PREVALENCE AND FACTORS ASSOCIATED WITH THE PERFORMANCE OF MAMMOGRAPHY AND PAP SMEAR TEST

Prevalência e fatores associados à realização de mamografia e exame citopatológico

Prevalencia y factores asociados a la realización de mamografía y examen histopatologico

Original Article

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ABSTRACT

Objective: To estimate the prevalence and factors associated with the performance of mammography and pap smear test in women from the city of Maringá, Paraná. **Methods:** Population-based cross-sectional study conducted with 345 women aged over 20 years in the period from March 2011 to April 2012. An interview was carried out using a questionnaire proposed by the Ministry of Health, which addressed sociodemographic characteristics, risk factors for chronic noncommunicable diseases and issues related to mammographic and pap screening. Data were analyzed using bivariate analysis, crude analysis with odds ratio (OR) and chi-squared test using Epi Info 3.5.1 program; multivariate analysis using logistic regression was performed using the software Statistica 7.1, with a significance level of 5% and a confidence interval of 95%. **Results:** The mean age of the women was 52.19 (±5.27) years. The majority (56.5%) had from 0 to 8 years of education. Additionally, 84.6% (n=266) of the women underwent pap smear and 74.3% (n=169) underwent mammography. The lower performance of pap smear test was associated with women with 9-11 years of education (p=0.01), and the lower performance of mammography was associated with women without private health insurance (p<0.01). **Conclusion:** The coverage of mammography and pap smear test was satisfactory among the women from Maringá, Paraná. Low education level and women who depended on the public health system presented lower performance of mammography.

Descriptors: Risk Factors; Breast Neoplasms; Uterine Neoplasms; Mammography.

RESUMO

Objetivo: *Estimar a prevalência e os fatores associados à realização de mamografia e exame citopatológico em mulheres da cidade de Maringá, Paraná.* ***Métodos:*** *Estudo transversal, de base populacional, feito com 345 mulheres com idade superior a 20 anos, no período de março de 2011 a abril de 2012. Realizou-se entrevista por meio de um questionário proposto pelo Ministério da Saúde, o qual abordava aspectos sociodemográficos, fatores de risco para doenças crônicas não transmissíveis e questões relacionadas ao rastreamento mamográfico e citopatológico. Os dados foram analisados mediante análise bivariada, análise bruta mediante Odds Ratio (OR) e qui-quadrado por meio do programa Epi Info 3.5.1, e análise multivariada por meio da regressão logística, realizada com o programa Statistica 7.1, com nível de significância de 5% e intervalo de confiança de 95%.* ***Resultados:*** *A média de idade das mulheres foi de 52,19 (±5,27) anos. A maioria (56,5%) apresentou de 0 a 8 anos de estudo. Além disso, 84,6% (n=266) das mulheres realizaram o exame de Papanicolau e 74.3% (n=169), a mamografia. Foram associadas à menor realização de Papanicolau as mulheres com escolaridade entre 9 e 11 anos de estudo (p=0,01), e quanto à mamografia, tiveram menor adesão as mulheres sem plano de saúde privado (p<0,01).* ***Conclusão:*** *A cobertura da mamografia e do Papanicolau foi satisfatória entre as mulheres da cidade de Maringá, Paraná. A baixa escolaridade e as mulheres que dependiam da rede pública de saúde tiveram menor adesão à realização da mamografia.*

Descritores: *Fatores de Risco; Neoplasias da Mama; Neoplasias Uterinas; Mamografia.*

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RESUMEN

Objetivo: *Estimar la prevalencia y los factores asociados a la realización de mamografía y examen histopatologico de mujeres de la ciudad de Maringá, Paraná.* ***Métodos:*** *Estudio transversal, de base poblacional con 345 mujeres de edad superior a 20 años en el período entre marzo de 2011 y abril de 2012. Se realizó una entrevista a través de un cuestionario propuesto por el Ministerio de la Salud el cual incluye aspectos sociodemográficos, factores de riesgo para las enfermedades crónicas no transmisibles y cuestiones relacionadas al rastreo mamográfico y histopatologico. Los datos fueron analizados a través del análisis bivariado, análisis bruto con el Odds Ratio (OR) y el chi-cuadrado a través del programa Epi Info 3.5.1, y análisis multivariado a través de la regresión logística realizada con el programa Stadistica 7.1, y nivel de significancia del 5% e intervalo de confianza del 95%.* ***Resultados:*** *La media de edad de las mujeres fue de 52,19 (±5,27) años. La mayoría (56,5%) tenía entre 0 y 8 años de estudio. Además, el 84,6% (n=266) de las mujeres realizaron el Papanicolau y el 74,3% (n=169) la mamografía. Las mujeres que tenían entre 9 y 11 años de estudio estuvieron asociadas con menos realización del Papanicolau (p=0,01) y respecto la mamografía, las mujeres sin seguro de salud privado tuvieron menos adhesión al examen (p<0,01).* ***Conclusión:*** *La cobertura de la mamografía y del Papanicolau fue satisfactoria en las mujeres de la ciudad de Maringá, Paraná. La baja escolaridad y las mujeres dependientes de la red pública de salud tuvieron menos adhesión en la realización de la mamografía.*

Descriptores: *Factores de Riesgo; Neoplasias de la Mama; Neoplasias Uterinas; Mamografía.*

INTRODUCTION

Data from the *Instituto Nacional de Câncer - INCA* (National Cancer Institute) show that breast cancer is the one that most affects the female population worldwide, both in developing and developed countries. Cervical cancer, in turn, is more common in less developed countries. In Brazil, the estimates for the year 2014, also valid for 2015, are 57,120 and 15,590 new cases of breast cancer and cervical cancer, respectively[1].

Data from the International Agency for Research on Cancer (IARC) show that in 2012 breast cancer had a worldwide incidence of 1,676,633 cases, and the number of deaths was 521,817. Cervical cancer presented, in the same year, 527,624 cases and an estimated number of 265,653 thousand deaths of women[2].

Health promotion actions are of utmost importance in the early detection of breast and cervical cancers, which can be cured depending on what stage they are identified. One of the practices recommended for breast cancer screening is the radiology breast imaging (mammography), considered the gold standard for screening the population at risk[3]. With regard to cervical cancer, the Papanicolaou test, also known as Pap smear, Pap test, among others, is considered the main strategy for its detection and prevention[4].

According to the Ministry of Health, the annual clinical examination of breasts should be performed from the age of 40, and the mammogram should be performed every two years for women aged 50 to 69 years. However, women belonging to population groups at high risk of developing breast cancer (with a family history of breast cancer in first-degree relatives before the age of 50; family history of bilateral breast cancer or ovarian cancer in first-degree relatives at any age; family history of male breast câncer; or women with histopathology diagnosis of proliferative breast lesions with atypia or lobular carcinoma in situ) should perform the annual clinical breast examination and mammogram from the age of 35[5].

For the screening of cervical cancer, the Ministry of Health adopts the recommendation of the World Health Organization (WHO), which proposes the Pap smear testing of the cervix in women aged 25-60 years once a year; after two consecutive negative annual test results, the examinations should be performed every three years[5].

After exploring the literature, it became clear that factors associated with mammograms and Pap smear are still little known in Brazil, and only with that prior knowledge it will be possible to devise strategies of health promotion among women. Thus, it was deemed important to conduct the present research, which aimed to estimate the prevalence and factors associated with the performance of mammography and Pap smear test in women from the city of Maringá, Paraná.

METHODS

The data used in this study are from the research titled *"Monitoramento de fatores de risco para doenças crônicas não transmissíveis em adultos da cidade de Maringá, Paraná"* (Monitoring of risk factors for noncommunicable diseases among adults in the city of Maringá, Paraná) conducted by the women's health research group from March 2011 to April 2012. It is a cross-sectional population-based study that used a household survey to monitor the risk and protective factors for noncommunicable diseases in the population aged ≥ 18 years.

The sample size was estimated in order to ensure representativiness for the event being studied. The sample was calculated using the information from the 2010 census about the adult population (age ≥ 18 years) of the city of

Maringá reported by the *Instituto Brasileiro de Geografia e Estatística - IBGE*[6] (Brazilian Institute of Geography and Statistics) - a total adult population of 273,674 individuals. It was established a total of 460 individuals to be studied. Such number allowed to estimate, with a 95% confidence level and maximum error of about five percent, the frequency of any risk factor in the study population and 20% of confounding factor[7].

The sample selection included as units of reference the *áreas de expansão demográfica - AEDs* (demographic expansion areas) according to the IBGE, totaling 21 AEDs in Maringá. In each sector we selected a simple random sample proportional to the number of adults living in each of these sectors based on the sample size (460). Because the number of individuals to be investigated in each sector was proportional to its size, and in an attempt to provide a better distribution in terms of neighborhood, one household was chosen at random and three others were skipped. If there were no adults in the household selected, the next one was chosen, restarting the process in each interview. In case there was more than one adult in the house, one of them was seçected by draw.

The study included 345 women aged 20 years and over. For the analysis of the Pap smear screening we used data from women aged 20 years or older (345). For the mammogram screening, we used data from women aged over 40 years (268)[8].

We applied the questionnaire of the *Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico - VIGITEL* (Telephone-based Surveillance of Risk and Protective Factors for Chronic Diseases), which was established in 2006 by the Ministry of Health in the 26 Brazilian states and the Federal District in order to monitor the frequency and distribution of the main determinants of noncommunicable diseases (NCDs) and their risk factors[9].

The variables addressed were: age; color (white, black, *parda*, yellow); marital status (married, single, divorced/separated/widowed); education (0-8, 9-11, and 12 years of education or more); paid occupation (yes or no); smoking (smokers, non-smokers and ex-smokers); insufficient physical activity during leisure time, defined by the absence of mild- or moderate-intensity physical activity for at least 30 min/day for five or more days a week or vigorous-intensity physical activity for at least 20 min/day for three or more days a week[10]; abusive drinking of alcohol (more than four drinks on a single occasion at least once in the last 30 days - an alcoholic drink corresponds to a can of beer, a glass of wine or a shot of distilled spirits); nutritional status, assessed by the body mass index (BMI) and classified according to the criteria established by the World Health Organization[11] in normal weight (BMI<25 kg/m2) and excesso weight (≥25 kg/m2) - height and weight were self-reported; general health (very good, good, fair, poor/very poor); and private health insurance (yes or no). We also investigated whether participants have ever performed a mammogram and Pap test and also the time since they last did them (less than 1 year, between 1 and 2 years, between 2 and 3 years between 3 and 5 years, 5 years or more, and does not remember).

For the bivariate analysis of Pap test and mammogram with the independent variables, we performed a crude analysis using Odds Ratio (OR) and the chi-squared test using Epi Info 3.5.1. Next, we selected the variables with descriptive level of significance lower than 0.20 using multivariate logistic regression analysis. The variables were analyzed in relation to the performance of the Pap test and the mammogram using the software Statistica 7.1 with a significance level of 5% and a 95% confidence interval.

The study was approved by the Standing Committee on Ethics in Research Involving Humans of the *Universidade Estadual de Maringá* (State University of Maringá) under Opinion No. 30564/2012.

RESULTS

The sample eligible for this study included 345 women over the age of 20. The mean age was 52.19 (± 5.27) years. Regarding education, most participants have studied for 0-8 years (n=195, 56.55%).

About 67.8% (n=234) of the participants were married/united and 65.2% (n=225) were white. The majority did not do physical activity (n=301; 87.2%), and 7.5% (n=26) and 8.4% (n=29) reported abusive drinking of alcohol and smoking, respectively. Regarding nutritional status, 54.9% (n=147) presented excess weight. General health was rated as poor and very poor by 7.2% (n=25), and 57.1% (n=197) reported having a private health insurance (Table I).

With regard to the preventive performance of the Pap test and the mammogram, it was observed that 91.3% (n=315) of the women aged over 20 years have ever had a Pap test; of these, 84.6% (n=266) had it in the last three years. As for the mammogram, 85.1% (n=228) of the women aged over 40 years have already had one; 74.3% (n=169) of them had it in the last two years.

Tables II and III show the prevalence of exam completion according to sociodemographic characteristics and health behaviors. There was a lower prevalence of Pap test among single ($p<0.01$) and divorced/separated/widowed women ($p=0.01$) (Table II).

Table I - Percentage distribution of female population according to sociodemographic characteristics and health-related behaviors. Maringá, PR, 2012.

Variables and categories	n	%
Age (years)		
20-39	77	22.3
40-59	145	42.0
≥ 60	123	35.7
Education (years)		
0-8	195	56.5
9-11	95	27.5
12 or more	55	15.9
Marital status		
Single	39	11.3
Married/United	234	67.8
Divorced/Separated/Widowed	72	20.9
Color		
White	225	65.2
Black	9	2.6
Parda	95	27.5
Yellow	15	4.3
Paid occupation		
Yes	108	31.3
No	234	67.8
Physical acitivity during leisure time		
Active	44	12.8
Inactive	301	87.2
Abusive drinking of alcohol		
Yes	26	7.5
No	319	92.5
Smoking		
Smoker	29	8.4
Non-smoker	259	75.1
Ex-smoker	57	16.5
BMI* (kg/m^2)		
< 25	121	45.1
≥25	147	54.9
General health		
Very good	50	14.5
Good	165	47.8
Fair	105	30.4
Poor / very poor	25	7.2
Health insurance		
Yes	197	57.1
No	148	42.9

*body mass index; n=268 women assessed.

Table II - Pap smear testing according to sociodemographic characteristics and health-related behaviors. Maringá, PR, 2012.

Variables	**Pap smear testing** n(%)	**OR** (CI95%)	***p value***
Age (years)			
20-39	70 (90.9)	1.0	
40-59	134 (92.4)	1.22 (0.41-3.59)	0.69
≥ 60	111 (90.2)	0.93 (0.31-2.68)	0.87
Education (years)			
0-8	177 (90.8)	1.43 (0.51-3.91)	0.44
9-11	90 (94.7)	2.63 (0.70-10.17)	0.12
12 or more	48 (87.3)	1.0	
Marital status			
Single	223 (95.3)	1.0	
Married/United	30 (76.9)	0.16 (0.06-0.47)	<0.01
Divorced/Separated/Widowed	62 (86.1)	0.31 (0.11-0.82)	0.01
Color			
White	210 (92.9)	1.0	
Black	9 (100.0)	-	
Parda	83 (87.4)	0.53 (0.22-1.25)	1.10
Yellow	13 (86.7)	0.50 (0.09-3.48)	0.31
Paid occupation			
Yes	99 (90.8)	1.0	
No	216 (91.5)	1.09 (0.46-2.56)	0.87
Physical acitivity during leisure time			
Active	40 (90.9)	1.0	
Inactive	275 (91.4)	0.95 (0.35-3.38)	1.00
Abusive drinking of alcohol			
Yes	23 (88.5)	0.71 (0.19-3.18)	0.48
No	292 (91.5)	1.0	
Smoking			
Smoker	27 (93.1)	1.25 (0.26-8.16)	1.00
Non-smoker	237 (91.5)	1.0	
Ex-smoker	51 (89.5)	0.79 (0.28-2.3)	0.62
BMI* (kg/m²)			
< 25	113 (93.4)	1.0	
≥25	138 (93.9)	1.09 (0.37-3.19)	0.87
General health			
Very good	48 (96)	1.0	
Good	147 (89.1)	0.34 (0.05-1.61)	0.17
Fair	97 (92.4)	0.51 (0.07-2.72)	0.50
Poor / very poor	23 (92)	0.48 (0.04-5.17)	0.59
Health insurance			
Yes	183 (92.9)	1.0	
No	132 (89.2)	0.63 (0.28-1.42)	0.22

OR=Odds Ratio; CI=Confidence interval.

Regarding the mammogram, there was a lower prevalence among single women (p<0.01) and those without a private health insurance (p <0.01) (Table III).

After the logistic regression analysis, the Pap test was associated with the variable "education" and it was found that women with 9 to 11 years of education were less likely to have this test (Table IV). Regarding the mammogram, women without a private health insurance had decreased odds of having this exam (Table V).

Table III - Mammogram according to sociodemographic characteristics and health-related behaviors. Maringá, PR, 2012.

Variables	Mammogram n (%)	OR (CI95%)	*p value*
Age			
40-59	122 (84.1)	1.0	
≥ 60	106 (86.2)	1.18 (0.57-2.45)	0.64
Education (years)			
0-8	146 (83.9)	0.35 (0.05-1.62)	0.18
9-11	52 (83.9)	0.35 (0.05-1.87)	0.21
12 or more	30 (93.8)	1.0	
Marital status			
Single	156 (87.2)	1.0	
Married/United	13 (68.4)	0.07 (0.01-0.36)	<0.01
Divorced/Separated/Widowed	59 (84.3)	0.79 (0.34-1.85)	0.55
Color			
White	153 (85.4)	1.0	
Black	5 (71.4)	0.42 (0.07-3.36)	0.28
Parda	59 (85.5)	1.0 (0.43-2.38)	0.99
Yellow	11 (84.6)	0.93 (0.18-6.49)	1.00
Paid occupation			
Yes	61 (81.9)	1.0	
No	167 (86.1)	1.32 (0.60-2.87)	0.45
Physical acitivity during leisure time			
Active	32 (91.4)	1.0	
Inactive	196 (84.1)	2.01 (0.55-8.72)	0.25
Abusive drinking of alcohol			
Yes	7 (70)	0.39 (0.09-2.01)	0.17
No	221 (85.7)	1.0	
Smoking			
Smoker	17 (85)	0.98 (0.25-4.50)	1.00
Non-smoker	173 (85.2)	1.0	
Ex-smoker	38 (84.4)	0.94 (0.36-2.55)	0.89
BMI* (kg/m^2)			
< 25	69 (84.14)	1.0	
≥25	108 (90)	1.70 (0.68-4.25)	0.21
General health			
Very good	25 (83.3)	1.0	
Good	101 (83.5)	1.01 (0.30-3.23)	1.00
Fair	83 (87.4)	1.38 (0.38-4.8)	0.55
Poor / very poor	19 (86.4)	1.27 (0.22-7.80)	1.00
Health insurance			
Yes	145 (91.8)	1.0	
No	83 (75.5)	0.28 (0.13-0.59)	<0.01

BMI=Body mass index; CI=Confidence interval.

Table IV - Multivariate analysis of Pap smear testing according to the variables included in the model. Maringá, PR, 2012.

Variables	Adjusted OR	CI (95%)	*p value*
Education (years)			
0-8	2.12	0.67-6.73	0.19
9-11	0.32	0.12-0.81	0.01
Marital status			
Single	0.45	0.15-1.38	0.16
Divorced/Separated/Widowed	1.13	0.38-3.40	0.81
General health			
Good	3.27	0.71-15.03	0.12
Fair	2.24	0.44-11.41	0.33
Poor / very poor	2.55	0.32-20.42	0.37

OR=Odds Ratio, CI=Confidence interval.

Table V - Multivariate analysis of mammogram according to the variables included in the model. Maringá, PR, 2012.

Variables	Adjusted OR	CI (95%)	*p value*
Education (years)			
0-8	2.85	0.57-14.07	0.19
9-11	2.50	0.47-13.17	0.27
Marital status			
Single	0.32	0.10-1.00	0.05
Divorced/Separated/Widowed	0.35	0.09-1.27	0.11
Abusive drinking of alcohol	2.79	0.59-13.04	0.19
Not having a health insurance	0.30	0.14-0.62	<0.01

OR= Odds Ratio; CI=Confidence interval.

DISCUSSION

It was observed in the population of Maringá that 91.3% of the women over the age of 20 have undergone Pap smear examination, and 84.6% of them have had it in the last three years. This finding demonstrates an effective screening as the WHO[12] considers sufficient a coverage of 80% of screening by Pap test.

Regarding the coverage of cervical cancer, a study conducted in 2011 in the Brazilian capitals found that 80.5% of women between 25 and 59 years old have undergone Pap smear examination in the last three years. Curitiba and São Paulo had a higher prevalence of this examination, with a total of 90% of women screened[13].

A study conducted with 404 women in São José de Ribamar, Maranhão, found that 74.3% of the participants had undergone the screening test in 2004. The authors add that although women are aware and undergo the examination, there is still the need to improve adherence in order to reduce the incidence and mortality rates[14]. A population-based study conducted with women in the municipality of Maringá presented a rate of 87.6% of Pap test coverage in the age group of 25-59 years[15].

A literature review of the period from 2006 to 2011 points out the reasons that lead some women not to undergo the test periodically, including poor education, lack of partner, younger women and those of older age, unavailability of time, difficult access to health services, fear of the test and/or a positive result for cancer, and embarrassment[16].

In the present study, having between 9 and 11 years of education was associated with a lower performance of Pap smear testing. According to the prevalence of the examinations regarding sociodemographic characteristics and health behaviors[1], there was a lower prevalence of Pap smear testing in women with lower education (up to incomplete elementary education).

Research on the coverage of Pap smear test by two household surveys conducted in São Paulo in 1987 and in 2001-2002 with 968 and 1,125 women, respectively, showed that from the first survey to the second there was an increase from 68.8% to 85.0% in the testing rate, with women with the lowest education levels presenting greater increases in the coverage[17].

Both low and high levels of education are an important factor associated with the non-completion of Pap smear testing. It is believed that because of the female labor market advancements and the housework overload, many women postpone care, demonstrating that the concepts

of prevention and promotion are still far from the real appreciation of the clinical manifestation of a disease[18].

Research on the risk factors for breast cancer among women aged 40-69 years[19] showed there are some sociodemographic characteristics that may be associated with the level of knowledge of women about the risk factors for the disease. Additionally, it reports that the investigation of these characteristics can help identify factors that lead women to an increased participation in early detection actions.

With regard to the mammogram, the coverage goal set in Healthy People[20] is 70% every one or two years in women aged 40-69 years. This goal was achieved in the present study, with a total of 85.1% of coverage for women aged over 40 years - of these, 74.3% had a mammogram in the past two years. Recent data show that 73.3% of women between 50 and 69 years old have had a mammogram in the last two years[9].

The Ministry of Health[21] sets the parameter of one mammography equipment for every 240,000 inhabitants. Paraná has today 159 mammography equipments (1/63 thousand inhabitants) and the city of Maringá has a sufficient number of mammography equipments to serve the people and ensure an organized screening program, both at the public and private sectors.

A population survey conducted with adult women aged 40-59 years and older women aged 60-69 years living in Florianópolis, Santa Catarina, identified a prevalence of annual mammogram of 43% and 38.3%, respectively[22].

The low prevalence of mammogram among women without a private health insurance may be explained by the lack of regular visits to the gynecologist, which can be seen as unnecessary by women, either because they feel distant from problems arising from active sex life or because of the lack of motivation and population coverage by the public health service (community health agents, support centers and family health teams), which should focus on the search for better access to and quality of primary care.

A longitudinal study conducted with 460 women attending public and private health services in the municipality of Taubaté, São Paulo, showed that 68% of them reported mammographic screening in the two years preceding the research, with a higher proportion (84.2%) among those who had a private health insurance[23]. After a multivariate analysis, a study showed that having a health insurance was one of the important factors for having a mammogram, which indicated a greater incorporation and access to the exam. In the present study, with regard to women aged between 40 and 69 years, age in which the procedure may be more effective, the access is more difficult for those who have no health insurance[18].

A study conducted in 27 Brazilian capitals analyzed via telephone survey in 2008 the monitoring of noncommunicable diseases in 54,353 people aged 18 or over, 41.8% of whom had health insurance. It was found that the insurance coverage provided an increase in the completion of mammograms, with an 83.6% coverage rate among women aged 50-69 years[24].

Having a health insurance appears to be related to a higher purchasing power; furthermore, it is important to mention that the heterogeneous distribution of equipment, services and human resources are very important factors in the access to services[25] when comparing the public and private sector.

Some important limitations of the present study should be highlighted. Because it uses women's self-reported information, there may be information bias arising from reports with errors by forgetting or simulation. As the data come from a household survey whose questionnaire used was not designed with variables related to risk factors for breastand cervical diseases, important data related to cancer have not been added.

CONCLUSION

The coverage of mammography and Pap smear testing was satisfactory among women in the municipality of Maringá, Paraná. Women with low education levels and those who depended on the public health system presented a lower adherence to mammography.

Considerations on this situation and its perspectives are critical to propose strategies for health promotion, surveillance, prevention and care.

REFERENCES

1. Ministério da Saúde (BR), Instituto Nacional de Câncer - INCA. Coordenação de Prevenção e Vigilância Estimativa 2014: Incidência de Câncer no Brasil. Rio de Janeiro: Ministério da Saúde; 2014.

2. World Health Organization – WHO, International Agency for Research on Cancer. Globocan 2012: estimated câncer incidence, mortality and prevalence worldwide [accessed on 2014 May 14]. Available from: http://globocan.iarc.fr/Pages/fact_sheets_cancer.aspx.

3. Silva RCF, Hortale VA. Rastreamento do Câncer de Mama no Brasil: Quem, Como e Por quê? Revista Brasileira de Cancerologia. 2012; 58(1):67-71.

4. Ministério da Saúde (BR), Secretaria de Atenção à Saúde, Secretaria de Atenção à Saúde. Controle dos cânceres do colo do útero e da mama. 2ª ed. Brasília: Ministério da Saúde; 2013.

5. Ministério da Saúde (BR), Instituto Nacional de Câncer - INCA. Estimativa 2011: Diretrizes brasileiras para o rastreamento do câncer do colo do útero. Rio de Janeiro: Ministério da Saúde; 2011.

6. Instituto Brasileiro de Geografia e Estatística – IBGE, Ministério do Planejamento, Orçamento e Gestão (BR). Primeiros resultados do Censo 2010. Brasília: IBGE; 2011.

7. Bonita R, Beaglehole R, Kjellstron T. Basic Epidemiology. 2nd edition. Geneva: World Heatlh Organization, 2006.

8. Segri NJ, Priscila MSBF, Maria CGPA, Marilisa BAB, Chester LGC, Moisés G, et al. Práticas preventivas de detecção de câncer em mulheres: comparação das estimativas dos inquéritos de saúde (ISA - Capital) e vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico (VIGITEL - São Paulo). Rev Bras Epidemiol. 2011;14(Supl 1):31-43.

9. Ministério da Saúde (BR), Secretaria de Vigilância em Saúde, Secretaria de Gestão Estratégica e Participativa. VIGITEL Brasil 2008: Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília: Ministério da Saúde; 2009.

10. World Health Organization - WHO. The World Health Report - Reducing Risks, Promoting Healthy Life. Geneva: WHO; 2004.

11. World Health Organization – WHO. Obesity and overweight. Fact sheet n° 311. [accessed on 2014 May 14]. Available from: http://www.who.int/mediacentre/factsheets/fs311/en/

12. Ministério da Saúde (BR), Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Controle dos cânceres do colo do útero e da mama. Brasília: Ministério da Saúde; 2006.

13. Ministério da Saúde (BR), VIGITEL Brasil 2011: Vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico. Brasília: Ministério da Saúde; 2012.

14. Oliveira AF, Cunha CLF, Viégas IF, Figueiredo IF, Brito LMO, Chein MBC. Estudo sobre a adesão ao exame citopatológico de Papanicolaou em um grupo de mulheres. Rev Pesq Saúde. 2010;11(1):32-7.

15. Murata IMH, Gabrielloni MC, Schirmer J. Cobertura do Papanicolaou em Mulheres de 25 a 59 anos de Maringá-PR, Brasil. Rev Bras Cancerol. 2012;58(3):409-15.

16. Silva JMA, Souza RC, Manzo BF, Souza SR, Pereira SM. Fatores relacionados a não continuidade da realização do exame citológico Papanicolaou. Percurso Acadêmico. 2011; 1(2):225-39.

17. Ozawa C, Marcopito LF. Teste de Papanicolaou: cobertura em dois inquéritos domiciliários realizados no município de São Paulo em 1987 e em 2001-2002. Rev Bras Ginecol Obstet. 2011;33(5):238-45.

18. Silva JKS, Santos JA, Silva JS, Amorim ASR. Prevenção do câncer de colo uterino: um enfoque a não adesão. Rev Enferm UFPI. 2013;2(3):53-9.

19. Batiston AP, Tamaki EM, Souza LA, Santos MLM. Conhecimento e prática sobre os fatores de risco para o câncer de mama entre mulheres de 40 a 69 anos. Rev Bras Saúde Matern Infant. 2011;11(2):163-71.

20. Centers for Disease Control and Prevention. Healthy people 2010 [accessed on 2014 May 14]. Available from: http://www.healthypeople.gov

21. Ministério da Saúde (BR). Portaria nº 1101, de 12 de junho de 2002. Estabelece parâmetros assistenciais do SUS. Diário Oficial da União; 2002.

22. Schneider IJC, Giehl MWC, Boing AF, D'orsi E. Rastreamento mamográfico do câncer de mama no Sul do Brasil e fatores associados: estudo de base populacional. Cad Saúde Pública. 2014;30(9):1987-97.

23. Marchi AA, Gurgel MSC. Adesão ao rastreamento mamográfico oportunístico em serviços de saúde públicos e privados. Rev Bras Ginecol Obstet. 2010; 32(4):191-7.

24. Malta DC, Moura EC, Oliveira M, Santos FP. Usuários de planos de saúde: morbidade referida e uso de exames preventivos, por inquérito telefônico, Brasil, 2008. Cad Saúde Pública. 2011;27(1):57-66.

25. Instituto Brasileiro de Geografia e Estatística - IBGE. Pesquisa Nacional por Amostra de Domicílios. Um panorama da saúde no Brasil. Acesso e utilização de serviços, condições de saúde e fatores de risco e proteção à saúde 2008. Rio de Janeiro: IBGE; 2010.

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