Reasons and factors related to non-adherence to breast and cervical cancer screening in primary health care in São José do Rio Preto - SP after the COVID-19 pandemic

Motivos e fatores relacionados à não adesão ao rastreamento do câncer de mama e do colo uterino na atenção primária à saúde em São José do Rio Preto – SP após pandemia de COVID-19

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ABSTRACT: *Objective:* To identify the reasons and factors associated with non-adherence of mammogram and Pap smear. *Methods:* This cross-sectional observational study was conducted through interviews with women between 25 and 69 years-old in basic health units. *Results:* 441 women were included in the study, 404 of whom were eligible for cervical cancer screening and 208 for breast cancer screening. Mammogram adherence was associated with educational level ($p<0.001$), family history of breast cancer ($p=0.047$), self-assessment of health status ($p<0.001$) and prior knowledge about age group ($p<0.001$) and frequency ($p<0.001$) of screening recommended by the Ministry of Health. However, the decision of undergo cervical cancer screening exam was associated with age ($p=0.012$), self-assessment of health status ($p<0.001$) and prior knowledge about age group ($p<0.001$) and frequency ($p=0.027$) of exam. In both groups, the main reasons for non-adherence to screening were: lack of time, difficulty scheduling appointments and/or tests, and the SARS-Cov-2 pandemic. *Conclusion:* Socioeconomic factors and health education influence the decision to participate in the secondary prevention of these neoplasms. Thus, health policies should be intensified addressing these topics to increase the adherence rate to exams.

KEYWORDS: Breast Neoplasms; Uterine Cervical Neoplasms; Mammography; Papanicolaou Test; Secondary Prevention; Primary Health Care.

RESUMO: *Objetivo:* Identificar os motivos e os fatores associados à não realização da mamografia e do exame de Papanicolaou. *Métodos:* Este estudo observacional transversal foi conduzido por meio de entrevistas com mulheres de 25 a 69 anos em unidades básicas de saúde. *Resultados:* Foram incluídas 441 mulheres no estudo, sendo 404 elegíveis para o rastreamento do câncer de colo do útero e 208 para o rastreamento de câncer de mama. A realização da mamografia foi associada ao nível de educação ($p<0,001$), histórico familiar de câncer de mama ($p=0,047$), autoavaliação do estado de saúde ($p<0,001$) e conhecimento prévio sobre a faixa etária ($p<0,001$) e frequência ($p<0,001$) do rastreamento preconizada pelo Ministério da Saúde. Contudo, a adesão ao exame de rastreamento do câncer cervical foi associada à idade ($p=0,012$), autoavaliação do estado de saúde ($p<0,001$) e conhecimento prévio sobre a faixa etária ($p<0,001$) e frequência ($p=0,027$) do exame. Em ambos os grupos, os principais motivos da não adesão ao rastreamento foram: falta de tempo, dificuldade no agendamento na consulta e/ou exame e a pandemia de SARS-Cov-2. *Conclusão:* Fatores socioeconômicos e educação em saúde influenciam a decisão de participar da prevenção secundária dessas neoplasias. Desse modo, as políticas de saúde devem ser intensificadas, abordando esses tópicos para elevar as taxas de adesão aos exames.

PALAVRAS-CHAVE: Câncer de Mama; Câncer de Colo Uterino; Mamografia; Teste de Papanicolaou; Prevenção Secundária; Atenção Primária à Saúde.

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INTRODUCTION

Breast cancer and cervical cancer are relevant public health problems, being, respectively, the first and third most frequent neoplasms in Brazilian women, excluding non-melanoma skin cancer[1]. In Brazil, the Cancer National Institute (INCA) estimates 66,280 new cases of breast cancer and 16,590 new cases of cervical cancer in the triennium 2020-2022[1]. In recent years there has been a decrease in mortality from these neoplasms in Brazil, this reduction has not occurred homogeneously throughout the territory. For example, breast cancer mortality rates in the North and Northeast regions increased, mainly in the countryside[2]. In industrialized countries, such as the United States, there was also a decrease in the breast cancer mortality rate in the last decades, mainly among non-Hispanic white women, women between 45 and 64 years, and women who live in the Northeast region of the country[3]. In the world, there was a stabilization or a decrease in the incidence rate and in the mortality rate due to cervical cancer, especially in countries that offer vaccination against the human papillomavirus and effective screening for this neoplasm[4].

Studies have shown that the delay in the diagnosis and treatment of breast cancer leads to negative impacts on the patient prognosis and on the patient survival[5]. In Brazil, the time for cancer diagnosis was longer than the time recommended by the Ministry of health; however, the time for treatment is within the parameters[6]. According to the guidelines for early cancer detection in Brazil, women who are part of the ordinary-risk population should undergo a mammography every two years when they are between 50 and 69 years old[7].

The cervical cancer is caused by the persistent infection caused by the human papillomavirus (HPV), which is presented mostly by subclinical lesions that are visible only after analyzing the lesions with reactants and through colposcopic techniques[8]. The Ministry of Health stipulates that every woman aged between 25 and 64 years old, from the beginning of their sexual life, should attend a gynecologic appointment and undergo the Papanicolaou test every year in the first two years and, after that, every three years[9].

In Brazil, the Primary Health Care is the main responsible for the secondary prevention of neoplasms. However, there are several obstacles for patients not to undergo the screening tests. Among the obstacles related to the health system, the following ones can be listed: disorganization of the services; few financial resources; conflicts among the medical societies about indicating these tests or not; low adherence of health professionals; among others[10]. There are also obstacles related to knowledge, which can be influenced by socioeconomic issues and the person's own issues[11]. Another problem, which is relatively recent, was the pandemic caused by the Sars-Cov-2, when the financial, material, human and administrative resources were directed at the pandemic control. In addition, people were apprehensive about attending health services due to the possibility of being infected with the virus[12].

This study aims to identify the reasons and factors associated with the non-adherence to the breast cancer and cervical cancer screening tests after the COVID-19 pandemic in São José do Rio Preto.

METHODS

This quantitative cross-sectional study attempted to investigate the reason why the users in five family health basic units (FHBU) of the National Health Service in São José do Rio Preto did not undergo the preventive screening (mammography and Papanicolaou test). It was carried out by Faculdade Ceres (FACERES) through an instrument with open and pre-coded questions which were adapted from other studies.

Belonging to the central area was the selection criterion for the BHU selection, where there was a teaching-service integration through the subject Community Integration Program (CIP), and for presenting lower screening test coverage, according to data from the Monitoring Panel in 2018, released by the Health Secretary of São José do Rio Preto

The subjects were selected according to the following criteria: the participant should agree with the study and fill in the Term of Free and Informed Consent (TFIC), women should be aged between 25 and 69 years old at the time of the interview and live in the central area of the city. Women with personal history of breast cancer and/or cervical cancer and women who could not understand the objective of this study when filling the TFIC due to low cognitive abilities were excluded from the study. Furthermore, women who had undergone total or subtotal hysterectomy were not included in the group for cervical cancer screening.

Data were collected in May and in June in 2022 simultaneously in the BHUs after the consent of the Secretary of Health of São José do Rio Preto and the management of these units. The procedure of data collection was performed according to the precepts of the Research Ethics Committee (REC), under the protocol of approval number 3.903.473 and RCE 28293020.9.0000.8083. The researchers approached the women at the units and, after checking the eligibility criteria and presenting the TFIC, they asked the questions from the interview whose answers they would take notes and would clarify any questions they might have. None of the women were put under pressure or forced to answer the interview. When there was a denial, the researcher thanked the person and said they could participate later in case they changed their minds.

After the data collection, the sample was divided into two groups according to the age recommended by

the Ministry of Health for screening tests: breast cancer screening (women aged between 50 and 69 years old) and cervical cancer screening (women aged between 25 and 64 years old). Women aged in the intersection of these groups were included in both groups.

The variables which were analyzed were:

• Adherence to breast cancer screening: adherent or non-adherent. To be considered adherent, the woman should have undergone at least one mammography in the last two years.

• Adherence to the cervical cancer screening: adherent or non-adherent. To be considered adherent, the woman should have undergone at least one Papanicolaou test in the last three years.

• Age: quantified in years. The sample was divided into two groups, women under 60 years old and women aged 60 years old or older, it means, elderly women.

• Educational level: quantified according to the years of studies. The sample was divided into two groups, women with less than 12 years of education and woman with 12 or more years of education, it means, women who have finished high school.

• Marital status: classified into single, married/married under Common law, widowed, or divorced.

• Religion: classified into Catholic, Evangelical, Spiritist, and other.

• Family income: quantified according to the number of minimum salaries. The minimum salary in 2022, when the data were collected, was R$ 1,212.

• Family History of breast cancer: presence or absence of a first-degree relative with personal history of breast cancer.

• Family History of cervical cancer: presence or absence of a first-degree relative with personal history of cervical cancer.

• Health Status: continuous variable through which women evaluated their current health status using a grade, 0 as the minimum grade and 10 as the maximum grade.

• Date of the last mammography: elapsed time counted in years from the last mammography. The patient might not have undergone a mammography before, or might not remember when she underwent the last mammography.

• Date of the last Papanicolaou test: elapsed time counted in years from the last Papanicolaou test. The patient might not have undergone a Papanicolaou test before, or might not remember when she underwent the last Papanicolaou test.

• Reasons for the non-adherence to the screening tests: descriptive variable in which the patients reported the reason(s) for not undergoing the test. There were some pre-coded questions and a blank space to fill in if there was no alternative complaining the reason given by the subject.

• Prior knowledge about the age and the frequency of the tests: the Ministry of Health answers were used as correct answers, which say the mammography is indicated every two years for women aged between 50 and 69 years old and the Papanicolaou test is indicated every three years for women aged between 25 and 64 years after two tests with nothing abnormal detected.

The exploratory analysis of the data includes the mean, the median and the variation for the continuous variables and the number and proportion for categoric variables. The normal distribution of the continuous variables was checked by asymmetry, kurtosis and Kolmogorov-Smirnov test. The variables health status self-assessment and family income presented non-normal distribution. The comparison among the categorical variables was performed by using Pearson's chi-square test, and the comparison among the continuous variables by using the Mann-Whitney test. The statistical analysis was performed by the *International Business Machines Statistical Package for the Social Sciences* (IBM-SPSS Inc., Chicago, Illinois, the USA) software. The tests were all two-tailed tests and *p*-value less than 0.05 were not considered significant.

RESULTS

In this study, data from data from 441 women aged between 25 and 69 years old were analyzed, the mean in the sample for the age was 47.2 years. During the study, 17 patients were excluded from the analysis because they were not in the age for cervical cancer screening and/or breast cancer, or because they did not inform their birth date in the interview.

Relation between screening and the Health Units

The distribution of the patients was similar in relation to the Family Health Basic Units (FHBU): FHBU 1 (20.6%), FHBU 2 (18.1%), FHBU 3 (20%), FHBU 4 (20.4%) and FHBU 5 (20.9%). The chi-square test showed that the adherence to the mammographies ($\chi^2 = 6,781$) and oncotic colpocytology ($\chi^2 = 7,162$) does not depend on the Health Unit the patient attends (Table 1 and 2).

Table 1 - Characteristics of the women under breast cancer screening and factors associated with the adherence

	Non adherent	Adherent	*p-value*
Age (n/%)			0.093
< 60 years	43 (20,7)	69 (33,2)	
≥ 60 years	48 (23,1)	48 (23,1)	
Health Unit (n/%)			0.148
FHBU 1	15 (7.2)	28 (13.5)	
FHBU 2	28 (13.5)	20 (9.6)	
FHBU 3	17 (8.2)	21 (10.1)	
FHBU 4	14 (6.7)	26 (12.5)	
FHBU 5	17 (8.2)	22 (10.6)	
Time since the last mammography (n/%)			
Until 2 years ago	-	117 (56.3)	
3 years ago	23 (11.1)	-	
4 years ago	23 (11.1)	-	
Never undergone	2 (1)	-	
Cannot remember	9 (4.3)	-	
Educational Level (n/%)			<0.001***
< 12 years of studies	50 (24)	37 (17.8)	
≥ 12 years of studies	41 (19.7)	80 (38.5)	
Marital status (n/%)			0.568
Single	14 (6.7)	19 (9.1)	
Married / Married under Common Law	43 (20.7)	63 (30.3)	
Widowed	18 (8.7)	22 (10.6)	
Divorced	16 (7.7)	13 (6.3)	
Religion (n/%)			0.505
Catholic	46 (22.1)	66 (31.7)	
Evangelical	33 (15.9)	38 (18.3)	
Spiritist	6 (2.9)	9 (4,.3)	
Other	0 (0)	1 (0.5)	
Family income (median post)	57.89	60.86	0.632
Family history of breast cancer (n/%)			0.047*
No	72 (34.6)	78 (37.5)	
Yes	19 (9.1)	39 (18.8)	
Health status self-assessment (median post)	87.13	118.01	<0.001***
Prior Knowledge			
About the recommended age (n/%)			<0.001***
Wrong answer	53 (25.5)	0 (0)	
Right answer	38 (18.3)	117 (56.3)	
About the recommended frequency (n/%)			<0.001***
Wrong answer	36 (17.3)	0 (0)	
Right answer	55 (26.4)	117 (56.3)	

Table 2 - Characteristics of the women under cervical cancer screening and factors associated with the adherence.

	Non adherent	Adherent	*p-value*
Age (n/%)			0.012*
< 60 years	85 (21)	262 (64.9)	
≥ 60 years	23 (5.7)	34 (8.4)	
Health Unit (n/%)			0.128
FHBU1	22 (5.4)	63 (15.6)	
FHBU 2	26 (6.4)	44 (10.9)	
FHBU 3	15 (3.7)	63 (15.6)	
FHBU 4	25 (6.2)	59 (14.6)	
FHBU 5	20 (5)	67 (16.6)	
Time since the last Papanicolaou test (n/%)			
1 year ago	-	170 (42.1)	
2 years ago	-	73 (18.1)	
3 years ago	-	53 (13.1)	
4 years ago	42 (10.4)	-	
5 years ago	37 (9.2)	-	
Never undergone	11 (2.7)	-	
Cannot remember	18 (4.5)	-	
Educational Level (n/%)			0.093
< 12 years of studies	38 (9.5)	78 (19.5)	
≥ 12 years of studies	70 (17.5)	215 (53.6)	
Marital Status (n/%)			0.356
Single	30 (7.5)	71 (17.8)	
Married / Married under Common Law	51 (12.8)	167 (41.9)	
Widowed	19 (4.8)	37 (9.3)	
Divorced	7 (1.8)	17 (4.3)	
Religion (n/%)			0.199
Catholic	47 (11.7)	141 (35)	
Evangelical	38 (9.4)	106 (26.3)	
Spiritist	8 (2)	27 (6.7)	
Other	15 (3.7)	21 (5.2)	
Family income (median post)	109.98	118.16	0.402
Family History of cervical cancer (n/%)			0.27
No	96 (23.9)	255 (63.6)	
Yes	10 (9.4)	40 (10)	
Health status self-assessment (median post)	164.19	215.67	<0.001***
Prior Knowledge			
About the recommended age (n/%)			0.027*
Wrong answer	94 (23.3)	228 (56.4)	
Right answer	14 (3.5)	68 (16.8)	
About the recommended frequency (n/%)			<0.001***
Wrong answer	49 (12.2)	68 (16.9)	
Right answer	58 (14.4)	228 (56.6)	

Breast cancer screening

In this group, 208 women with an average age of 59,91 years were eligible (interval: 50-69 years old). Regarding the adherence to the mammography, 56.3% of the women had undergone the test in the last two years. It was observed that most of the women in this group were married or married under Common Law (51%), Catholic (53.8%), had studied for 12 years or more (58.3%), and did not have family history of breast cancer (72.1%). The average family income in this group was 3.01 minimum salaries (interval: 0-20, n=119). In the health status self-assessment of this group, the average given grade was 7.97.

The total of 91 patients are not adherent to the breast cancer screening (43.8%). The lack of time (39.6%) was the main reason reported by the patients for the non-adherence, followed by difficulty scheduling the appointment or the test (23.1%). None of the women reported feeling embarrassed as a reason for nor undergoing the test. Table 3 shows the reasons given by the women for not undergoing the cervical cancer and breast cancer screenings.

Table 3 - Reported reasons for the non-adherence to the cancer screening

Reasons	Breast cancer screening (n/%)	Cervical cancer screening (n/%)
Lack of time	36 (39.6)	48 (44.4)
Difficulty scheduling the appointment or the test	21 (23.1)	22 (20.4)
Pandemic	17 (18.7)	17 (15.7)
Physician did not order	13 (14.3)	18 (16.7)
No symptoms	12 (13.2)	6 (5.6)
Fear of the exam or discomfort during the exam	9 (9.9)	11 (10.2)
No prior knowledge about the issue	5 (5.5)	14 (13)
No search for medical assistance	5 (5.5)	6 (5.6)
Fear of a cancer diagnosis	3 (3.3)	4 (3.7)
Distance	2 (2.2)	2 (1.9)
Religious	1 (1.1)	0 (0)
Embarrassment	0 (0)	3 (2.8)
Others	4 (4.4)	3 (2.8)

In the bivariate analysis showed a relation among educational level ($\chi^2 = 11.442$, $p = 0.001$) and positive family history of breast cancer ($\chi^2 = 3.498$ $p = 0.047$) and adhesion to the treatment. Greater knowledge of the age group ($\chi^2 = 91.443$, $p < 0.001$) and the frequency ($\chi^2 = 54.973$, $p < 0.001$) recommended for the screening in women who follow the screening protocol correctly were also observed. In addition, women with family history of breast cancer know better about the mammography age group ($\chi^2 = 5.786$, $p = 0.016$). Regarding the self-assessment of the health status, it was observed that women who do not undergo the cervical screening appropriately graded themselves better in the self-assessment ($U = 3743$, $p < 0,001$). There was no relation between the screening test with the age, marital status, religion, and family income. Table 1 shows the characteristics of the women who were included in this group and factors associated with the mammography adherence.

Cervical cancer screening

In this group, data from 404 patients between 25 and 64 years old were analyzed and the average age was 45.43 years old and 73,3% of them had undergone the oncotic colpocytology in the last 3 years. This group consisted mostly of married women or married under Common Law (55%), Catholic (46,7%), without family history of cervical cancer (87.5) and had studied for 12 years or more (71.1%). The average of the family income in minimum salaries in this group was 2.97 minimum salaries (interval= 0 – 30, n= 231). Regarding the self-assessment of the health status, the average given grade was 7.81.

In the study, 26,7% of the women are non-adherent to the oncotic colpocytology. The main reported reasons were lack of time (44.4%) and difficulty scheduling the appointment and the test (20.4%), like the breast cancer screening. Religion was not reported by any women as

a reason for the non- adherence to the screening. Table 3 shows the reasons given by the women for the non-adherence to the cervical and breast cancer screening.

In the bivariate analysis, it was observed that women who are over 60 years old are more adherent to the screening ($p = 0.012$) and the women who are non-adherent to the cervical screening gave better grades in the self-assessment of health status (U = 1179, $p < 0.001$). Like the previous group, women who are non-adherent to the screening have more prior knowledge about the age group ($\chi^2 = 4.901, p = 0.027$) and the colpocytology frequency ($\chi^2 = 19,866, p < 0,001$). No relation was observed among the adherence to the cervical cancer screening and education, family income, marital status, religion and family history of cervical cancer. Table 2 shows the characteristics of the women who were included in this group and the factors related to the adherence to the Papanicolaou test.

Relation between cervical cancer screening and breast cancer screening

In this group, 169 women aged between 50 and 64 years old were chosen for both screening groups. The average age was 57.12 years old. It was observed that women who are adherent to one of the screening tests is also adherent to the other one ($\chi^2 = 85.815, p < 0.001$).

DISCUSSION

There are several epidemiological studies on cervical cancer and breast cancer screenings in the Primary Health Care. However, the present study aims to evaluate the reasons and the factors related to the non-adherence to secondary prevention of these tumors in a perspective of stabilization of the National Health System after the Sars-Cov-2 pandemic.

According to the Ministry of Health, the coverage goals of the mammography exam and the Papanicolaou test are 70% and 85% in the recommended age groups, respectively[13]. Nevertheless, our study found out that the coverage falls far short of the expected in both screening tests, and there are also similar data in the literature. Analyzing the data on early cervical cancer detection from the National Health Service in Brazil, it was verified that no economic macroregion reached the national parameter, with the North, Northeast and Central-West regions showing the major flaws[14]. About the mammography, Bezerra *et al.* also observed a progressive increase in the adherence between 2006 and 2015, but not as it is expected according to the Ministry of Health, with lower adherence in regions with low Human Development Index (HDI)[15]. It is widely known that socioeconomic, demographic, medical history and access to health service factors influence the adherence to the breast cancer and cervical cancer screenings[16,17].

Socioeconomic factors, such as age, parity, income, occupation, and access to health service (public or private) interfere in the breast cancer and cervical cancer screenings, which results in a delay in the diagnosis and an increased mortality rate[18]. In our study, it was observed that elderly women are less adherent to the Papanicolaou test. In Juiz de Fora, in the state of Minas Gerais, it was observed that the adherence to the Papanicolaou decreases as the age advances19. Considering that elderly women feel less sexually active, resulting in non-adherence or postponing the exam. Another reason would be that, during and after the Sars-Cov-2 pandemic, elderly people were afraid of attending health services for been considered as group risk for worst prognosis related to the viral infection. Consequently, women who were part of this group would have less access to the health system for the gynecologic screening exams[20].

About the educational level, in this study, women who had studied for 8 years or more, the ones who had finished high school, are more adherent to the mammography. Schäfer *et al.* carried out a cross-sectional study on the phone in capital cities in Brazil with about 23,000 women which concluded that the low educational level is related to not undergoing breast cancer secondary prevention[21]. Therefore, because they do not understand the importance of such exams, the low educational level could explain the reason why women in these conditions are less adherent to the mammography[22].

In this study, women with breast cancer family history in a first degree relative showed more adherence to the mammography. Hong *et. al.* interviewed 467 American women and concluded that women with breast cancer family history are 2.5 times more likely to undergo a mammography[23]. In addition, a study carried out in Minas Gerais concluded that knowing someone who has breast cancer also influences the decision to undergo secondary prevention[24]. The breast is a symbol of femininity to women and that is the reason why knowing someone who has breast cancer could sensitize women, resulting in a better female self-care.

In both groups in this study, prior knowledge about the age group and frequency of the exams were associated with more adherence. Besides, it was noticed that women who have breast cancer family history know more about the age group the mammography is recommended. In São Paulo, it was verified that women who undergo mammographies knew more about the test and the symptoms of breast cancer[25]. Regarding the knowledge about the cervical oncotic cytology, its relationship with the previous screen was also identified in a previous cross-sectional study in Tanzania[26]. This way, due to the low adherence to the exams, it is necessary to intensify the actions in health education to make people aware of the importance of the screening tests.

Abou the health status, women who do not undergo the preventive exams regularly think they are healthy

compared to the ones who undergo a mammography and a Papanicolaou regularly. Also, part of the women who were interviewed reported the absence of symptoms, fear of discovering a cancer and not looking for medical assistance. The absence of self-care could be the result of not knowing or not valuing the issue, associating a wrong concept that health would be the absence of a pathological process, resulting in fewer preventive exams[11]. However, such information is different from the literature because studies in Brazil, in the United States and Korea showed that women who classified their health as good tend to be more adherent to the mammography and the Papanicolaou exam[27-29].

As in the literature, the women in this study who were adherent to one of the screening exams were more likely to undergo the other. Augustson *et. al.* observed a predictive relation between the clinical breast exam and the Papanicolaou regarding the adherence of American women who had low income[30]. Such situation could be explained because these two tests share factor that influence the adherence to them.

The reasons why women do not undergo the preventive cervical cancer exam and the mammography in this study are similar to the literature; however, the prevalence among them changes[31,32]. The lack of time was the main observed reason for not undergoing preventive exams, which could be associated with the fact that, currently, women have triple work burden, with professional, educational and family demands, which leads them to ignore self-care[33]. Another situation faced by the women is the difficulty accessing the screening tests because they need to be absent from work and the time spent in lines for the test, which demotivates them to undergo the exams. This situation was also reported by a considerable number of women who were interviewed in this study[34].

The COVID-19 pandemic strongly affected the actions of secondary prevention in Primary Care. In this study, part of the women reported the pandemic as a reason for not undergoing a mammography or the Papanicolaou test. In 2020, the number of mammographies decreased by 42.6% and the cervical cytopathological exams decreased by 44.6% compared to data from 2019[35]. Therefore, it is expected that there will be an increase in the adherence to the screening exams in the future when the pandemic is over.

LIMITATIONS OF THE STUDY

Firstly, there is a memory bias because the study was carried out by interviewing the women; however, we believe that this fact has not affected the results. The study was conducted in Primary Care and therefore the data from the complementary system were not analyzed. Cultural and socioeconomic aspects of the population in the study are influenced by the geographical region and the time, this way, the qualitative variables should not be generalized and must be understood as a whole. Finally, other factors that influence the screening exams were not investigated because long questionnaires demotivate the research participants.

CONCLUSION

To sum up, the adherence to the screening exams was associated with socioeconomic factors, breast cancer family history, self-assessment of health status and prior knowledge about the age group and the frequency of the exam according to the guidelines of the Ministry of Health. The main reasons why women do not undergo the breast cancer and cervical cancer secondary prevention were: lack of time, difficulty scheduling the appointment and/or the exam and the COVID-19 pandemic. This way, the data obtained by this study will be able to help with the creation of new public policies to increase the adherence rate to the screening exams, mainly in this post-pandemic period.

REFERENCES

1. Brasil. Instituto Nacional de Câncer José Alencar Gomes da Silva. Estimativa 2020: incidência do Câncer no Brasil [recurso eletrônico]. Rio de Janeiro (RJ): INCA; 2019 [citado 2022 Nov 07]. https://www.inca.gov.br/publicacoes/livros/estimativa-2020-incidencia-de-cancer-no-brasil.

2. Silva GAE, Jardim BC, Ferreira VM, Junger WL, Girianelli VR. Cancer mortality in the Capitals and in the interior of Brazil: a four-decade analysis. Rev Saude Publica. 2020;54:126. https://doi.org/10.11606/s1518-8787.2020054002255

3. Ellington TD, Henley SJ, Wilson RJ, Miller JW, Wu M, Richardson LC. Trends in breast cancer mortality by race/ethnicity, age, and US census region, United States horizontal line 1999-2020. Cancer. 2022;129(1):32-8. https://doi.org/:10.1002/cncr.34503

4. Lin S, Gao K, Gu S, You L, Qian S, Tang M, et al. Worldwide trends in cervical cancer incidence and mortality, with predictions for the next 15 years. Cancer. 2021;127(21):4030-9. https://doi.org/10.1002/cncr.33795

5. Bleicher RJ. Timing and delays in breast cancer evaluation and treatment. Ann Surg Oncol. 2018;25(10):2829-38. https://doi.org/10.1245/s10434-018-6615-2

6. Campos AAL, Guerra MR, Fayer VA, Ervilha RR, Cintra JRD, Medeiros IR de, et al. Time to diagnosis and treatment for breast cancer in public and private health services. Rev Gaúcha Enferm [Internet]. 2022;43:e20210103. https://doi.org/10.1590/1983-1447.2022.20210103.en

7. Brasil. Ministério da Saúde. Instituto Nacional de Câncer José Alencar Gomes da Silva. Diretrizes para a detecção precoce do câncer de mama no Brasil [recurso eletrônico]. Rio de Janeiro: Instituto Nacional de Câncer José Alencar Gomes da Silva; 2015 [citado 2022 Nov 07]. https://www.inca.gov.br/publicacoes/livros/diretrizes-para-deteccao-precoce-do-cancer-de-mama-no-brasil.

8. Nakagawa JTT, Schirmer J, Barbieri M. Vírus HPV e câncer de colo do útero. Rev Bras Enferm 2010;63(2). https://doi.org/10.1590/S0034-71672010000200021

9. Brasil. Instituto Nacional de Câncer José Alencar Gomes da Silva. Coordenação de Prevenção e Vigilância. Divisão de Detecção Precoce e Apoio à Organização de Rede. Diretrizes brasileiras para o rastreamento do câncer do colo do útero [recurso eletrônico]. 2a ed. rev. atual. Rio de Janeiro: INCA; 2016 [citado 2022 Nov 07]. https://www.inca.gov.br/publicacoes/livros/diretrizes-brasileiras-para-o-rastreamento-do-cancer-do-colo-do-utero.

10. Santos ROM, Ramos DN, Migowski A. Barreiras na implementação das diretrizes de detecção precoce dos cânceres de mama e colo do útero no Brasil. Physis: Rev Saude Coletiva [online]. 2019;29(4):e290402. https://doi.org/10.1590/S0103-73312019290402

11. Lourenço TS, Vieira RAC, Mauad EC, Silva TB, Costa AM, Peres SV. Barreiras relacionadas à adesão ao exame de mamografia em rastreamento mamográfico na DRS-5 do estado de São Paulo. Rev Bras Mastol 2009;19(1):2-9. https://doi.org/10.1590/S0034-71672013000400018

12. Campos P, Souza GM, Midega T, Guimaraes HP, Correa TD, Cordioli RL. A nationwide survey on health resources and clinical practices during the early COVID-19 pandemic in Brazil. Rev Bras Ter Intensiva. 2022;34(1):107-15. https://doi.org/10.5935/0103-507X.20220005-pt

13. Brasil. Ministério da Saúde. Secretaria de Vigilância em Saúde. Departamento de Análise em Saúde e Vigilância de Doenças Não Transmissíveis. Plano de Ações Estratégicas para o Enfrentamento das Doenças Crônicas e Agravos não Transmissíveis no Brasil, 2021-2030. Plano de Ações Estratégicas para o Enfrentamento das Doenças Crônicas e Agravos não Transmissíveis no Brasil 2021-2030 [recurso eletrônico]. Brasília (DF): Ministério da Saúde; 2021 [citado 2022 Nov 07]. http://bvsms.saude.gov.br/bvs/publicacoes/plano_enfrentamento_doencas_cronicas_agravos_2021_2030.pdf. Acesso em: 07 de novembro de 2022.

14. Silva RMG da, Knupp VM de AO, Dantas C de C, Regazzi ICR, Goulart M de C e L, Garcia LR, Lopes EB, Silveira SSD da, Silva MT da. Early detection of cervical cancer in Brazil: a study of coverage indicators and adherence to national technical guidelines . RSD [Internet]. 2022, Mar.4 [cited 2023Jul.13];11(3):e48511326714. https://rsdjournal.org/index.php/rsd/article/view/26714.

15. Bezerra HS, Melo TFV, Barbosa JV, Feitosa E, Sousa LCM. Evaluation of access to mammographies in Brazil and socioeconomic indicators: a space study. Rev Gaucha Enferm. 2018;39:e20180014. https://doi.org/10.1590/1983-1447.2018.20180014

16. Moreira CB, Dahinten VS, Howard AF, Fernandes AFC, Schirmer J. Factors related to mammography adherence among women in Brazil: a scoping review. Nurs Open. 2021;8(5):2035-49. https://doi.org/10.1002/nop2.706

17. Limmer K, LoBiondo-Wood G, Dains J. Predictors of cervical cancer screening adherence in the United States: a systematic review. J Adv Pract Oncol. 2014;5(1):31-41. PMID: 25032031; PMCID: PMC4093462.

18. Nuche-Berenguer B, Sakellariou D. Socioeconomic determinants of cancer screening utilisation in Latin America: a systematic review. PLoS One. 2019;14(11):e0225667. https://doi.org/10.1371/journal.pone.0225667

19. Freitas MCM, Ribeiro LC, Vieira MT, Teixeira MTBM, Bastos RR, Leite ICG. Fatores associados à utilização do teste de Papanicolaou entre mulheres idosas no interior do Brasil. Rev Bras Ginecol Obstet. 2012;34(9):432-7. https://doi.org/10.1590/S0100-72032012000900008.

20. Okoye C, Calsolaro V, Calabrese AM, Zotti S, Fedecostante M, Volpato S, et al. Determinants of Cause-Specific mortality and loss of independence in older patients following hospitalization for COVID-19: the GeroCovid outcomes study. J Clin Med. 2022;11(19). https://doi.org/10.3390/jcm11195578

21. Schafer AA, Santos LP, Miranda VIA, Tomasi CD, Soratto J, Quadra MR, et al. Regional and social inequalities in mammography and Papanicolaou tests in Brazilian state capitals in 2019: a cross-sectional study. Epidemiol Serv Saude. 2021;30(4):e2021172. https://doi.org/10.1590/S1679-49742021000400016

22. Goncalves CV, Camargo VP, Cagol JM, Miranda B, Mendoza-Sassi RA. Women's knowledge of methods for secondary prevention of breast cancer. Cien Saude Colet. 2017;22(12):4073-82. https://doi.org/10.1590/1413-812320172212.09372016

23. Hong SJ, Goodman M, Kaphingst KA. Relationships of family history-related factors and causal beliefs to cancer risk perception and mammography screening adherence among medically underserved women. J Health Communic. 2020;25(7):531-42. https://doi.org/10.1080/10810730.2020.1788677

24. Brum IV, Rodrigues T, Laporte EGJ, Aarestrup FM, Vitral

GSF, Laporte BEP. Does Knowing Someone with Breast Cancer Influence the Prevalence of Adherence to Breast and Cervical Cancer Screening? Rev Bras Ginecol Obstet. 2018;40(4):203-8. https://doi.org/10.1055/s-0038-1623512

25. Santos GD dos, Chubaci RYS. O conhecimento sobre o câncer de mama e a mamografia das mulheres idosas frequentadoras de centros de convivência em São Paulo (SP, Brasil). Cienc saude coletiva [Internet]. 2011May;16(5):2533–40. https://doi.org/10.1590/S1413-81232011000500023

26. Weng Q, Jiang J, Haji FM, Nondo LH, Zhou H. Women's knowledge of and attitudes toward cervical cancer and cervical cancer screening in Zanzibar, Tanzania: a cross-sectional study. BMC Cancer. 2020;20(1):63. https://doi.org/10.1186/s12885-020-6528-x

27. Bynum JPW, Braunstein JB, Sharkey P, Haddad K, Wu AW. The Influence of health status, age, and race on screening mammography in elderly women. Arch Intern Med. 2005;165(18):2083-8. https://doi.org/10.1001/archinte.165.18.2083

28. Park K, Park JH, Park JH, Kim HJ, Park BY. Does health status influence intention regarding screening mammography? Jpn J Clin Oncol. 2010;40(3):227-33. https://doi.org/10.1093/jjco/hyp160

29. Theme Filha MM, Leal MD, Oliveira EF, Esteves-Pereira AP, Gama SG. Regional and social inequalities in the performance of Pap test and screening mammography and their correlation with lifestyle: Brazilian national health survey, 2013. Int J Equity Health. 2016;15(1):136. https://doi.org/10.1186/s12939-016-0430-9

30. Augustson EM, Vadaparampil S T, Paltoo DN, Kidd LR, O'Malley AS. Association between CBE, FOBT, and Pap smear adherence and mammography adherence among older low-income women. Prev Med. 2003; 36(6):734-9. doi: 10.1016/s0091-7435(03)00050-1

31. Sousa TP, Guimarães JV, Vieira F, Salge AKM, Costa NM. Fatores envolvidos na não realização dos exames de rastreamento para o câncer de mama. Rev. Eletr. Enferm. [Internet]. 20º de setembro de 2019 [citado 9º de novembro de 2022];21:53508. https://doi.org/10.5216/ree.v21.53508.

32. Iglesias GA, Larrubia LG, Campos Neto AS, Pacca FC, Iembo T. Conhecimento e adesão ao Papanicolaou de mulheres de uma rede de atenção primária à saúde. Rev Cienc Med. 2019;28(1):21-30. http://dx.doi.org/10.24220/2318-0897v28n1a4008

33. Vieira A, Amaral G. A arte de ser Beija-Flor na tripla jornada de trabalho da mulher. São Paulo: Saude Soc. 2013:22(2):43-414. https://doi.org/10.1590/S0104-12902013000200012

34. Theodoro MG, Timoteo AC, Camiá GEK. Fatores que dificultam a adesão das mulheres ao exame de Papanicolaou. Bis. 2019;17(2):166-72.

35. Ribeiro CM, Correa FM, Migowski A. Short-term effects of the COVID-19 pandemic on cancer screening, diagnosis and treatment procedures in Brazil: a descriptive study, 2019-2020. Epidemiol Serv Saude. 2022;31(1):e2021405. https://doi.org/10.1590/S1679-49742022000100010