ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH KNOWLEDGE ABOUT THE PAP TEST

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ABSTRACT

Objective: explore the factors associated with knowledge about the Pap test in female users of the Municipal Public Health Service. **Method:** quantitative, cross-sectional study, conducted in the state of São Paulo with 180 women. A tool was used to characterize profiles and determine knowledge. A descriptive statistical analysis, chi-square test for bivariate analysis and binary logistic regression for multivariate analysis were performed. **Results:** the women were +/-43.6 years old, most worked at paid jobs, were brown in skin color, had a partner, did not use condoms, did not have any gynecological complaints and were tested regularly. Knowledge was satisfactory in regard to the location where and how the test is done and unsatisfactory in terms of target population and frequency. **Conclusion:** the variables associated with satisfactory knowledge were white skin color, monthly household income, gynecological complaints and regular testing. Women with a monthly household income of two or more minimum wages were more likely to have adequate knowledge about the Pap test.

Keywords: Uterine cervical neoplasms. Health promotion. Women's health. Pap test.

INTRODUCTION

The Papanicolaou test, also known as the Pap test or Pap smear, is the primary and most widely used method for cervical cancer screening. It is considered to be a safe, inexpensive test that involves an analysis of ectocervix and endocervix cells extracted by scraping the cervix during a gynecological consultation[1]. This test was introduced by George Papanicolaou and Hebert F. Traut in 1943, due to easy access to the cervix and its morphological and functional characteristics, enabling early identification of cervical neoplasms[2].

Although the Pap test was introduced in Brazil in the 1940s[1] and despite various government initiatives, coverage and use of the test is still low. Achieving widespread screening of the target population is the most important component for significantly reducing the incidence and mortality of cervical cancer. It is estimated that 12% to 20% of Brazilian women from 25 to 64 years of age have never done the test[3].

There are some intervention strategies to increase coverage and access to cervical cancer screening, where the main focus is improved prevention information provided to women by health professionals [4-5], since greater knowledge about cervical cancer and its prevention is significantly associated with higher Pap test adherence[6].

In Brazil, there are various studies in the scientific literature on women's knowledge about cervical cancer prevention, the disease and the screening test. Among these studies, it was found that most women have superficial knowledge[7], inadequate knowledge[8] or lack of knowledge[6,9], and one study indicated insufficient knowledge[10]. However, the studies do not analyze the factors related to this inadequate knowledge.

Within this context, the objective of the present study was to explore the factors associated with knowledge about the Pap test among female users of the Municipal Public Health Service, in terms of sociodemographic characteristics (age, occupation, skin color, marital status, monthly household income and education) and gynecological history (condom use, gynecological complaints, previous testing and testing frequency).

METHOD

The study was developed in accordance with Resolution 466/2012 of the National Health Council and its design was approved by the Ethics Committee for Research involving Human Beings of the Federal University of Triângulo Mineiro (Opinion No. 785675).

This was a quantitative, cross-sectional study conducted in a city in the state of São Paulo, from September to December 2014, considered to be a period of routine activity in the aforementioned health service.

The convenience sample was comprised of 180 women who used the Municipal Public Health Service to do the Pap test. In 2014, it is estimated that around 300 samples were collected. The following inclusion criteria were used: be between 25 and 64 years old, have initiated sexual activities, live in the city, do the cervical cancer prevention test in the data collection period, have not had a full hysterectomy and have clinical conditions to respond to the questionnaire.

In a private room, prior to collecting the material for the Pap test, the women were invited to participate in the study and the importance and objectives of the study were explained to them. After agreeing and signing a free and informed consent form, the data was collected and recorded in an instrument that contained questions related to sociodemographic profile, gynecological history and knowledge about the test.

The instrument used to characterize the sociodemographic profile and gynecological history was created by the authors based on a detailed review of the scientific literature and the guidelines of the Ministry of Health of Brazil[1,3]. This structured questionnaire addressed aspects related to age, occupation, skin color, marital status, monthly household income, education, condom use, gynecological complaints at the time of the test, previous testing and how long ago.

To determine knowledge about the Pap test, an instrument was used whose content and structure had been previously validated. It was designed by a study group, which included the authors, over the course of five years of experience in extension research and practices.

The instrument was composed of closed questions, with only one correct answer for each question. It covered the purpose of the test, how it is performed, target population, testing frequency, testing location, preparation prior to the test and actions after the test.

The data obtained was keyed in and stored on an electronic spreadsheet in Excel® and transferred afterwards to the software Statistical Package for the Social Sciences®, version 16.0. With respect to the analysis of the questionnaire about knowledge, the frequency of correct and incorrect answers in relation to the items was first determined and then a cutoff point for correct answers was set at 60% or more for satisfactory knowledge and under 60% for unsatisfactory knowledge.

The data first underwent an exploratory analysis based on absolute (No.) and relative (%) frequencies. To examine possible associations between knowledge (satisfactory and unsatisfactory) and the independent sociodemographic variables (age, occupation, skin color, marital status, monthly household income and education) and gynecological history (condom use, gynecological complaints at the time of the test, previous testing and how long ago), an analysis was performed using the chi-square test with Yates correction or Fisher's exact test. The odds ratio and its respective confidence intervals of 95% (CI 95%) were adopted to measure association.

Following this, there was a multivariate analysis through binary logistic regression with a backward strategy. Significance and quality of the model were certified through the likelihood ratio and Hosmer-Lemeshow tests. The level of significance for inclusion of the variables in the model was set at alpha less than 10% ($p<0.10$) and alpha less than 5% ($p<0.05$) for the other statistical tests considered for the study.

RESULTS

A total of 180 women participated in the study. Table 1 presents the sociodemographic and gynecological characteristics of these female users of the Municipal Public Health Service. Their ages ranged from 25 to 64 years, with a mean age of 43.6 years and a median age of 37.5 years.

Table 1. Distribution of female users of the Municipal Public Health Service, according to sociodemographic and gynecological characteristics. Igarapava, SP, Brazil, 2016. (n=180)

Characteristics		
Age group	**No.**	**%**
25 – 34	51	28.4
35 – 44	43	23.8
45 – 54	42	23.4
55 – 64	44	24.4
Occupation	**No.**	**%**
Homemaker	75	41.7
Maid	31	17.2
Retired	21	11.7
Teacher	9	5.0
Student	4	2.2
Other	40	22.2
Skin color	**No.**	**%**
Brown	90	50.0
White	63	35.0
Black	27	15.0
Marital status	**No.**	**%**
Married or living with a partner	110	61.1
Separated or divorced	25	13.9
Single	24	13.3
Widowed	21	11.7
Monthly household income*	**No.**	**%**
< 1 minimum wage	11	6.1
1 ├ 3 minimum wages	146	81.1
3 ├ 5 minimum wages	17	9.4
5 or more minimum wages	6	3.3
Education	**No.**	**%**
< 1 year education	5	2.8
1 to 4 years of education	64	35.6
5 to 9 years of education	54	30.0
10 to 12 years of education	45	25.0
13 or more years of education	12	6.7
Condom use in all sexual relations	**No.**	**%**
No	154	85.6
Yes	26	14.4
Gynecological complaints	**No.**	**%**
No	106	58.9
Yes	74	41.1
Regular testing	**No.**	**%**
No	73	40.6
Yes	107	59.4

*Average minimum wage at the time of the data collection was BRL 724.

Occurrence was higher among women with the following characteristics: homemakers, brown skin, married or with a stable partner, monthly household income from one to three minimum wages and one to nine years of education.

Most of the women (85.6%) did not use condoms during sexual relations for the following reasons: are in a stable relationship (50%), trust their partner (15.6%), do not like using them (11.7), partner does not like using

them (7.8%), do not have sexual relations (7.8%), partner does not want to use them (1.9%), are allergic to latex (1.3%), condoms bother them (1.3%) and desire to get pregnant (1.3%).

It was also noted that 41.1% of the women had gynecological complaints and 59.4% did the Pap test regularly.

Table 2 shows the level of the women's knowledge about the Pap test, according to the questions.

Table 2 – Distribution of female users of the Municipal Public Health Service in relation to knowledge about the Pap test. Igarapava, SP, Brazil, 2016. (n=180)

Knowledge	No.	%
Purpose of the test		
Satisfactory knowledge	115	63.9
Unsatisfactory knowledge	65	36.1
How the test is performed		
Satisfactory knowledge	171	95.0
Unsatisfactory knowledge	9	5.0
Target population		
Satisfactory knowledge	74	41.1
Unsatisfactory knowledge	106	58.9
Frequency		
Satisfactory knowledge	86	47.8
Unsatisfactory knowledge	94	52.2
Place where it can be done		
Satisfactory knowledge	177	98.3
Unsatisfactory knowledge	3	1.7
Actions after the test		
Satisfactory knowledge	156	86.7
Unsatisfactory knowledge	24	13.3
Preparation before the test		
Satisfactory knowledge	132	73.3
Unsatisfactory knowledge	48	26.7

60.6% had already heard about the Pap test and knew what it was about, 38.9% had already heard about the test, but did not what it was about and 0.6% had never heard about the test. As far as doing the test, most (55%) mentioned they did it annually, 38.3% rarely did the test and 6.7% had never done it.

Most of the women had satisfactory knowledge regarding the purpose of the test (63.9%); how the test is performed (95%); place where it can be done (98.3%,); actions after the test (86.7%) and preparations before doing the test (73.3%).

Table 3 presents a bivariate analysis of the knowledge about the Pap test (satisfactory and unsatisfactory) in relation to sociodemographic variables and gynecological history.

In the bivariate analysis, it was found that there were significantly higher odds of satisfactory knowledge in women with white skin (OR=2.13; CI 95%: 1.02-4.44; p=0.0300) and monthly household income greater than or equal to two minimum wages (OR=2.06; CI 95%: 1.06-4.01; p=0.0230) (Table 3).

Table 3 - Distribution of female users of the Public Municipal Health Service, according to knowledge about the Pap test and certain sociodemographic variables and gynecological history and results of the bivariate analysis (odds ratio). Igarapava, SP, Brazil, 2016. (n=180)

| Variables | Knowledge | | | | Bivariate analysis-satisfactory knowledge | | p-value* |
| | Satisfactory | | Unsatisfactory | | | | |
	No.	%	No.	%	OR	CI (95%)	
Age (years)							
< 40 years	52	67.5	25	32.5	1	-	0.1850
≥ 40 years	77	74.8	26	25.2	1.42	0.81-2.04	
Occupation							
Other	75	71.4	30	28.6	1	-	0.5350
Homemaker	54	72.0	21	28.0	1.03	0.53-1.99	
White skin							
No	78	66.7	39	33.3	1	-	0.0300
Yes	51	81.0	12	19.0	2.13	1.02-4.44	
Years of education							
< 9 years	83	69.2	37	30.8	1	-	0.1910
≥ 9 years	46	76.7	14	23.3	1.47	0.72-3.0	
Marital status							
No partner	53	75.7	17	24.3	1	-	0.2150
Has a partner	76	69.1	34	30.9	0.717	0.36-1.41	
Household income							
< 2 minimum wages	58	64.4	32	35.6	1	-	0.0230
≥ 2 minimum wages	71	78.9	19	21.1	2.06	1.06-4.01	
Gynecological complaints							
No	81	76.4	25	23.6	1	-	0.0640
Yes	48	64.9	26	35.1	0.57	0.30-1.10	
Previously did the test							
No	7	58.3	5	41.7	1	-	0.2270
Yes	122	72.6	46	27.4	1.89	0.57-6.30	
Regularly does the test							
No	35	63.6	20	36.4	1	-	0.0810
Yes	94	75.2	31	24.8	1.73	0.88-3.43	
Condom use							
No	108	70.1	46	29.9	1	-	0.1920
Yes	21	80.8	5	19.2	1.79	0.64-5.03	

*Chi-square test

A backward stepwise multivariate logistic regression was implemented where knowledge about the Pap test (satisfactory and unsatisfactory) was considered a dependent variable; explanatory variables were those with a level of significance less than or equal to 20% in the bivariate analysis (Table 3), with entry p<0.05 and removal p>0.10 criteria. In the final adjusted model, income, gynecological complaints and regular testing were considered to be significant explanatory variables (Table 4), with high performance for predicting satisfactory knowledge (96.1%), but low performance for predicting unsatisfactory knowledge (7.8%). However, the adjusted model was not significant in terms of performance for predicting satisfactory knowledge about the Pap test (Hosmer-Lemeshow: $\chi^2=2.47$; p=0.7820). Based on Nagelkerke's R^2, it only explained 8.2% of the variations recorded under the satisfactory knowledge variable.

Table 4 - Results of the multiple logistic regression for factors associated with knowledge about the Pap test in females users of the Public Municipal Health Service. Igarapava, SP, Brazil, 2016. (n=180)

Variables	Adjusted OR	CI (95%)	p-value*
Income ≥ 2 minimum wages	2.3	1.20-4.60	0.0180
Gynecological complaints	0.56	0.29-1.11	0.0950
Regular testing	1.82	0.90-3.69	0.0980

*Logistic regression

DISCUSSION

The target population for screening was in the age range of 25 to 64 years old. Screening women under 25 years old had no impact on reducing the incidence of cervical cancer or mortality. Furthermore, earlier screening could result in more diagnoses of low-grade lesions, which are considered to be non-precursor and only representative of a cytological manifestation of human papillomavirus (HPV) infection, with a high probability of regression, and would result in a significant number of unnecessary diagnostic procedures[1].

In the present study, there was a similar percentage distribution among the age groups and lower percentages in the age group of 40 to 49 years, which does not concur with other studies which reported that most women who do the Pap test are less than 35 years old[8,11-12] and less than 39 years old[13]. This is due to such testing coinciding with childbearing age where women seek health services for reproductive care. From the age group of 40 to 49 years on, cervical cancer becomes a genuine threat in the lives of women[1,3].

In this sense, health services need to have strategies to attract women in this priority age range, particularly those who manifest risk factors for developing cervical cancer and those who have never done the test.

Most of the women did not have a paid job, which was also the case in a study conducted in the city of Teresina/PI where 78.5% of the women who did the test in the primary care unit did not have a paid job[13]. A study conducted in Fortaleza/CE also found that most of the women (62.3%) did not work outside the home[12].

It can be inferred that having a paid job, plus household chores, constitutes an obstacle for seeking health services, in view of the workload carried by women, as demonstrated in a study carried out in Vitória da Conquista/BA[10]. However, another study concluded that women with paid jobs are more likely to engage in cervical cancer prevention[14]. It was argued that women without paid work have a lower degree of socialization and, consequently, are less attentive to information regarding cervical cancer prevention.

Therefore, since this aspect is controversial in the scientific literature, it is up to each health service to perform a local situational diagnosis of its reality in order to propose consistent measures and actions to facilitate implementation of a cervical cancer prevention program.

In relation to the skin color variable, most reported they were white. A study conducted in primary care units in the city of São Sebastião do Paraíso/MG found a higher percentage of white-skinned women (66%) followed by brown-skinned women (29%)[15]. It should be pointed out that skin color is often self-reported by study participants and therefore reflects each woman's perception of diversity.

With respect to the marital status and monthly household income variables, the profile of the women who went to the health service to do the Pap test coincides with other studies, where most of the women were married or had a partner[8,11-12,15] and had monthly income ranging from one to three minimum wages[11].

Having a partner is conducive to doing the test and taking care of sexual health[16] and could, therefore, be a positive factor in cervical cancer prevention. The importance of socioeconomic level was also noted, where the higher the level, the more likely adequate participation was in cervical cancer screening[17]. In this context, the skin color variable, per se, was less relevant than having a partner and the monthly income variable, since these factors can have an influence on preventive behavior in health.

Most of the women had nine years or less of education. It is known that less education is considered a risk factor for cervical cancer and

that women who do not do the test are the most vulnerable[17]. Therefore, measures need to be implemented that target women with less education in order to ensure greater access to health care.

As for condom use, most of the women did not use them during sexual relations. Condom use is a form of cervical cancer prevention. For women of childbearing age, having a stable relationship and trusting their partner are the main reasons cited for not using condoms[18-19], which was also the case in the present study, making women in stable relationships vulnerable to infection by HPV.

Thus, a combination of strategies is needed to encourage condom use, promoting reflection and the possibility of appropriation of cervical cancer prevention methods. The use of different approaches, such as the issue of sex and pleasure within the context of affective relations, may promote greater condom use adherence.

Going to the health service to do the Pap test was by spontaneous demand, arising from the prevention routine, demonstrating adequate participation of women in cervical cancer prevention, since precursor lesions of cervical cancer are asymptomatic. For this reason, the test should be done regularly within the proper time frame[1]. Other studies have also indicated that women's participation in cervical cancer prevention programs is largely due to the prevention routine[11,20], making this a positive factor in cervical cancer prevention.

Lengthy intervals between Pap tests may be a risk factor for developing cervical cancer. Therefore, the frequency recommended by the Ministry of Health is every three years for women whose test results were negative for two consecutive years[1]. Thus, screening done by women in the last three years is considered to be adequate frequency. Studies conducted in the city of Senhor do Bonfim/BA[9] and in Duque de Caxias and Nova Iguaçu/RJ[21] found that most women did the test in an interval of less than three years, which coincides with this study.

In relation to knowledge, on the first question referring to the purpose of the Pap test, which is detection of cervical intraepithelial lesions which could turn into cervical cancer[1], most of the women had adequate knowledge. The perception that the test protects women from cancer is false,

but it still appeared on various questionnaire results.

For the question related to how the test is done, most of the women had adequate knowledge. Among the women with little knowledge, there were seven who were doing the test for the first time, which accounts for their insufficient knowledge.

The questions referring to the target population of the cervical cancer prevention program and testing frequency were those with the highest percentage of women with little knowledge. Despite educational campaigns and information broadcast by the media, there is a significantly large number of women who still lack adequate knowledge, which is an important factor to be taken into account by health professionals.

The question regarding where the test is done had the highest number of correct responses. Therefore, the offer of the test in health services is widely publicized. In relation to actions after doing the test, which refers to returning to pick up the test results, most of the women did this, which enables monitoring and follow-up of women in cervical cancer screening. For women who do not return, it is suggested that health services and professionals actively seek to contact them.

With respect to preparation before doing the test, i.e., not being menstruated, not having sexual relations, not using creams and not doing a transvaginal ultrasound 48 hours before the test[3], most of the women had adequate knowledge. However, it should be noted that women are provided this information when they schedule the test, since these factors can affect the laboratory analysis of the smear[3].

In this study, adequate knowledge was not associated with the age factor, which does not coincide with the results of a study conducted in Fortaleza/CE where the researchers pointed out that knowledge, attitude and the habit of doing the test regularly improved with age [8]. Other factors presented in the scientific literature associated with doing the test, such as having a paid job[14], higher level of education[17], having a partner[16] and going for periodic consultations[20], were not associated with adequate knowledge about the Pap test in the present study.

It was also assumed that condom use during sexual relations would be a factor associated with knowledge, since it prevents HPV infection, represents a change of attitude and is tied to health protection and disease prevention. However, no such association was found in the present study.

The variables associated with knowledge about the Pap test were white skin color, monthly household income of two or more minimum wages, gynecological complaints and regular testing. When subjected to logistic regression, only monthly household income of two more minimum wages was associated with adequate knowledge.

As for skin color, there was no mention in the literature of its association with knowledge. In terms of income, one study associated higher monthly household income with Pap test adherence[14]. Therefore, the importance of monthly household income for knowledge about and adherence to the Pap test can be inferred and reveals the need to promote actions to implement cervical cancer prevention for women with low income.

In relation to gynecological complaints, they should be assessed and treated in accordance with established protocols when detected[3]. It should be pointed out that Pap test results, despite presenting the microbiology present in vaginal flora, should not be used as a method for diagnosing sexually transmitted diseases (STD).

In regard to adequate regular testing, studies have indicated that there are women who have inadequate knowledge about the test but do the test on an adequate basis[20,22]. This does not coincide with the findings of this study where adequate knowledge is associated with doing the test on an adequate basis. Another study conducted in the state of Ceará found that inadequate knowledge on the topic influenced women in terms of not doing the Pap test on an adequate basis[23].

Other factors related to Pap test adherence were pointed out in a qualitative study conducted with 81 women from the state of Paraná, where it was observed that fear of the results of the test and feelings of embarrassment to be examined by a health professional were factors that influenced women to do the test or not[24].

Therefore, it is important to verify and assess educational interventions carried out with the female population, since these cannot simply be for the purpose of transmitting information but should be based on promoting reflection and awareness that will result in adequate knowledge on the proposed topic.

A limitation of this study could be the fact that the information sources that women use for obtaining knowledge about the test were not assessed. In this regard, further studies are needed to address the same topic from different perspectives.

Knowledge of these factors is essential for planning strategies to implement cervical cancer prevention programs. There is a need to reinforce and prioritize educational activities for women with little knowledge about the Pap test according to each person's profile.

CONCLUSION

It can be concluded in this study that the factors associated with adequate knowledge about the Pap test in the bivariate analysis were white skin color (p=0.03), monthly household income (p=0.023), gynecological complaints (p=0.064) and regular testing (p=0.081).

The logistic regression analysis indicated that only women with a monthly household income of two or more minimum wages (adjusted OR=0.456; CI 95% 0.221-0.941) were less likely to have adequate knowledge about the Pap test.

FATORES ASSOCIADOS AO CONHECIMENTO SOBRE PAPANICOLAOU

RESUMO

Objetivo: conhecer os fatores que se associam ao conhecimento sobre o exame de Papanicolaou em mulheres usuárias do Serviço Público Municipal de Saúde. **Método:** estudo quantitativo e transversal, realizado no interior de São Paulo com 180 mulheres. Utilizou-se instrumento para caracterizar o perfil e verificar o conhecimento. Realizou-se análise estatística descritiva, teste qui-quadrado para análise bivariada e regressão logística binária para multivariada. **Resultados:** as mulheres possuíam +/-43,6 anos, a maior parte tinha trabalho remunerado, cor parda, companheiro, não utilizava preservativo, não apresentava queixas ginecológicas e realizava o exame em tempo adequado. O conhecimento foi satisfatório quanto ao local e à forma de realização do exame e insatisfatório quanto à população-alvo e periodicidade. **Conclusão:** associaram-se ao conhecimento satisfatório as variáveis cor da pele branca, renda

familiar, queixa ginecológica e realizar o exame em tempo adequado; mulheres com renda familiar mensal de dois ou mais salários mínimos apresentaram mais chances de ter conhecimento adequado sobre o exame de Papanicolaou.

Palavras-chave: Neoplasias do colo do útero. Promoção da saúde. Saúde da mulher. Teste de Papanicolaou.

FACTORES ASOCIADOS AL CONOCIMIENTO SOBRE PAPANICOLAOU
RESUMEN

Objetivo: conocer los factores que se asocian al conocimiento sobre la prueba de Papanicolaou en mujeres usuarias del Servicio Público Municipal de Salud. **Método:** estudio cuantitativo y transversal, realizado en el interior de São Paulo con 180 mujeres. Se utilizó instrumento para caracterizar el perfil y verificar el conocimiento. Se realizó análisis estadístico descriptivo, pruebachi-cuadrado para análisis bivariadoy regresión logística binaria para multivariante. **Resultados:**las mujeres poseían +/-43,6 años, la mayor parte tenía trabajo remunerado, color pardo, compañero, no utilizaba condón, no presentaba quejas ginecológicas y, realizaba la prueba en tiempo adecuado. El conocimiento fue satisfactorio encuanto al local yla forma de realización de laprueba e, insatisfactorio sobre la población blanca y periodicidad. **Conclusión:**se asociaron al conocimiento satisfactorio las variables color de la piel blanca, renta familiar, queja ginecológica y realizar la prueba en tiempo adecuado; mujeres con renta familiar mensual de dos o más salarios mínimos presentaron más probabilidades de tener conocimiento adecuado sobre la prueba de Papanicolaou.

Palabras clave: Neoplasias del cuello uterino. Promoción de la salud. Salud de la mujer. Prueba de Papanicolaou.

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