018 (age-adjusted annual mortality rate of 10.2 per 100 000 women). Therefore, as a cause for mortality in Peru, CC is ranked as the third leading cause overall, and as the leading cause in women aged 15-44 years ⁽³⁾.

Early diagnosis is an important measure in controlling the disease burden of CC. When a disease is detected in its early stages, accompanied by access to effective treatments, the prognosis and survival of patients improve ⁽⁴⁾. An early diagnosis could prevent 40% of CC cases, especially in women not vaccinated against human papillomavirus (HPV) ⁽⁴⁾. Several interventions are available for CC screening, and the Papanicolaou (PAP) test is one of the most cost-effective tools, especially in low-income countries ⁽⁵⁾.

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Despite the heavy disease burden from CC, the screening coverage is insufficient. In low- and middle-income countries, laboratory and equipment requirements face logistics problems, these, added to the performance of the PAP test itself (sensitivity of approximately 50%), are factors that limit the screening effectiveness⁽⁶⁾. Educational interventions have been proposed to increase the level of knowledge about CC, and also to increase the number of periodic screening (including PAP tests) to identify this disease. It has been described that PAP test screening reduces mortality caused by this neoplasia in an average of 2.6% per year^(7,8).

Therefore, the objective of the study was to estimate the relation between knowledge about CC and getting a PAP test in a representative sample of Peruvian women.

MATERIALS AND METHODS

Population, sample and sampling

A secondary analysis was conducted on data obtained from the Demographic and Family Health Survey (ENDES in Spanish) for 2015, 2016 and 2017. The ENDES is an annual survey conducted by the National Institute of Statistics and Information (INEI in Spanish) in order to obtain information concerning the demographic and health status of mothers and children under five years old. The sampling used in the ENDES is probabilistic, balanced, two-stage, stratified and independent, by regions and by urban and rural areas. The ENDES estimates are represented nationally by year, according to its urban/rural areas, by geographical domain (Metropolitan Lima, Coast, Andean and Jungle) and for the 24 regions of Peru and the constitutional province of Callao⁽⁹⁾. Access to the ENDES databases is free and they are available on the INEI web portal (<http://iinei.inei.gob.pe/microdatos>).

Eligibility criteria

For the age groups included in the analysis, a total of 104,788 women aged 15-49 were surveyed. However, only women over 30 years old were included because questions on cervical cancer prevention were part of the health questionnaire, which was fulfilled by a subsample of 21,950 women over 30 years old. Participants who reported having more than one healthcare insurance and women who did not have complete data on the variables of interest were excluded.

Variables and measurements

The dependent variable was "completion of the PAP test in the last two years" with the categories yes/no. The question (QS412U) "Have you ever had a PAP test done by a doctor or other health professional in your life?" and the question (QS411) "How long ago did you have a PAP test for last

KEY MESSAGES

Motivation for the study: It has been described that the level of knowledge about CC is associated with the performance of periodic screening tests for CC, such as the PAP test. However, the association between knowledge about CC and performing PAP tests is unknown.

Main findings: In Peru, one out of every two women had a PAP test in the last two years. Knowledge of CC and human papillomavirus was associated with the re-establishment of PAP tests in the Peruvian population.

Implications: The development of strategies that increase knowledge about CC could increase the number of women who take a PAP test.

time?" were used to establish which participants had a PAP test in the last two years.

Knowledge regarding CC and HPV was assessed through four questions: (QS401) "Is it possible to prevent cancer?" and (QS402) "Have you ever heard of cervical cancer?" which were asked of the entire subsample; and the questions (QS403) "Have you ever heard of HPV?" and (QS404) "Do you think HPV can cause cervical cancer" were asked only if the participant answered yes to question QS402. For this reason, the analysis of these last two variables was conducted with a sample size of 19,813 and 14,740 participants, respectively.

The following confounding variables were considered based on the reported literature⁽¹⁰⁾: woman's age and number of children, as numerical variables; and the degree of education (none/primary, secondary, higher), marital status (married, single), welfare index (very low, low, medium, high, very high), region of origin (Metropolitan Lima, rest of the coast, andean, jungle), area of residence (urban, rural), use of modern contraceptives (yes, no) and the type of insurance: none, Integral Health Insurance (SIS), Peruvian Social Health Insurance (EsSalud), Armed Forces and Police, provider entity and private insurance; as categorical variables.

Statistical analysis

The data modules were downloaded directly from the INEI portal, imported and linked through the R v3.4 program (<https://www.r-project.org/>). All the analyses were carried out taking into account the design of complex samples by specifying the strata, weights and the primary sampling unit with the *svydesign* command of the survey library.

The prevalence of the dependent variable and the independent variables were reported with their respective 95%

confidence intervals (95% CI). The characteristics of the population were described in proportions, for categorical variables, and in means, for numerical variables. Likewise, bivariate analyses were performed to compare the prevalence of performing a PAP test in the last few years among the strata of the categorical variables or to compare averages between the numerical variables.

To determine the association between the independent and the dependent variables, prevalence ratios (PR) with their 95% CIs were calculated using generalized linear models of the Poisson family, crude and adjusted. We also considered the adjustment of the 95% CIs due to the use of subpopulations. A separate regression analysis was performed for each of the independent variables. An epidemiological criterion was used to enter confounding variables into the adjusted model. Collinearity was evaluated among all variables in a conceptual way and by means of the variance inflation factor (VIF), a VIF value lower than 4 was considered as absence of collinearity.

Ethical aspects

The databases are available without information that can identify the participants. Prior to the survey, informed consent was obtained from each household.

RESULTS

The ENDES surveyed a total of 36,655 women evaluated in 2015, 34,131 in 2016 and 34,002 in 2017, of whom only 7,238, 7,301 and 7,411 answered the questionnaires with the questions about cervical cancer prevention in those years, respectively. Thus, 21,950 women were included, of whom

387 had to be excluded because they had more than one health insurance policy, leaving 21,563 women included for the analysis (Figure 1).

A total of 57.6% of the population evaluated was between 30 and 40 years of age, 32.1% had a higher degree of education, 70.2% of the population included was married, 8 out of every 10 women resided in an urban area, and 13.6% lived in the jungle (Table 1).

52.4% of the women had a PAP test in the last two years, while 83.2% had a PAP test at some point in her life. 89.6% of the respondents believed that cancer was preventable, 77.8% had heard of HPV at some time, and 91.9% believed that HPV could cause CC (Table 2).

A higher prevalence of having a PAP test in the last 2 years was found among those who considered cancer preventable (53.2% vs. 45.9%; $p < 0.001$), those who had heard of cervical cancer at some time (53.5% vs. 37.2%; $p < 0.001$), those who had heard of HPV (56.1% vs. 44.6%; $p < 0.001$), and those who believed HPV could cause cervical cancer (57.0% vs. 45.7%; $p < 0.001$) (Table 3).

Likewise, a lower prevalence of PAP was found in the last two years among women over 45 years of age, with primary education, very low welfare index, no children, single, rural resident, from the andean or jungle region, and without health insurance (Table 3).

In the crude analysis, a higher prevalence of PAP test was evident in those who believed cancer could be prevented (PR=1.16, 95% CI: 1.07-1.25), in those who had heard of cervical cancer (PR=1.44, 95% CI: 1.29-1.60) or HPV (PR=1.26, 95% CI: 1.19-1.33), as well as in those who considered that HPV could cause CC (PR=1.25, 95% CI: 1.13-1.37) (Table 4).

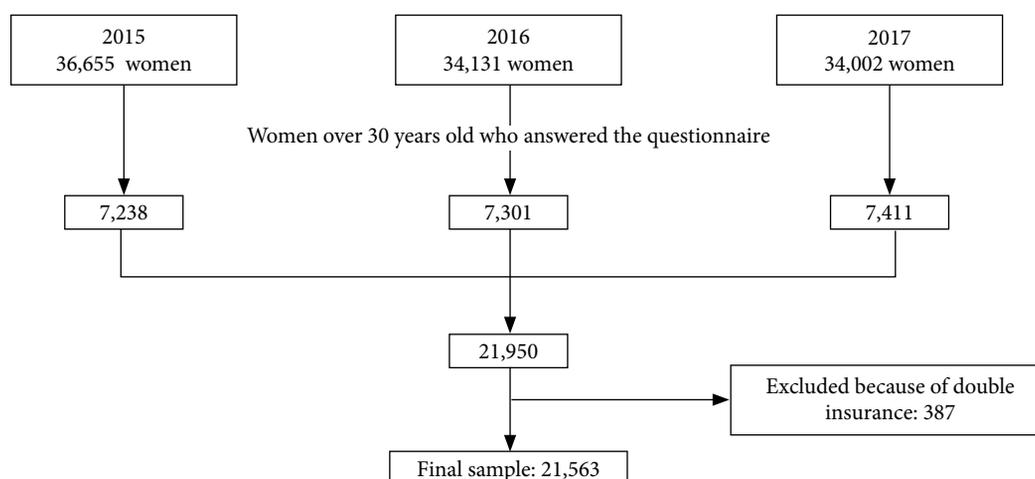


Figure 1. Flowchart of the selection of participants included in the analysis, ENDES 2015-2017

In the adjusted analysis, a higher prevalence of PAP test was also found in the group that considered cancer preventable (PR=1.09, 95% CI: 1.01-1.17), in those who had ever

heard of cervical cancer (PR=1.27, 95% CI: 1.14-1.40), in women who had heard of HPV (PR=1.20, 95% CI: 1.13-1.28), and in those who thought HPV could cause cervical cancer (PR=1.21, 95% CI: 1.11-1.33) (Table 4).

Table 1. Characteristics of Peruvian women over 30 years of age included in the ENDES 2015 - 2017

Variables	N	% ^a	95% CI ^a
Welfare Index			
Very low	5,340	18.1	17.00-19.21
Low	5,570	21.3	20.09-22.53
Medium	4,515	22.3	21.05-23.49
High	3,684	21.2	20.01-22.46
Very high	2,454	17.1	15.06-18.47
Age (years)			
Mean (95% CI)	38.55 (38.3-38.6)		
30 - 35	7,847	30.1	28.97-31.13
36 - 40	6,230	27.5	26.41-28.57
41 - 45	4,354	22.8	21.79-23.85
46 - 50	3,132	19.6	18.60-20.64
Children			
None	853	8.1	8.19-8.21
One	3,043	17.7	17.69-17.71
Two	6,181	30.5	30.49-30.51
Three or more	11,486	43.7	43.69-43.71
Level of education			
Primary	7,045	28.5	27.26-29.82
Secondary	8,137	39.4	38.06-40.77
Higher	6,381	32.1	30.60-33.46
Marital status			
Single	4,794	29.8	28.60-30.94
Married	16,769	70.2	69.05-71.39
Area of residence			
Urban	15,088	78.5	77.25-79.65
Rural	6,475	21.5	20.34-22.74
Region			
Metropolitan Lima	2,455	33.0	30.23-35.73
Rest of the coast	6,619	25.6	23.73-27.59
Andean	7,329	27.8	25.82-29.72
Jungle	5,160	13.6	12.32-14.84
Modern Contraceptive use			
No	2,425	13.2	12.35-14.06
Yes	19,138	86.8	85.93-87.64
Health Insurance			
None	4,241	23.8	22.63-24.92
SIS	11,667	45.6	44.19-47.12
EsSalud	5,359	27.8	26.56-29.05
Armed Forces	144	0.8	0.52-0.99
Lending entity	51	0.6	0.27-0.87
Private insurance	101	1.4	0.96-1.85

^a Including weights and design effect of complex survey sampling.

DISCUSSION

In the present article, we sought to estimate the association between knowing about CC and getting a PAP test in the last two years in a representative sample of Peruvian women. Approximately 5 out of 10 of the women evaluated reported having been screened for CC with a PAP test in the last two years, while 8 out of 10 reported to have been screened for CC at some point in their lives. In addition, it was found that women who knew that cancer is preventable, who had heard about CC or HPV, and those who knew that HPV is associated with CC were more likely to get a PAP test in the last two years. However, while there is a correct direction for this association, the magnitude of the association is no more than 50% for any of the questions that show evidence of CC or HPV.

Table 2. Response to questions about cervical cancer and human papillomavirus in Peruvian women over 30 years old included in the ENDES 2015 - 2017.

Variables	N	% ^a	95% CI ^a
A PAP test was performed at any time			
No	3,881	16.8	15.85-17.68
Yes	17,682	83.2	82.31-84.14
A PAP test was performed in the last 2 years			
No	10,129	47.6	46.33-48.83
Yes	11,434	52.4	51.16-53.66
Do you believe that cancer can be prevented?			
No	2,357	10.4	9.70-11.15
Yes	19,206	89.6	88.84-90.29
Have you ever heard of cervical cancer?			
No	1,750	7.0	6.40-7.50
Yes	19,813	93.0	92.49-93.59
Have you ever heard of HPV?			
No	5,072	22.2	21.13-23.20
Yes	14,741	77.8	76.79-78.86
Do you think HPV can cause cervical cancer?			
No	1,300	8.1	7.38-8.91
Yes	13,440	91.9	91.08-92.61

^a Including weights and design effect of complex survey sampling. PAP: papanicolaou; HPV: human papillomavirus

Table 3. Characteristics of Peruvian women over 30 years old who reported or did not report having had a PAP test, ENDES 2015-2017

Variables	A PAP test was performed						P value
	Yes (N=11,434)			No (N=10,129)			
	N	% ^a	95% CI ^a	N	% ^a	95% CI ^a	
Do you believe that cancer can be prevented?							
No	1,063	45.9	42.5-49.4	1,294	54.0	50.5-57.5	<0.001
Yes	10,371	53.2	51.9-54.5	8,835	46.8	45.5-48.1	
Have you ever heard of cervical cancer?							
No	647	37.2	33.4-41.1	1,103	62.7	58.8-66.6	<0.001
Yes	10,787	53.5	52.3-54.8	9,026	46.4	45.1-47.7	
Have you ever heard of HPV?							
No	2,414	44.6	42.4-46.7	2,658	55.4	53.2-57.6	<0.001
Yes	8,373	56.1	54.6-57.6	6,368	43.9	42.3-45.3	
Do you think HPV can cause cervical cancer?							
No	638	45.7	41.4-50.0	662	54.3	49.9-58.5	<0.001
Yes	7,735	57.0	55.5-58.6	5,705	42.9	41.4-44.5	
Welfare Index							
Very low	2,551	46.3	44.1-48.6	2,789	53.6	51.4-58.5	<0.001
Low	2,948	50.7	48.5-53.0	2,622	49.2	46.9-51.5	
Medium	2,413	52.7	50.1-55.3	2,102	47.3	44.6-49.8	
High	2,020	52.4	49.7-55.1	1,664	47.6	44.9-50.2	
Very high	1,502	60.6	57.3-63.9	952	39.4	36.1-42.6	
Age (years)							
30-35	4,297	53.9	51.9-55.8	3,550	46.1	44.1-48.0	<0.001
36-40	3,383	53.2	50.9-55.4	2,847	46.8	44.5-49.0	
41-45	2,240	52.4	49.6-54.9	2,114	47.6	45.0-50.3	
46-50	1,514	49.1	46.3-51.9	1,618	50.8	48.0-53.6	
Children							
None	275	32.8	27.8-37.7	578	67.2	62.2-72.1	<0.001
One	1,646	55.00	52.0-57.9	1,397	45.0	42.0-47.9	
Two	3,639	58.3	56.0-60.5	2,542	41.7	39.4-43.9	
Three or more	5,874	50.9	49.3-52.4	5,612	49.1	47.5-50.6	
Level of education							
Primary	3,331	47.5	45.5-49.4	3,714	52.5	50.5-54.4	<0.001
Secondary	4,399	51.7	49.5-53.9	3,738	48.3	46.0-50.4	
Superior	3,704	57.7	55.5-59.8	2,677	42.3	40.1-44.4	
Marital status							
Single	2,196	45.9	43.5-48.2	2,598	54.1	51.7-56.4	<0.001
Married	9,238	55.2	53.8-56.6	7,531	44.8	43.4-46.1	
Area of residence							
Urban	8,105	53.1	51.6-54.6	6,983	46.9	45.4-48.4	<0.001
Rural	3,329	50.0	48.0-52.0	3,146	50.0	47.9-52.0	
Region							
Metropolitan Lima	1,450	56.6	53.7-59.6	1,005	43.4	40.4-46.3	<0.001
Rest of the coast	3,534	52.0	50.1-53.9	3,085	47.9	46.0-49.8	
Andean	4,021	49.9	48.1-51.8	3,308	50.1	48.2-51.9	
Jungle	2,429	48.0	45.7-50.3	2,731	51.9	49.6-54.2	
Use of modern contraceptives							
No	812	30.0	27.1-32.8	1,613	70.0	67.1-72.8	<0.001
Yes	10,622	55.8	54.5-57.2	8,516	44.2	42.8-45.4	
Health Insurance							
None	1,591	37.3	34.9-39.8	2,650	62.7	60.2-65.1	<0.001
SIS	6,217	52.9	51.3-54.6	5,450	47.1	45.4-48.7	
EsSalud	3,459	63.8	61.5-66.0	1,900	36.2	34.0-38.5	
Armed Forces	75	58.7	44.7-72.6	69	41.3	27.3-55.3	
Lending entity	32	37.3	15.0-59.6	19	62.7	40.4-85.0	
Private insurance	60	70.00	56.3-83.7	41	30.0	16.3-43.7	

^aIncluding weights and design effect of complex survey sampling.

HPV: human papillomavirus; SIS: Integral Health Insurance EsSalud: Peruvian Social Health Insurance

Table 4. Relationship between knowing about cervical cancer and PAP test in the last two years

Variables	RP ^a	95% CI	P value	RP ^{a,b}	95% CI	P value
Do you believe that cancer can be prevented?						
No	1.00			1.00		
Yes	1.16	1.07-1.25	<0.001	1.09	1.01-1.17	0.026
Have you ever heard of cervical cancer?						
No	1.00			1.00		
Yes	1.44	1.29-1.60	<0.001	1.27	1.14-1.40	<0.001
Have you ever heard of HPV?						
No	1.00			1.00		
Yes	1.26	1.19-1.33	<0.001	1.20	1.13-1.28	<0.001
Do you think HPV can cause cervical cancer?						
No	1.00			1.00		
Yes	1.25	1.13-1.37	<0.001	1.21	1.11-1.33	<0.001

^aGeneralized linear model of the Poisson family considering the design effect and the weights of the complex survey sampling.

^bAdjusted for age (years), education, marital status, number of children, contraceptive use, well-being index, health insurance, area of residence and region. Including weights and design effect of complex survey sampling; HPV: human papillomavirus

Half of Peruvian women of childbearing age were not screened with a PAP test in the last two years. Previous studies show that, less than 50% of the population was screened with PAP tests in Peru, and this figure was lower in the andean and jungle regions and in rural areas^(2,10-13). Studies in Peru have described scarce knowledge of what a PAP test is and why it is useful^(10, 11, 14), Low educational level, and inadequate history of PAP test use are associated with scarce knowledge and negative attitude towards the PAP test use among women in Lima⁽¹⁵⁾. In addition, factors such as distance from the testing facility and fear of the procedure have been described as limiting women's ability to have a PAP test in Peru^(12, 16). Other problems reported for the control of CC include the failure to perform tests such as visual inspection with acetic acid (VIAA) or cryotherapy due to a lack of supplies or equipment, as well as the need to refer patients for procedures that require specialists, which are often only available in hospitals⁽¹³⁾. The panorama of CC screening in Peru, to the date presents problems in terms of coverage and availability of resources, which emphasizes the need for strategies that improve the processes and access to screening tests.

In the present study, about 90% of the women of childbearing age considered cancer to be preventable and have heard about CC. In this regard, it has been reported that women with a low level of health literacy present lower levels of knowledge about CC screening⁽¹⁹⁾. In addition, women with a primary education level had a lower prevalence of having a PAP test in the last two years. Some studies on the Peruvian population indicate that the proportion of women who know about CC is low and that there are no alternatives for cancer treatment^(14,20).

Studies in Latin American countries find that knowledge about CC may or may not be associated with the practice of

a PAP test^(17,18,21). Therefore, the promotion of educational interventions aimed at increasing knowledge about CC and tools for its prevention and early detection could be useful. However, the effectiveness of these educational programs needs to be evaluated to verify their usefulness in the Peruvian population. Likewise, having described a low proportion of women picking-up the test results, the pick-up of the PAP test results should be encouraged^(22,23). Given the fact that the user approaches the health system at different times, this interaction would be an important opportunity to provide health education about the PAP test and the CC, which is not being used in Peru⁽²⁴⁾. At the local level, strategies such as secondary prevention programs that facilitate the population's access to health services or HPV self-screening are seen as opportunities to increase the empowerment of the population, the knowledge about CC, and the number of women screened^(14,25,26).

Regarding HPV, 9 out of 10 women recognized the relationship between HPV and CC. The literature reports generally low awareness of HPV and its relationship to CC development in countries at all income levels⁽²⁷⁻²⁹⁾. Similarly, even a high level of knowledge about HPV (greater than 50% of the population) is not necessarily related to an understanding of the relationship between HPV infection and the development of CC⁽³⁰⁾.

Having little information on preventive issues detracts from the usefulness of screening measures. Therefore, it is necessary to promote education in the Peruvian population, mainly with girls who receive the HPV vaccine and who should be screened in the future, and also by women, parents, and the community, so that greater knowledge about HPV and the HPV vaccine could have an additional benefit in increasing the acceptability of vaccinating girls against HPV^(27,28).

The HPV vaccine has been distributed in more than 70 countries since 2007. In Peru, it was introduced in 2015 to the National Vaccination Scheme, as a strategy to prevent cancer in the population. The HPV vaccine is applied to girls in the fifth year of primary school; or 10-year-old girls, if they do not assist to school. Therefore, it is important to reinforce the knowledge about HPV, its relation with CC and its prevention through vaccination to favor the use of preventive measures and increase control of the disease.

The World Health Organization (WHO) promotes screening for precancerous signs, and recommends the PAP, HPV tests and VIAA as tools for this process, in order to detect the disease in the greatest proportion of women at risk ⁽¹⁾. In Peru, the 2019 “Health Directive for the Prevention of Cervical Cancer through Early Detection and Treatment of Pre-Malignant Lesions including Carcinoma in Situ” seeks to reduce the incidence of morbidity and mortality from CC through standardization of preventive and care processes. This directive recognizes that screening should be performed in all women between 25 and 64 years of age free of charge, nationwide, and it also recognizes the PAP test and the VIAA as ways for detecting cervical lesions in addition to HPV detection with molecular tests. This way, the PAP test is the most important tool for the detection of CC given its current wide availability for use in the Peruvian health care environment.

However, in our study half of the population was PAP screened in the last two years, so why have morbidity and mortality rates due to CC not decreased? Part of this problem lies in the diagnostic capacity of the PAP test, with sensitivity ranging from 22.1% in a Chilean national study ⁽³¹⁾ to 50% according to the Cuzick study ⁽³²⁾, in low- and middle-income countries. Thus, despite the fact that half of the population was PAP screened, the methodology applied allowed a large number of women to be false negatives. It is expected that progressively, the use of VIAA and molecular tests for detecting HPV in the Peruvian population will increase. For example, molecular tests for HPV have a sensitivity of 98% for the identification of high-risk genotypes, allowing more treatment options to be offered ⁽³³⁾. In addition, another feature of mo-

lecular testing is automation, unlike PAP testing, which is operator-dependent. However, it is not yet possible to massively implement this technology in our country due to the limited resources of the Peruvian health system.

This study has some limitations that may affect the interpretability of the results. The cross-sectional design does not allow establishing causal relationships between the independent variables and the proposed dependent variable. Likewise, there is the possibility of reverse causality between the proposed associations. Due to the latter, it was decided to operationalize the dependent variable using the last two years as a time frame. Similarly, there is a possibility of measurement bias due to the fact that the variables were self-reported, which makes memory bias or social desirability bias possible. On the other hand, no validated instrument was used to measure the level of knowledge about CC and HPV. The questions in the survey only explore the person's familiarity with the terms, but do not delve into knowledge of the issues. Nonetheless, we believe that the study's findings are useful in providing an overview of PAP screening and the association with familiarity of women of childbearing age with HPV and CC prevention issues.

In conclusion, it was found that one out of every two women of childbearing age got a PAP test in the last two years. Knowing that cancer can be prevented, having heard about CC or HPV, and associating HPV with the development of CC were associated with an increased likelihood of getting a PAP test in the last two years. Therefore, the implementation of educational strategies about HPV, CC, and PAP test knowledge, could increase the number of women undergoing the PAP test, a CC screening test, which is useful for Peruvian women because of the low availability of other types of tests used for this purpose.

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