



## Attitudes to and practice of breast and cervical cancer screening in Romania

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### Research Article

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### Abstract

**Objectives:** Identification of the characteristics of women who have a low regard for Breast Self-Examination (BSE), mammography (MM), Pap testing (PAP); of psychosocial barriers in their way to visiting the gynecologist for routine gynecological examinations; and if a correlation exists between cervical and breast cancer screening.

**Methods:** This study included 848 Romanian women, aged 18-82, who had started their sexual life. In 2007 the women were questioned regarding receiving the examinations and tests mentioned above. In 2010 we also organized two focus groups of 20 women. The Chi square test, binary logistic regression and latent class analysis were employed.

**Results:** The proportion of BSE monthly is very low and the proportion of no self-examination is very high in the 15-24 years and over 50 years age groups. Only 15% of the interviewed women had had an MM. The proportion of the women who had had an MM in the age group under 44 years is almost double compared with the proportion in the group 44 years and older ( $\chi^2 = 10.5$ ,  $df=1$ ,  $p=0.001$ ). Less than half of the interviewed women had received a routine gynecological examination in the last 3 years.

**Conclusions:** In respect of genital and breast health attitudes the women are distributed in four latent classes.

**Keywords:** Papanicolaou Smear; Mammography; Breast Self-Examination; Screening; Social disparities

### Introduction

With 1 million new cases in the world each year, breast cancer is the commonest malignancy in women and comprises 18% of all female cancers. Statistically the cancer represents the greatest cause of death [1-3] in the world and in Romania. In Romania the incidence of breast cancer is 43.37%, and 2/3 (two thirds) of those affected visit a doctor in stages

III and IV. The early diagnosis of breast cancer up to 30 years old is made by self-examination, palpation being the most important clinical means of identifying mammary lesions [4]. Early breast cancer detection between 30-40 years requires a clinical examination performed by a doctor once a year, with a breast mammography at the first examination, but between 40-49 years it requires a breast mammography every 2 years and a general clinical examination every year [5].

As screening advances the date of diagnosis, the survival time will automatically be longer even if there is no effect on the actual date of death. Screening will therefore detect proportionally more of the slow growing, or non-invasive, cancers, which in turn will result in a better prognosis [6].

The second most frequent type of feminine cancer worldwide is cervical cancer. If genetic factors involved in the aetiology of this disease cannot be avoided, there are a lot of other factors that can: smoking, early sex life, multiple partners, unbalanced diet. [7, 8].

In Romania cervical cancer is the second greatest cause of mortality through cancer for women and the first cause of death for women between 25 and 44 years. The mortality rate is 6.3 times higher than the average in EU countries, similar to that for developing countries in Asia, Africa or South America. More alarming, in the last 18 years the rate has grown continuously, in contrast with other countries such as the UK, for example, where cervical cancer mortality rates in 2006 were nearly 70% lower than they were 30 years earlier [9]. In 2002, the rate of mortality from this disease in Romania was 15.6/100 000 inhabitants, but in 2005 it increased to over 16/100.000. Unfortunately, the lowering of the efficiency of early discovery was due to the abandonment, at some time, of the screening program [10].

The percent of cervical cancer cured in the first stage of the disease rises to almost 85-90% of the patients, but in the last (fourth) stage it is only of 5-15% [11]. An important reduction in the number of deaths due to cervical cancer was observed in the USA due to the regular performing of the Pap test [12].

The Romanian Health Ministry approved a large number of subprograms, the main activities being screening in rural regions and in Bucharest and the development of attitudes and behaviors favorable to health by means of promotion of health and education for health. If we are studying the statistical data at a national level, it looks as if all these measures are not sufficient. The problems



raised by cancer mortality do not consist of a relative value, but the constant increasing trend observed over the period 1999-2004 and the last 10 years [13].

Treatment costs are reduced when cancer is diagnosed in the early stages [14]. Contributing factors to this early diagnosis may include governmental policies regarding public health, sponsorship of screening programs focused on certain target populations and some actions in accordance with the identified profiles through research.

In this research we mainly focus on three objectives: 1) We want to identify the characteristics of women who have a low regard for Breast Self-Examination (BSE), mammography (MM) and Pap testing (PAP), thus with a higher risk of oncological pathology. 2) We also intend to find if a correlation exists between cervical and breast cancer screening. 3) We wish to investigate routine gynecological examination awareness and identify women's psychosocial barriers in their way to visiting a gynecologist.

#### **Methodology:**

This study, performed in 2007 without national representation, included subjects from all historical, socio-economic and cultural areas of the country. The stratification of the sample was made taking into account the seven geographical and historical Romanian regions: Muntenia, Oltenia, Banat, Maramureş, Moldova, Dobrogea, Transylvania and, considered separately, the city of Bucharest. From each region, we selected a town, representative economically and culturally. From each of the 8 towns, we selected randomly a sample of women with a similar age distribution. In each town the patients' databases maintained by the family doctors were used to select women in the sample, excluding those diagnosed with cervical or breast cancer. The sample was not balanced to simulate actual Romanian population distribution. A questionnaire was used to investigate opinions, attitudes and behaviors regarding genital and mammary preventive examination. From the initial random sample, which included 961 women aged 18-82 years, those who had not started their sexual life were excluded, resulting in a final study sample of 848 women.

The women were asked to indicate the year when they had had the last routine gynaecological examination, PAP test and mammography (MM), and the frequency in which they self-check their breasts to detect the presence of nodules. Also, the women who had not had a PAP test in the last three years were asked why they did not.

In 2010 we also organized two focus groups which included 10 women with low and medium level of education and 10 women with high educational level. The interview was organized on the occasion of the study *Anthropological and psycho-medical coordinates of sexual-reproductive health in urban and rural population* funded by the National Council for Scientific Research in Education (NURC Program: Ideas, 2009-2011 code 72). The participants discussed, on an interview guide basis,

estimating the psychological relationship between gynaecologist and patient and the psychological variables that can interfere with women's path to the gynaecological practice.

To comply with medical recommendations about breast cancer screening by mammography, sometimes at variance, we built our analysis on two age groups: up to 44 years (542 women) and 44 years and older (306 women).

Cervical cancer's onset is possible at any age, but most cases start between 35-65 years, when problems related with menopause can occur. Knowing that cervical cancer is the first mortality cause for Romanian women aged 24-35 years, we also built our analysis on two age groups: women aged 35 years or younger (394 women) and women over 35 years of age (454 women).

Statistical analysis, such as the Pearson  $\chi^2$  test, binary logistic regression and latent class analysis, have been performed using the statistical programs SPSS (SPSS Inc.) and Latent Gold (Statistical Innovations Inc.) [15-17].

This paper proposes to identify the profiles of women who have a low regard for mammary and genital preventive examination and the correlation between them, with the aim of putting in place adequate educational programs, differentiated by the characteristics of the specific target, to promote the attendance of women at breast and cervical cancer screening campaigns.

Multivariate binary logistic regression was employed to identify how the two binary outcomes, the Mammography and Pap test history,, are affected by socioeconomic factors. The regression models included the dependent variables MAMM (Mammography history 0=No, 1=Yes) and PAPTEST (PAP Test history 0=No, 1=Yes) in regression with the independent variables (factors): AGE2 (Age group 1= Under 44 years, 2= 44 years and over), AGEGROUP4 (Age group 1=15-24, 2=25-34, 3=35-49, 4=50+), INFORMATION (Information sources regarding tests requirements: 1= Unreliable:friends, parents, relatives , 2=Fair:school, TV, papers, 3=Reliable:doctors, scientific books), INCOME (Income level 1=Low, 2=Medium, 3=High), EDUCATION (Education level 1=Low:primary education, 2=Medium:secondary education, 3=High:tertiary education) and ABORTION (Abortion history 0=No, 1=Yes). The first category of the all-category independent variables was set as the reference category. As the model variables have been selected on a theoretic basis, technically, the SPSS "Enter" method was preferred.

The latent class analysis approach was used for the attitudinal classification. The following indicator category variables were included in the model: MAMM (Mammography history), BREAST (Breast self check frequency), PAPTEST (PAP test history) and GYNINTERVAL (Time interval since the last gynaecological examination).



The used categories are described in the table 4. The exploratory approach of the research included all prospective models from 1 to 6 latent classes, to ensure that a parsimony and best fit model may be identified.

The Pearson  $\chi^2$  test was used to determine the direct correlation between breast self-examination frequency, mammography history, Pap test history and routine gynecological examination frequency with the age groups associated variables.

**Results**

**1. SCREENING FOR BREAST CANCER**

**1.1 Breast Self-Examination (BSE) for the presence of nodule (lumps)**

In the whole sample 40.0% of respondents reported that they practiced breast self-examination monthly and 23.8% of them that they did no breast self-examination. The remainder practiced breast self-examination for lumps every 3 months, every 6 months or annually. We identified two vulnerable age groups: 15-24 years and over 50 years, where the proportion of monthly self-examination frequency was very low and the proportion of no self-examination was very high ( $\chi^2 = 54.318$ ,  $df=12$ ,  $p=0.001$ ). In the sample the two age groups covering the 25-49 years interval had the best frequency of BSE for lumps (table 1).

Breast self examination for lumps frequency	Age Groups				Total
	15-24	25-34	35-49	50+	
Monthly	25.0	41.7	46.1	37.4	38.0
Every 3 months	4.9	13.8	20.7	7.9	12.2
Every 6 months	12.9	6.7	5.5	8.8	8.3
Annually	14.3	16.1	10.2	13.7	13.5
Never	42.9	21.7	17.6	32.2	28.0
Total	100	100	100	100	100

**Table 1. Breast Self-Examination for nodule presence by age group**

**1.2 Mammography (MM)**

Only 15% (127) from the interviewed women had had a mammography. The proportion of women in the age group under 44 years who had had a mammography is almost double (66.2%) compared with the proportion in the group 44 years and older (33.8%). The Pearson  $\chi^2$  test indicates a significant difference between the two age groups in respect of mammography history ( $\chi^2 = 10.5$ ,  $df=1$ ,  $p=0.001$ ).

**1.3 Identification of women with low regard to mammography**

Analysing the magnitude and significance of the logistic equation coefficients (table 2) we found that the binary regressive model indicates that education level was not a significant factor in determining mammography concern. The other three factors, income, age group and information sources, were significant. The income level was the most influential factor when income was high. The odds of a woman with a high income level receiving a mammography were increased by a factor of 11.0 (Wald=10.4,  $df=1$ ,  $p=0.001$ ), compared with women whose income level is low. The odds of a woman with medium income level receiving a mammography were increased by a factor of 1.6 (Wald=3.8,  $df=1$ ,  $p=0.049$ ), compared with women whose income level is low. The second significant factor was the age group. If the subject was in the group 44 years and over, the odds of the woman having a mammography were increased by 2.1 (Wald=14.4,  $df=1$ ,  $p<0.001$ ).

The third significant factor was the source of information (Wald=4.7,  $df=1$ ,  $p=0.030$ ). The odds of receiving a mammography were increased by a factor of 1.5 for a woman informed from reliable sources (medical staff advice) rather than a woman informed from

unreliable sources (advice of friends).

**2. SCREENING FOR CERVICAL CANCER**

**2.1. Babeş-Papanicolau test (PAP)**

In the sample, 69.4% of the women either had never been screened or had not been screened in the last ten years. The distribution by age groups (before or after 35 years), of time interval since the last Pap test, were significantly different ( $\chi^2 = 26.1$ ,  $df=3$ ,  $p<0.01$ ). Among all the women who had had a PAP in the last 3 years, only 52.0% were over 35 years of age and this represented only 17.4% of the total of investigated women over 35 years of age.

The main reason claimed by the respondents for not having a Pap test was the lack of medical advice (23.8%). Some of the women justified themselves because they did



not need the test, being healthy (19.4%) or not sexually active (7.6%). A proportion of 15.3% did not even know about the existence of the Pap test.

**Table 2. Significant coefficients of the binary logistic model of mammography history**

Variables	B	p	Odds Ratio OR	95.0% CI for OR	
				Lower	Upper
Age 44 years and over	0.786	0.000	<b>2.1</b>	1.4	3.2
INFORMATION					
Fair	0.152	0.857	1.1	0.222	6.1
Reliable	0.438	0.030	<b>1.5</b>	1.0	2.2
INCOME					
Medim	0.513	0.049	1.6	1.0	2.7
High	2.4	0.001	<b>11.0</b>	2.5	47.1

**2.2. Routine gynaecological examination**

Among sexually active women, 49.1% had had a routine gynaecological examination in the last three years. Only 9.4% had had that examination in the last 4-5 years prior to our inquiry and 32.9% reported having had it in the last 10 years or never.

In most cases, the gynaecological examination was received on the following occasions: pregnancy evaluation, oral contraception advice, placing an intra-uterine device, health problems. Among the women up to 35 years of age who never go to the gynaecologist, most are aged 15-24, just at the beginning of their sexual life. The Pearson  $\chi^2$  test indicated significant differences ( $\chi^2=46.0$ ,  $df=3$ ,  $p<0.01$ ) when taking into account the age distribution of women (after/before 35 years) in relation to the time interval since their last gynecological examination. The proportion of women who reported over 10 years (or never) since their last gynecological examination was higher for women over 35 years of age.

Statistically, the two events, routine gynaecological examination and Pap test, were not independent ( $\chi^2=390.1$ ,  $df=9$ ,  $p<0.01$ ). 93.5% of the women who had had their last routine gynaecological exam in the last 10 years or never also had had their last Pap test in the previous 10 years or never.

**2.3. Identification of women with low regard for the Pap test**

The logistic model indicated significant factors that could influence the chance of having a Pap test (table 3). The logistic model coefficients B indicated significant factors that can influence the chance of receiving a Pap test. We can notice from table 3, looking to the OR values, that the odds of the woman receiving a PAP test were increased by a factor of 1.6 by the woman being informed from reliable rather than unreliable sources. The model also indicated an increase by a factor of 1.4 of the odds of receiving a Pap test by being a woman with a history of abortions rather than a woman who had never had an abortion.

**Table 3. Multivariate binary logistic model regarding PAP test**

Variables	B	p	Odds Ratio OR	95.0% C.I.for OR	
				Lower	Upper
INFORMATION					
Fair	0.459	0.506	1.5	0.409	6.1
Reliable	0.490	<b>0.008</b>	<b>1.6</b>	<b>1.1</b>	<b>2.3</b>
ABORTION -					
Yes	0.390	<b>0.034</b>	<b>1.4</b>	<b>1.0</b>	<b>2.1</b>
EDUCATION					
Medium	0.365	0.1	1.4	0.843	2.4
High	0.653	<b>0.020</b>	<b>1.9</b>	<b>1.1</b>	<b>3.3</b>

The odds of receiving a Pap test were increased by a factor of 1.9 for those with a high level of education compared with those with a low a level of education. The income and age group were not significant factors.

**3. ATTITUDINAL BARRIERS TO GYNECOLOGIC CARE – FOCUS GROUPS**

Two different aspects were identified during the interviews. First, the older women from both focus groups were still influenced by the manner in which gynecological examinations were imposed during the communist period, where the goal was in fact the early discovery of a pregnancy and presumed intentions for illegal abortion. Before 1989, abortion was prohibited in Romania, as part of the pronatalist state policies to increase birthrates, and these examinations often took place in nonmedical settings, situated near the work place.

Of course, the health of these women was the least aim of these procedures, the main being, as underlined above, the early detection of pregnancy in order to oblige the woman to keep the baby and not to make use of a clandestine abortion. Monthly gynecological examinations for all women of childbearing age were instituted, even for pubescent girls, to identify pregnancies in the earliest stages and to monitor pregnant women to ensure that their pregnancies came to term. Miscarriages were to be investigated and illegal abortions prosecuted, resulting in prison terms of one year for the women concerned and up to five years for doctors and other medical personnel performing the procedure. V.F.P. (51 years, post university studies) said: "I already had two children and didn't want another, so me and my husband carefully used the calendar method, condom and coitus interruptus. At the place where I worked, they came in Autumn and Spring, as if for animals. The 'examination hall' was, in fact, one of the factory's offices; we formed a queue, in the cold, like frightened cattle. I know things have changed, but I cannot get rid of a certain psychosis when the time for a gynecological examination comes."

The second problem identified in both focus groups was the very low level of gynecological awareness of the women. We quote two of the most interesting affirmations:





1. "You go to the doctor only when something is not working well."
2. "The position is not very pleasant; the doctor does his job and has no time to talk to us. So someone should prepare us psychologically, in order to be able to climb on to the examination table without any embarrassment."

#### 4. ATTITUDES REGARDING GENITAL AND BREAST HEALTH - LATENT CLASS ANALYSIS APPROACH

The previous analysis approached separately the knowledge and awareness of cervical and breast cancer screening. In this analysis we intended to identify a more general classification of attitudes and practices, taking into consideration several attitudinal variables at the same time, as well as their relationship.

In a preliminary step we had a look at the simple 2x2 contingency table of the Pap test history versus Mammography test history. Only 5.1% of the women had had both the Pap test and mammography and 72.2% of the women had had no Pap test and no mammography. The rest of the women had had a Pap test or a mammography, but not both. A more insightful and complex perspective was provided by latent class cluster analysis, which is a special method for analyzing the segmentation of the subjects into exclusivist clusters of attitude, expressed by response patterns of multiple indicator variables.

The best fit model was selected by the minimal value of AIC criterion (AIC= 5649.4) that corresponded to a four classes model. The analysis of the profile conditional probabilities, which showed how the clusters were related to the nominal or ordinal indicator variables and the cluster membership probabilities, provided an explanation of the respondent's attitude, using four segments (table 4).

**Table 4. Segmentation of genital and breast health attitudes Latent class analysis profile probabilities**

Variables and Clusters	Cluster 1	Cluster 2	Cluster 3	Cluster 4
<b>MAMM</b>				
No	0.842	0.999	0.610	0.997
Yes	0.158	0.001	0.390	0.003
<b>BREAST</b>				
Monthly	0.493	0.166	0.764	0.000
Every 3 months	0.192	0.121	0.153	0.000
Bi annual	0.115	0.136	0.047	0.004
Annual	0.134	0.298	0.029	0.088
Never	0.067	0.278	0.007	0.908
<b>PAPTEST</b>				
No	0.987	0.751	0.514	0.969
Yes	0.013	0.249	0.486	0.031
<b>GYNINTERVAL</b>				
0-3 years	0.082	0.994	0.996	0.009
4-5 years	0.219	0.007	0.004	0.058
6-10 years	0.179	0.000	0.000	0.115
>10 years or never	0.521	0.000	0.000	0.818

The first and fourth clusters, containing 34.3% and 16.6 % of the subjects respectively, had similar attitudes regarding mammography and Pap test, with very high probabilities of having not had such tests as follows: 0.842 in cluster 1 and 0.997 in cluster 4 for mammography and 0.987 in cluster 1 and 0.969 in cluster 4 for the Pap test.

The two clusters were different in respect of breast self-check. In cluster 1 the probability of monthly breast check was high,  $p=0.493$  in comparison with the cluster 4, where the probability was almost nil, because the probability in this cluster of never having had a breast check was high, at 0.908. In both clusters the profile probability of having had the last gynaecologist visit 10 years ago or never was high or very high,  $p=0.521$  in the cluster 1 and  $p=0.818$  in the cluster 4.

We could name the number 1 cluster as the "**breast aware only**" segment (as they had frequent breast self-examinations but did not have visits to a gynecologist and were not concerned with Pap tests and mammography) and the number 4 cluster as the "**unconcerned**" segment (no breast examination, no gynecologist visits, and no Pap tests or mammography).

The other two clusters, 2 and 3, had magnitudes of 21.7 % and 27.4 % of the subjects. They were similar in respect to the history of their visits to the gynaecologist, because their profile probabilities to having had such visits in the last 3 years are almost equally high, at 0.994 and 0.996 respectively. Cluster 3 is different from cluster 2 due to its moderate probabilities to having had a mammography ( $p=0.39$ ) and Pap test ( $p=0.48$ ) and its high probability for monthly breast check ( $p=0.76$ ). This number 3 cluster was "**generally aware**" (as they were to an acceptable degree aware about all four health care aspects) while cluster 2 was a "**genitally aware only**" cluster (because they were only concerned about the visits to the gynaecologist, but not with breast self-examination, Pap and mammography tests).

#### Discussion Breast healthcare

The American Cancer Society (ACS) recommends that women age 20 and over perform monthly breast self-examination (BSE) and have a clinical breast examination every 3 years. Women who are sexually active or who have reached the age of 18 obtain an annual Pap test [18]. The women from Romania from urban areas included in our study have a low compliance with such recommendations.

A cohort study in Finland suggested breast self-examination to be of benefit at all ages as did a case-control study in Canada [19,20]. About 80% of breast cancers not discovered by mammography are discovered by women themselves [21]. Identification of two vulnerable age groups 18-24 years and age 50 years and older, where monthly breast self-examination is most infrequent and total absence of any examination is very high, can be explained by the lack of knowledge for young people and the decrease in own body preoccupation as age increases. We find two attitudes frequently



encountered. The first one is: "I'm a young person. This means I'm healthy and this is why I don't need to be aware." The second is the opinion that after a certain age when "elderly", being concerned about how you look is a kind of "frivolity". In this latter perception, touching and palpating the breast has a sexual connotation that in the Romanian cultural third age, is considered embarrassing, especially for women. This is an informational and cultural confusion and an attitudinal pattern that requires increased attention in formulating educational health care messages at micro-social (family, school, peer to peer groups) and macro-social (national health policies) levels. The belief that preoccupation with one's own body or that body self-examination denotes superficiality can act as a barrier to breast and cervical cancer screening.

In Romania there is no national study to show the proportion of women receiving mammography. A national health survey study in the USA (1994) shows that about 50% of the women over 50 years reported having had a mammography in the last 2 years, the proportion of women from low educational levels receiving mammography being significantly lower. The studies revealed that the women at high cervical cancer risk are those with a low educational level and consequently with a low income and no health insurance and also with poor compliance with the cancer screening recommendation programs. The main reasons for the lack of presentation for screening presentation were the belief that it is not required if you do not have health problems or just an unmotivated delay [22-24].

The fact that in our sample only 15% of respondents received mammography and that this proportion is almost double for women aged under 44 years is a warning. Binary logistic regression analysis highlights the following aspects. Education level is not a significant factor in determination of mammography concern, but if the sources of information are at a reliable level (qualified medical advice) this increases significantly the probability of the women having a mammography. As the income level increases from low to high the mammography probability increases. Subjects in the 44 years and over age group have increased odds of having a mammography.

#### **Pap test**

The results show an under-representation of women included in the optimal standard of gynaecological healthcare, focused on the discovery of the early onset of cervical cancer. All the statistical analysis methods we used confirmed that information sources, income and education are the main factors influencing the attitude of women towards Pap testing. Women with a positive attitude use authorized information sources (doctors, medical magazines) and have a high level of income and education. From discussions with gynaecologists, we found a possible explanation for the fact that women having an abortion also have a greater chance of doing a pap test: the test is usually recommended to women

coming to gynaecology cabinets for the purpose of an abortion.

The direct association between screening program non-compliance and age can be explained partially by the medical care providers' decrease in recommendation and degree of promotion regarding the benefits among elderly women [24-26] of cancer screening at every 1-3 years. The authors who have determined, by statistical models in terms of costs and benefits, the age when breast cancer screening should be stopped for elderly women, have indicated that after age 75 there are not many screening benefits [27-29]. Some guidelines do not explicitly include mammography for women aged over 75 years. However, if we think of the life expectancy of different social groups, such a limit is disputable and can result in discrimination. Cancer screening guidelines and health care policies must focus mainly on inequities regarding health along the life cycle [30,31].

#### **Routine gynaecological examination**

Our study shows that less than half the interviewed women have received a routine gynaecological examination in the last three years (2005-2007). The proportion of women who reported over 10 years (or never) since their last examination is higher for women over 35 years. Almost all the women who had had the last routine gynaecological exam in the last 10 years or never also reported that they had had the last Pap test in the last 10 years or never. The conducted focus groups revealed the fact that the Romanian women are still

under fear of and anxiety about the manner in which gynaecological examinations were imposed during the communist period, where the goal was in fact the early discovery of a pregnancy when abortion was banned in Romania. Because embarrassment and anxiety about not visiting the gynecologist were reasons invoked by the women during the interviews, it is necessary to make some improvements in the relationship between the patient and the gynecologist and of the communication with the family doctor. The gender of the gynecologist seems to be a very sensitive issue, the women preferring to have a woman gynecologist [32,33]. The educational belief that until marriage women are not advised to expose their sex organs and to visit gynecologists may lead to embarrassment and a new barrier to the preventive screening. The preventive health care culture becomes a problem which requires constant attention in the area of health policies.

#### **Breast and genital healthcare**

Some studies revealed that in the last 5 years mammography examination was associated with the Pap test [34]. Our research did not reveal such association, since about three quarters of the women had no Pap test and no mammography. The analysis indicates a more intense preoccupation with breast self-examination and a poor concern for gynecological examination among women aged over 44 years. The degree of concern about all screening procedures for genital and breast health increases when the educational level increases. We



should note that among women with a high income level the category of “unconcerned” about all the procedures (gynecological examination, breast self examination, PAP test, mammography) is missing.

The conclusions do not bring spectacular breakthroughs, because it is already very well known that women with a low income and little education are less likely to undergo cervical screening. However, there are at least two aspects cleared up. The first is that the high rate of mortality through cervical cancer in Romania is not the consequence of a certain genetic pattern specific to this geographical and ethnic region. Women from Romania and not only, [35] die because they go to the doctor only in symptomatic stages, when the disease is late in its evolution. The second aspect is related to the population to be especially targeted by national screening programs, namely low income and low education women from urban and rural areas. It is of utmost importance to bring equity in this field and to give equal knowledge to all women. Health promotion programs will be the only real chance to bring women to the gynaecological practice for screening procedures and, also, the chance to convince them to allow the vaccination program in schools to be carried out as planned.

#### Limitations of the Study

This study has limitations and a finite scope. Some of the limitations were imposed by time and budget constraints. The limitations of this study include external validity, or the generalizability of the study. There were only 848 participants who participated in the complete study, and each participant was selected from urban area, and was difficult to find significant relationships from the data, as some of used statistical tests normally required a larger sample size to ensure a representative distribution of the population and to be considered representative of groups of people to whom results will be generalized or transferred.

The study was based on self-reported data and recall. Therefore was also limited by the fact that self-reported data and recall rarely can be independently verified. Recall data bias was thus a potential sources of reporting error.

#### Conclusion

In Romania the nongovernmental organizations supporting breast and cervical cancer prevention conduct consistent information campaigns about the benefits of routine gynecological examinations, Pap tests, BSE, MM and breast echography. The resonance of these is perceived in the field to a large segment of population but does not reach the small towns or rural areas. The culture of prevention and the healthy life style are acquired large extent in the family. The best results have been obtained in countries that have extended the early detection of cervical and breast cancer by screening vulnerable women in regard to age, poverty, low level of education, racial or ethnical minority status.

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#### **AUTHORS' CONTRIBUTIONS**

Athors contributed equally to all aspects of the study.

#### **PEER REVIEW**

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#### **CONFLICTS OF INTEREST**

The authors declare that they have no competing interests