



Marketing communication in the area of breast and cervical cancer prevention

Marketinška komunikacija u oblasti prevencije karcinoma dojke i grlića materice

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Abstract

Background/Aim. Innovative marketing campaigns and promotional activities can successfully contribute to the improvement of public health by raising the level of general knowledge about health issues and benefits that the change of habits, eradication of undesirable behaviour and regular medical controls have. The focus should be on continuous marketing communication through various mass media or direct communication between medical staff and patients. The aim of this paper was to define the role that various communication channels have in the process of informing and educating the target group in case of breast and cervical cancer prevention. **Methods.** The survey based on polling a sample of 2,100 female patients of the Serbian Railways Medical Centre was conducted in the period October–December 2013. The questionnaire included questions about demographic characteristics, prevention habits of women, their level of information on that topic and communication channels they prefer. **Results.** There is a difference among respondents' awareness level about preventive measures depending on demographic and geographical criteria. The results indicate the existence of variations in frequency of performing gynaecological examinations and Pap

tests depending on different age, educational and residential groups. Although the largest percentage of women stated familiarity with the way of performing breast self-examination (78%), the majority of them had never performed mammography or ultrasonography (67%). The greatest number of women were informed about the possibility of preventing breast and cervical cancer by posters or brochures in health institutions (71%) and mass media – television on the first place (74%), then specialized magazines about health (48%), radio (48%), web sites about health (42%), and daily newspapers (34%). The respondents consider the Ministry of Health and health institutions as the most responsible subjects for education of women about cancer prevention, while the self-initiative was given the least importance. **Conclusion.** Determined informing habits of the target group, their prevention habits and attitudes on the subject should be used as the basis for planning and implementation of prevention marketing campaigns that would be the most effective.

Key words:
breast neoplasms; uterine cervical neoplasms; health promotion; communications media.

Apstrakt

Uvod/Cilj. Inovativne marketinške kampanje i promotivne aktivnosti mogu uspešno uticati na poboljšanje zdravstvenog stanja stanovništva kroz podizanje nivoa njihove opšte informisanosti o zdravstvenim problemima i koristima koje menjanjem navika i iskorenjivanjem nepoželjnog ponašanja stiču. Fokus bi trebalo da bude na kontinuiranoj marketinškoj komunikaciji putem različitih masovnih medija ili direktnom komuniciranju medicinskog osoblja sa bolesnicima. Cilj rada bio je definisanje uloge koju različiti kanali komunikacije imaju u procesu informisanja i obuke ciljne grupe u slučaju karcinoma dojke i grlića materice. **Metode.** Istraživanje je sprovedeno anketiranjem uzorka od 2 100 bolesnica

Zavoda za zdravstvenu zaštitu „Železnice Srbije“ u periodu oktobr/decembr 2013. godine. Upitnikom su obuhvaćena pitanja važna za ispitivanje demografskih karakteristika, preventivnih navika kod žena, stepena njihove informisanosti i kanala komunikacije koji im odgovaraju. **Rezultati.** Ustanovljeno je da postoji razlika u nivoima svesti ispitanica o preventivnim merama u zavisnosti od demografskih i geografskih kriterijuma. Rezultati su ukazali na postojanje varijacija u učestalosti obavljanja ginekoloških pregleda i Papanikolau testova u zavisnosti od godina života, obrazovne stukture i mesta stanovanja. Iako je najveći procenat žena upoznat sa načinom obavljanja samopregleda dojke (78%), većina njih nikada nije izvršila mamografski ili ultrasonografski pregled (67%). Najveći broj žena obavešten je o mogućnostima pre-

vencije karcinoma dojke i grlića materice putem plakata i brošura u zdravstvenim ustanovama (71%), a zatim masovnih medija – televizije na prvom mestu (74%), specijalizovanih časopisa o zdravlju (48%), radija (48%), veb sajtova (42%) i dnevnih novina (34%). Ispitanice smatraju da su Ministarstvo zdravlja i zdravstvene ustanove najodgovorniji subjekti za obuku žena iz prevencije karcinoma, da je samoinicijativi žena dat najmanji značaj. **Zaključak.** Definisane

navike ciljne grupe u informisanju, preventivne navike i stavovi o ovoj temi, trebalo bi da posluže kao osnova za planiranje i sprovođenje preventivnih marketinških kampanja koje bi imale najefikasnije rezultate.

Ključne reči:

dojka, neoplazme; grlić materice, neoplazme; zdravlje, promocija; komunikacijski mediji.

Introduction

Current statistics indicate that, worldwide, every two minutes one woman dies of cervical cancer. Globally, cervical cancer is the third most common cancer type in women – every year approximately 500,000 women are being diagnosed with it, and more than half of that number die from that disease¹. Approximately 85% of the overall number of diagnoses occurs in less developed regions where there are no organized prevention programs². According to the data pertaining to Serbia, cervical cancer represents the cause of 6% of all deaths in women. Serbia has the highest incidence of cervical cancer (24.3 *per* 100,000) in relation to all the other republics of the former Yugoslavia and one of the highest prevalence among the countries of South Eastern Europe. The incidence of cervical cancer in Serbia is two times higher than the incidence in Western Europe (10.43 *per* 100,000 women) and about three times higher than in European Union (EU) countries (where the figure is 8.1 *per* 100,000 women). Cervical cancer development shows a typical increase after the age of 30, with the most common detection in the age groups from 45 to 49 and from 70 to 74 years³.

Public health data on the global level indicate that the burden of breast cancer in women, measured by incidence, mortality and economic costs is substantial and increasing^{4,5}. Worldwide, each year more than one million women are diagnosed with it and about 410,000 will die from the disease, which represents 14% of overall female cancer deaths^{6,7}. Statistics indicates that one in eight women either already has breast cancer or will become ill during lifetime⁸. In less developed countries, breast cancer incidences rates have been reported to be increasing by 5% annually⁹. Due to the poor infrastructure and lack of resources for routine screening mammography, breast cancers are commonly diagnosed at late stages when “women may receive inadequate treatment, pain relief, or palliative care”^{10,11}. In Europe, about 129,000 women die each year, and about 370,000 are diagnosed. Breast cancer is the most common malignant tumour in women in Serbia. There are about 4,000 new cases every year and about 1,600 of them die, which makes 18% of the overall number of deaths from all cancer types⁸.

Besides underdeveloped public health infrastructure, that can limit access to preventive screenings, the reason for such prognoses, when it comes to cervical and breast cancer, lies in women’s lack of basic health education². Practice has shown that the problem of public health improvement is closely linked to the informing and education of the population in order to increase knowledge and awareness of the

public¹²⁻¹⁴, as the lack of information about prevention was reported to have been impeding women from getting tested¹⁵. At the international level, it has been proven that investments in marketing communication about prevention are more significantly associated with improved general health of the whole population than economic growth and investment in other social spheres¹⁶. The results suggest that the higher awareness level about prevention can lead to improved health outcomes in developing countries¹⁷, such as Serbia. Although developed countries place greater attention to intensive and continual marketing campaigns dedicated to health promotion, in Serbia, conventional approaches still dominate, which are related to the rehabilitation and cancer treatment rather than disease prevention. By using mass media, which includes television, radio, print, a range of visual media, and the Internet, which can efficiently “disseminate accurate health information, promote changes in public attitudes toward health, and ensure the continuity of new health behaviours”¹⁸, health communication nowadays has been significantly advanced and facilitated¹⁹. There are various empirical evidences in the existing literature that marketing communication campaigns have been effective in improving either cervical screening or mammography and achieved the diffusion of adequate knowledge, increase of awareness and understanding^{15,20-23}. So, if properly planned and implemented, marketing communication in the field of prevention has a tendency to influence the general public and lead to the change of social consciousness and timely recognition of the health problems²⁴, so the mortality rate of certain types of malignancies, including breast and cervical cancer, would be significantly reduced. Therefore, the aim of this paper is to define the importance that various communication channels have in the process of informing and educating women in Serbia in case of breast and cervical cancer prevention.

Methods

The survey based on polling a sample of 2,100 female patients of the Serbian Railways Medical Center was conducted in October, 2013. The female patients were given the questionnaire to fill in while waiting for the examination. The condition of eligibility was that women were older than 20. No other condition was required. The survey instrument was developed based on thorough literature review on this topic. The survey instrument was used to examine the following issues: demographic characteristics; knowledge of ways to prevent cervical and breast cancer; past history of gynaecological examinations and the Papanicolau (Pap)

tests; past history of mammogram screenings; past history of performing breast self-examination; main sources of information about prevention of cervical and breast cancer; significance of different mass media in preventive communication; the most responsible subjects for incitement of cancer prevention education programmes. Entire data analyses were performed by using the SPSS statistical software.

Results

The sample was structured by age into four groups: from 20 to 29 years (31% of the respondents), from 30 to 39 years (21%), from 40 to 49 years (16.05%) and 50 years or more years (31.95%). A greater percentage of the respondents (68.95%) came from urban areas, while the rest (31.05%) lived in rural areas in Serbia. In terms of education, the approximate percentages of the sample have completed their secondary school education (44.04%) and higher education (41.96%), while the remaining 14% finished only primary school.

First, we examined the association between demographic characteristics of the sample and habits of performing gynaecological examinations and the Pap test. The frequency of the respondents' answers is shown in Table 1.

had 50 or more years went to gynaecological examination once a year, and this was definitely the dominant answer. The Pap test was always performed by almost 60%, which makes this age group the most responsible, regarding this issue ($\chi^2 = 131.388$, $df = 9$, $p < 0.01$). Considering the fact that they are at the higher risk, greater awareness of preventive behaviour is desirable and comprehensive. From the perspective of areas that the respondents come from, it can be concluded that there were some variations in responses, although not statistically significant. Contrary to our expectations, a greater number of women from rural areas stated that they went to regular gynaecological examination in comparison with women from urban areas. But, when it comes to regular performing of Pap test, women from urban areas lead (62.28% of them), in comparison to women in rural areas (35.48%). The results indicated the existence of statistically significant differences in the frequency of performing gynaecological examinations observed by education level ($\chi^2 = 237.633$, $df = 6$, $p < 0.01$). More than 70% of university educated women claimed to do annual gynaecological examination, almost the same percentage regularly did Pap test. When it came to women with secondary education, the survey results indicated that the greatest percentage did annual gynaecological examination. Pap test was a regular item for

Table 1

Characteristics of respondents	Performing cervical cancer preventive activities						
	Gynecological examination, n (%)				Pap test, n (%)		
	More than twice	Twice	Once	None	Always	Not regularly	Never
Age (years)							
20–29	83 (12.74)	128 (19.65)	336 (51.61)	104 (16.00)	335 (51.46)	273 (41.93)	43 (6.61)
30–39	64 (14.53)	96 (21.75)	210 (47.62)	71 (16.10)	229 (51.93)	168 (38.09)	44 (9.98)
40–49	21 (6.24)	84 (24.92)	189 (56.08)	43 (12.76)	168 (49.85)	126 (37.39)	43 (12.76)
≥ 50	23 (3.43)	61 (9.09)	482 (71.83)	105 (15.65)	398 (59.31)	188 (28.02)	85 (12.67)
Area							
urban	152 (10.50)	272 (18.78)	813 (56.15)	211 (14.57)	901 (62.21)	440 (30.39)	107 (7.40)
rural	63 (9.66)	64 (9.81)	399 (61.21)	126 (19.32)	231 (35.43)	316 (48.47)	105 (16.10)
Education							
primary	8 (2.72)	14 (4.76)	136 (46.26)	136 (46.26)	23 (7.82)	203 (69.05)	68 (23.13)
secondary	49 (5.30)	140 (15.13)	609 (65.84)	127 (13.73)	504 (54.49)	315 (34.05)	106 (11.46)
high	56 (6.36)	108 (12.26)	635 (72.08)	82 (9.30)	594 (67.42)	246 (27.93)	41 (4.65)

The research results indicate that more than half of women who belonged to the age group of 20 to 29 years, in most cases, performed gynaecological examination annually. More than half of those who regularly went for check-ups always did Pap test, more than 40% sometimes and the least of them never. When it came to the age group of 30 to 39, the results are similar, as the majority of women in this group also went to gynaecological examination once a year. More than half of them did Pap test regularly, a great percentage sometimes and less than 10% never. Approximately 16% of the members of this age group did not go to the gynaecologist at all. Among women aged 40 to 49, the highest percentage went to annual examinations and the quarter twice a year. The Pap test was done regularly by half of them and sometimes by almost 40%. More than 70% of women who

more than half of them, for more than one third occasional, while the rest did not consider that it should be done. Equal percentages of women (46.19%) who had only primary education performed gynaecological examinations once a year and never. Sixty nine percent of women within this age group were not examined for the Pap test regularly, while only 80% of them did it every year. The percentage of those who had never performed it was significant (23.00%). The results show a significant association between educational level and performing regular Pap testing, thus the higher the level of education was, women were more aware of the necessity of prevention and, therefore, preventive habits were more developed ($\chi^2 = 327.906$, $df = 4$, $p < 0.01$).

The results indicate that the largest percentage of respondents from all age categories were familiar with the way

of performing breast self-examination, which was especially obvious in case of the oldest group (96.90%). The percentage of women who performed self-examination was slightly higher in urban than in rural areas. The awareness of the necessity of performing self-examination increased with the level of education. Within the group of women with only primary education, the percentage of those who were not familiar with this type of examination was higher – 61.48%. A total of 8% of women with secondary education were familiar with the way of carrying out this examination, as well as 95% of those with higher education. Table 2 shows the results of breast cancer preventive measures.

from urban areas, the main sources of information were medical providers and then media and none of them were uninformed. In rural areas, the highest percent of respondents had received the information by the media, significantly less (close to 20%) by medical providers, while more than 6% stated not to be informed about this topic at all. From the perspective of the educational structure of the sample, women with primary education were mostly informed by the media, slightly fewer by the staff in medical institutions, then by family members and friends, while close to eight percent were not informed about prevention possibilities. Women with secondary education were also mostly informed about

Table 2

Characteristics of respondents	Performing breast cancer preventive activities			
	Breast self-examination, n (%)		Mammography / Ultrasonography, n (%)	
	Performed	Never performed	Done	Never done
Age (years)				
20–29	447(68.66)	204 (31.34)	85 (13.06)	566 (86.94)
30–39	315 (71.43)	126 (28.57)	106 (24.04)	335 (75.96)
40–49	261 (77.45)	76 (22.55)	125 (37.09)	212 (62.91)
≥ 50	650 (96.87)	21 (3.13)	377 (56.19)	294 (43.81)
Area				
urban	1218 (84.12)	230 (15.88)	669 (46.20)	779 (53.80)
rural	484 (74.23)	168 (25.77)	168 (25.77)	484 (74.23)
Education				
primary	181 (61.56)	113 (38.44)	67 (22.79)	227 (77.21)
secondary	740 (80.00)	185 (20.00)	371 (40.11)	554 (59.89)
high	839 (95.23)	42 (4.77)	264 (29.97)	617 (70.03)

A high percentage of women of all age groups had never performed mammography or ultrasonography, although it was significantly lower in case of women that had 50 or more years. There was a statistically significant relation between age categories and performing of mammography or ultrasonography ($\chi^2 = 298.817$, $df = 3$, $p < 0.01$). Although this habit is not highly established among respondents, it is obvious that older women are more likely to do mammographic checks than younger ones. The percentage of women who had done mammogram screening was higher in urban areas than in rural, but it remained evident that the overwhelming percentage of the women had never performed this type of examination. In the group of women with only primary education, more than one fifth of them had done this type of examination so far, as well as two fifths of women with secondary and one third of women with higher education.

The largest number of women of all ages had been informed about the possibility of preventing breast and cervical cancer by the media – more than 60% of those who belonged to the first three age groups and 40% of women older than 50. Medical providers were identified as the second important source of information in case of all four age groups. Among women aged 20 to 39, there were no uninformed about these issues, while some percent of women older than 40 identified themselves as uninformed. Family and friends were stated to be the third important source of information, while the least importance was given to lecturers at schools/universities or work places. For women who came

prevention by the media and by medical providers. A small percentage had an opportunity to listen to lectures about prevention at work or at school and get informed by family and friends, while 2% were not informed at all. Women with higher education preferred to get information by the media, but consider medical providers being also a significant source of information. Approximately 14% had listened to lectures on this topic at work/university. Family and friends were not noted as important source of information. There are not uninformed within this educational category (Table 3).

When it comes to information by television, a great number of respondents (74%) had the opportunity to watch TV programs dedicated to the prevention of cervical and breast cancer, while 17% saw such programmes only during special media campaigns dedicated to these topics. A small number of respondents were not interested in watching this type of content on television, while 2% believed that national television stations lacked this type of content. Radio programmes dedicated to the prevention of cervical and breast cancer had been listened so far by less than half of women and one fifth of them only during specific campaigns. A small percentage was not interested in listening to the radio content of this type, even though they had had a chance to do it, while a bit more than one fifth of women stated that radio stations generally lacked information of this type. When it comes to information by printed media, more than one third of respondents had the opportunity to read the articles dedicated to prevention of breast and cervical cancer in daily

Table 3

Sources of information on cancer prevention					
Characteristics of respondents	Media n (%)	Medical providers n (%)	Lectures at the school/ university/ workplace n (%)	Family/ friend n (%)	Not informed n (%)
Age (years)					
20–29	400 (61.44)	143 (21.97)	37 (5.68)	71 (10.91)	0 (0.00)
30–39	287 (65.08)	106 (24.04)	32 (7.26)	16(3.62)	0 (0.00)
40–49	207 (61.42)	81 (24.03)	20 (5.93)	11 (3.26)	18 (5.36)
≥ 50	274 (40.84)	273 (40.68)	35 (5.22)	59 (8.79)	30 (4.47)
Area					
urban	504 (34.81)	776 (53.59)	79 (5.45)	89 (6.15)	0 (0.00)
rural	420 (64.42)	126 (19.32)	5 (0.77)	58 (8.89)	43 (6.60)
Education					
primary	126 (42.87)	110 (37.41)	10 (3.40)	27 (9.18)	21 (7.14)
secondary	525 (56.77)	315 (34.05)	41 (4.43)	25 (2.70)	19 (2.05)
high	526 (59.71)	198 (22.47)	116 (13.17)	41 (4.65)	0 (0.00)

newspapers and near half in specialized magazines about health. A small number of women were not interested to read this type of articles in the press, while the lowest percentage considered that not enough attention was paid to these issues in national newspapers and magazines. Forty two percent of women had informed themselves about preventive measures on sites dedicated to health and one fifth of them on the official sites of medical institutions. Health information on social networks, blogs and forums were followed mostly by younger women, while a quarter of respondents had never read about these topics on the Internet. The highest percent-

age of women (84%) had seen posters about prevention in health facilities or was given brochures with such content. Among them, more than seventy percent read the promotional material in detail, while the others were not interested in reading it. Near sixteen percent of respondents stated that they had never seen nor received promotional material of this type in medical institutions (Table 4).

In relation to the attitude of respondents regarding the most responsible subjects for the education of women about cancer prevention, in most cases these were health institutions and the Ministry of Health (Table 5).

Table 4

Informing about cancer prevention through different media	
Response	n (%)
Informing about cancer prevention through television	
Yes, by watching TV documentaries about prevention	1,554 (74.00)
Yes, but only during special campaigns	357 (17.00)
Not interested in watching such content	146 (6.95)
There is lack of such content on television	43 (2.05)
Informing about cancer prevention through radio	
Yes, by listening program about prevention	1,007 (47.95)
Yes, but only during special campaigns	421 (20.05)
Not interested in watching such content	126 (6.00)
There is lack of such content on radio	546 (26.00)
Informing about cancer prevention through print media	
Yes, in daily newspapers	714 (34.00)
Yes, in health magazines	1,012 (48.28)
Yes, but only during special campaigns	122 (5.72)
Not interested in watching such content	168 (8.00)
There is lack of such content in printed media	84 (4.00)
Informing about cancer prevention on Internet	
Yes, on web sites dedicated to health	884 (42.09)
Yes, on web sites of health institutions	418 (19.91)
Yes, on social networks, blogs and forums	275 (13.09)
Not interested in searching such content	523 (24.91)
Informing about cancer prevention through posters and brochures	
Yes, and read it with interested	1,498 (71.33)
Yes, but without interest to read it	270 (12.86)
Never given to	332 (15.81)

Table 5

Role of different subjects in informing and education about cancer prevention				
Characteristics of respondents	Ministry of Health n (%)	Health institutions n (%)	Media n (%)	Self-initiative of women, n (%)
Age (years)				
20–29	252 (38.71)	189 (29.03)	194 (29.80)	16 (2.46)
30–39	84 (19.04)	231 (52.39)	126 (28.57)	0 (0.00)
40–49	105 (31.16)	190 (56.38)	21 (6.23)	21 (6.23)
≥ 50	168 (25.04)	287 (42.77)	6 (0.89)	210 (31.30)
Area				
urban	440 (30.39)	566 (39.09)	170 (11.74)	272 (18.78)
rural	168 (25.77)	336 (51.53)	42 (6.44)	106 (16.26)
Education				
primary	113 (38.43)	113 (38.43)	45 (15.31)	23 (7.83)
secondary	85 (9.19)	546 (59.03)	105 (11.35)	189 (20.43)
high	409 (46.43)	246 (27.92)	164 (18.61)	62 (7.04)

There was a statistically significant relation between age categories and attitudes towards the most important subjects, as these two variables were highly associated ($\chi^2 = 648.545$, $df = 9$, $p < 0.01$). A greatest percentage of women who belonged to the age group of 20 to 29 believed that the Ministry of Health played a major role, followed by the media and healthcare institutions. Less than 3% of younger respondents stated that every woman should educate herself on her own initiative. Women aged 30 to 39 thought that the main role belonged to health care institutions, more than to media and the Ministry of Health, while the initiative was not on women themselves. Women aged 40 to 49 also stated that health care institutions played the main role in education, then the Ministry of Health, media and women themselves. Women over 50, considered the role of health care institutions as the most important, but almost a third highlighted the importance of taking self-initiative. A quarter of women within this age category considered that the Ministry of Health had a fundamental role in encouraging the education of women in the area of cancer prevention.

The largest percentage of respondents from both, urban areas and rural areas, believed that health care institutions were the most responsible, followed by the Ministry of Health. Respondents from urban areas noted the role of the media and self-initiated education of women as less important. Women from rural areas valued more the role of women self-initiative than the role of the media. From the perspective of the level of education, the results were as follows: women with primary education equally valued the role of the Ministry of Health and health institutions, followed by the role of the media and self-initiative of women. Women with secondary education considered that institutions played the main role (59.09%), followed by self-education of women (20.49%). Around 11% thought that the media played a major role, while 9% thought that the Ministry of Health is more responsible. Higher educated women, at most, emphasized the responsibility of the Ministry of Health, then health care institutions, media, while the lowest percentage emphasized the role of self-initiative of women. Education level is, statistically observed, found to be associated with the respondents' attitudes towards the most important subjects in

the process of prevention information and communication ($\chi^2 = 415.362$, $df = 6$, $p < 0.01$).

Discussion

The results of the survey indicate that sociodemographic factors such as education and age affect individuals' choice of communication channels and preventive behaviour, as it was previously noted by some other authors²⁵. The results show that a significant percentage of women of all age groups had the habit of going to gynaecological examinations at least once a year, and that women of 50 or more years have the highest developed awareness of that. More than half of respondents always do Pap test, but it can be seen that women in rural areas have less developed awareness of doing it on regular basis. A research carried out in the USA also suggested that rural residents are less likely to receive timely cancer screening test²⁶, as well as a research carried out in Italy²⁷. A possible explanation of this finding can be in the presence of structural barriers and the larger distance from the health care provider that may limit the use of preventive care units. It is in accordance with Vernon's²⁸ statement that subjects who live close to the provider are often more likely to comply, while the others, who are rather distanced, may perceive the prevention activity, such as testing or screening, as a time consuming activity²⁹. The results also indicate that awareness towards breast and cervical cancer prevention increases observed by education level and these two variables were found to be statistically significant. Like in some other studies, higher educational level is one of the main characteristics associated with a higher level of knowledge of cervical cancer aetiology and preventive behaviour²⁹. Unlike some research results obtained in African countries, which found that women who had limited knowledge about cervical cancer, never had a Pap smear test and lacked access to screenings^{2,30–32}, we obtained better, but not satisfactory results regarding preventive behavior. It is obvious that women with lower level of education are not well informed regarding necessity of the Pap test and, therefore, greater attention should be placed on targeting that group when conducting marketing communication program.

The results indicate that the largest percentage of respondents from all age categories noticed they were familiar with the way of performing breast self-examination, but the awareness of the necessity of performing self-examination again increased with the level of education. Nevertheless, the results are not positive at all when it comes to mammography or ultrasonography, as the majority of women of all age groups had never performed them. The awareness level was higher in case of older women and there was a statistical significance of that. More women who lived in urban areas performed mammographic checks in comparison with those in rural areas, but the results are not particularly significant.

According to the results, the greatest number of women of all ages were informed about the possibility of preventing breast and cervical cancer by the media, which is in accordance with findings of some authors who came to the conclusion that mass media affect all sociodemographic groups of women²⁶. That number is much higher in rural areas than in urban, where medical providers were marked as the main sources of information. The results of previous research also showed that the mass media campaign, generally, was more effective in rural resident women²⁹. The reason for that, again, can be searched in the fact that visiting medical providers demands time, as many rural areas do not have their own health facilities. On the other hand, media-based information is easier to get without leaving home. For urban residents media-based information is playing a rather supporting role, as they find medical providers to be more reliable communication channel. Health providers were the most frequently cited information source in various research in the USA^{25, 33, 34}. One more study showed that participants reported seeing or hearing information from clinicians on the first place, then media and their family². Our results are similar to those found by authors in Vietnam, who found that older adults were more likely to use doctors as a source for cancer and cancer screening information, and that those sources had a greater influence on their screening decision than media³⁵. Younger respondents are more likely to trust the media as a referent source. Family and friends were not considered as an important source; probably as such topics are not "appropriate enough" to talk with family members and friends. In Serbia, conservative attitude regarding various health topics still exists in everyday communication, so that the issue should be rather addressed through media to encourage behaviour changes and exchange of such information among women themselves. Considering responses given in our study, it is obvious that these topics are not given enough attention at work places or at schools or universities, which should be also integrated in prevention campaigns.

When it comes to information by television, the majority of respondents had the opportunity to watch programs dedicated to the prevention of cervical and breast cancer, which makes television a leading media in this area. Such findings are consistent with other earlier ones^{15, 21, 22, 36}. While some authors considered that older generation may prefer to be informed by television programmes regarding health problems²⁵, our research shows no significant differences among age groups. That could be explained with the

fact that in Serbia television is still a dominant media at the national level. A significant percentage of women listen about cervical and breast cancer on the radio, but one quarter of women believed that radio stations actually lacked information of this type. Such findings clearly indicate that prevention information should be placed more often through radio, which is observed as the media for listening music and such "serious" topics are more often avoided to be discussed.

One third of respondents had the opportunity to read articles dedicated to prevention of breast and cervical cancer in daily newspapers and more than a half in specialized magazines about health, which makes printed media important source of information, as well. Although not considered as the most important, printed media is also one of the key channels through which the public is informed about important health issues such as cancer prevention, detection and treatment. Existing literature on news coverage of screening includes conflicting conclusions regarding the impact of news on understanding and engagement in cancer screening practices³⁷. While some authors suggested that this topic is largely ignored by the printed media³⁸, others argued that screening is widely covered³⁹. Some researches blame the printed media to cover cancer prevention stories only during awareness months⁴⁰, but our results did not reflect such situation. Nevertheless, health-promoting public bodies should work more closely with editors and journalists to ensure that the relevant messages reach wider audiences during whole year.

The significance of the internet as a valuable source of information is obvious, as 42% of women informed themselves about preventive measures on various sites dedicated to health and one fifth of them on the sites of medical institutions. There is a growing number of studies which have examined the influence of online activity in raising awareness of cancer risk and stimulating preventive behaviour⁴¹⁻⁴³. Results of previous study suggest that the internet could be an important venue for women, particularly the younger generation, to find information about breast and cervical cancer screening³³. Like we noticed, studies from other countries suggested that women receiving health information from the internet were more likely to belong to younger groups^{25, 33, 44-46}. Although highlighted by many studies to reflect an opportunity for distribution of information targeting the youth⁴⁷⁻⁵⁰, so-called 'new media' were not pointed out to be so popular among respondents in our study. Even though, among all mass media, the internet holds particular perspective as an effective platform for health communication and education, it may still be too early to use it for programmes targeting wider society groups⁵¹. Therefore, the internet may be a favourable source of information for those women who feel that they do not have time to go to the doctor's or feel that doctors do not pay enough attention just to talk with individuals. Also, web-based campaigns or targeted health messages conducted through new media could be innovative, supplementary ways to reach younger population.

The highest percentage of women (84%) in the sample noted to have the opportunity to see posters about prevention in health facilities or to be given brochures with the

same content. The majority of them read the promotional material in detail and received some new information. So, it is obviously a very significant communication channel for women in Serbia, who prefer to get informed on health issues while sitting in the waiting room in health institutions. The explanation may lie in the fact that, since they came to health care institution, they may have some problem and, therefore, become more sensitive to receive any kind of information regarding health and may take it more seriously than in other environments. Hence, future marketing campaigns should include distribution of similar promotional material as mandatory.

Surprisingly, in relation to the attitude of respondents regarding the most responsible subjects for the education about cancer prevention, the majority of women considered themselves as not responsible for taking self-initiative. In most cases these were health institutions and the ministry of health. The exception made women of 50 or older, who highlighted the importance of taking self-initiative in more than 30%, right after health institutions. Women of the first two age groups (20–39) emphasised the role of media more than older women. Such findings indicate that women who are 50 or older have the higher awareness level regarding prevention due to the fact that they may consider themselves as being at higher risk and understand the necessity of self-engagement and this appeared to be statistically significant. Nevertheless, it is obvious that marketing campaigns are absolutely necessary to be initiated by health care institutions on the national level in order to encourage health education. Media are considered to be a communication channel, not initiator of such campaigns. Also, women in Serbia, especially younger ones are not used to educate themselves in the prevention area on their own initiative, probably due to the

lower risks of developing cancer in the younger age which results in the lack of the awareness.

These findings should be used as guides for future marketing campaigns based on culturally acceptable channels of communication and informing. As stated by earlier studies, programs that use culturally admissible information sources or that address key barriers to information seeking are more likely to be effective⁵². Our objective in this study was to conduct an initial exploration of main information sources and barriers that may be particularly relevant regarding breast and cervical cancer prevention. The results may also provide a direction for future research that could address some issues, which were found to be significant, in a more detailed way.

Conclusion

Our results indicate the lack of conducting some preventive measures (mammographic screening and Pap test). The results show the differences in awareness level according to education degree of respondents. Information through posters or brochures in health facilities are considered to be the most proper communication channel on these topics. Television is still the leading media in this area, but the emerging significance of internet is also noted. When it comes to the attitude of respondents regarding the subjects that are most responsible for education of women, health institutions and the Serbian Ministry of Health are considered as most important, while there is the absence of self-initiative, especially in younger women. Since women of 50 or more expressed the highest level of awareness, future marketing campaigns should target younger groups more and use channels more appropriate to them.

R E F E R E N C E S

1. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer. Proceedings of the GLOBOCAN 2010 - Cancer Incidence, Mortality and Prevalence Worldwide. Lyon, France: IARC Cancer Base; 2010.
2. Francis SA, Nelson J, Liverpool J, Soogun S, Mofammere N, Thorpe RJ. Examining attitudes and knowledge about HPV and cervical cancer risk among female clinic attendees in Johannesburg, South Africa. *Vaccine* 2010; 28(50): 8026–32.
3. Miljuš D, Vukićević A, Živković S, Mickovski-Katalina N, Rakočević I, Plavšić S. Cancer incidence and mortality in central Serbia. Belgrade: Institut za javno zdravlje Srbije; 2007. (Serbian)
4. Coughlin SS, Ekwueme DU. Breast cancer as a global health concern. *Cancer Epidemiol* 2009; 33(5): 315–8.
5. Mackay J, Jemal A, Lee NC, Parkin DM. The cancer atlas. Atlanta, GA: American Cancer Society; 2006.
6. Parkin MD, Fernandez LM. Use of Statistics to Assess the Global Burden of Breast Cancer. *Breast J* 2006; 12(Suppl 1): S70–80.
7. Anderson BO, Yip C, Ramsey SD, Bengoa R, Braun S, Fitch M, et al. Breast Cancer in Limited-Resource Countries: Health Care Systems and Public Policy. *Breast J* 2006; 12(Suppl 1): S54–69.
8. Janković S, Gledović Z, Marković-Denić LJ. Malignant tumours: Epidemiology, aetiology and prevention. Belgrade: Medical Faculty, University of Belgrade; 2004. (Serbian)
9. Stewart B, Kleibues PE. World Cancer Report. Lyon, France: IARC Press; 2003.
10. Anderson BO, Braun S, Carlson RW, Gralow JR, Lagios MD, Lehman C, et al. Overview of Breast Health Care Guidelines for Countries with Limited Resources. *Breast J* 2003; 9(Suppl 2): S42–50.
11. Anderson BO, Braun S, Lim S, Smith RA, Taplin S, Thomas DB. Early Detection of Breast Cancer in Countries with Limited Resources. *Breast J* 2003; 9(Suppl 2): S51–9.
12. Labonté R, Schrecker T. Globalization and social determinants of health: The role of the global marketplace. *Globalization and Health*; 2007 [cited 2014 June 24]. Available from: <http://www.globalizationandhealth.com/content/3/1/6>
13. Watson J, Platt S. Researching health promotion. London: Routledge; 2002.
14. Plsek PE, Wilson T. Complexity, leadership and management in healthcare organisations. *Quality United. Br Med J* 2001; 323(7315): 746–9.
15. Bethune GR, Lewis HJ. Let's talk about smear tests: Social marketing for the National Cervical Screening Programme. *Public Health* 2009; 123(e-Supplement): e17–22.
16. Labonté R, Laverack G. From local to global empowerment: health promotion in action. Basingstoke: Palgrave Macmillan; 2008.

17. Bratt JH, Weaver M, Foreit J, De Vargas T, Janowitz B. The impact of price changes on demand for family planning and reproductive health services in Ecuador. *Health Policy Plan* 2002; 17(3): 281–7.
18. Catalan-Matamoros D. The role of mass media communication in public health. In: S' migorski K, editor. *Health Management – Different Approaches and Solutions*. In Tech; 2011 [cited 2014 Jun 24]. p. 399–414.
Available from: <http://www.intechopen.com/books/health-management-different-approaches-and-solutions/the-role-of-mass-media-communicati-on-in-public-health>
19. De Jesus M. The impact of mass media health communication on health decision-making and medical advice-seeking behaviour of U.S. Hispanic population. *Health Comm* 2013; 28(5): 525–9.
20. Pasick R, Hiatt R, Paskett E. Lessons learned from community-based cancer screening intervention research. *Cancer* 2004; 101(Suppl 1): 1146–64.
21. Mullins R, Wakefield M, Brown K. Encouraging the right women to attend for cervical cancer screening: results from a targeted television campaign in Victoria, Australia. *Health Educ Res* 2008; 23(3): 477–86.
22. Morrell S, Perez DA, Hardy M, Cotter T, Bishop JF. Outcomes from a mass media campaign to promote cervical screening in NSW, Australia. *J Epidemiol Community Health* 2010; 64: 777–83.
23. Anderson JO, Mullins RM, Stalpush M, Spittal MJ, Wakefield M. Mass media campaign improves cervical screening across all socio-economic groups. *Health Educ Res* 2009; 24(5): 867–875.
24. Pokhrel S, Sauerborn R. Household decision-making on child health care in developing countries: The case of Nepal. *Health Policy Plan* 2004; 19(4): 218–33.
25. Avci K, Cakar T, Anşar Z, Uğel Taş H. Examination of the mass media process and personal factors affecting the assessment of mass media-disseminated health information. *Glob Health Promot* 2014; pii: 1757975914536912. (In Press)
26. Casey MM, Thiede Call K, Klingner JM. Are rural residents less likely to obtain recommended preventive healthcare services? *Am J Prev Med* 2001; 21(3): 182–8.
27. Rossi PG, Federici A, Bartolozzi F, Farchi S, Borgia P, Guasticchi G. Understanding non-compliance to colorectal cancer screening: a case control study, nested in a randomized trial. *BMC Public Health* 2005; 5(1): 139.
28. Vernon SW. Participation in colorectal cancer screening: a review. *J Natl Cancer Inst* 1997; 89(19): 1406–22.
29. DeVito C, Angeloni C, DeFeo E, Marzullo C, Lattanzi A, Ricciardi W, et al. A Large Cross-Sectional Survey Investigating the Knowledge of Cervical Cancer Risk Aetiology and the Predictors of the Adherence to Cervical Cancer Screening Related to Mass Media Campaign. *BioMed Research International* [serial on the Internet]. 2014. [cited 2014 Aug 04]. Available from: <http://dx.doi.org/10.1155/2014/304602>
30. McFarland DM. Cervical cancer and Pap smear screening in Botswana: knowledge and perceptions. *Int Nurs Rev* 2003; 50: 167–75.
31. Pillay AL. Rural and urban South Africa women's awareness of cancers of the breast and cervix. *Ethn Health* 2002; 7(2): 103–14.
32. Harries J, Moodley J, Barone MA, Mall S, Sinanovic E. Preparing for HPV vaccination in South Africa: key challenges and opinions. *Vaccine* 2009; 27(1): 38–44.
33. Thorburn S, Keon KL, Kue J. Sources of breast and cervical cancer information for Hmong women and men. *Women Health* 2013; 53(5): 468–78.
34. Weaver JB, Mays D, Lindner G, Eroglu D, Fridinger F, Bernhardt JM. Profiling characteristics of internet medical information users. *J Am Med Informat Assoc* 2009; 16(5): 714–22.
35. Nguyen GT, Shungu NP, Niederdeppe J, Barg FK, Holmes JH, Armstrong K, et al. Cancer-related information seeking and scanning behavior of older Vietnamese immigrants. *J Health Commun* 2010; 15(7): 754–68.
36. Marcus C, Crane LA. A review of cervical cancer screening intervention research: implications for public health programs and future research. *Prev Med* 1998; 27(1): 13–31.
37. Clegg Smith K, Edsall Kromma E, Klassen A. Print news coverage of cancer: What prevention messages are conveyed when screening is newsworthy? *Cancer Epidemiol* 2010; 34(4): 434–41.
38. Han PKJ, Moser RP, Klein WM. Perceived ambiguity about cancer prevention recommendations: associations with cancer-related perceptions and behaviours in a US population survey. *Health Expect* 2007; 10(4): 321–36.
39. Jones SC. Coverage of breast cancer in the Australian print media: does advertising and editorial coverage reflect correct social marketing messages. *J Health Commun* 2004; 9(4): 309–25.
40. Konfortion J, Jack RH, Davies EA. Coverage of common cancer types in UK national newspapers: a content analysis. *BMJ Open* 2014; 4(7): e004677.
41. Huang GJ, Penson DF. Internet health resources and the cancer patient. *Cancer Invest* 2008; 26(2): 202–7.
42. Fox S, Duggan M. Health online 2013 Pew internet & American life project. 2013. Available from: <http://www.pewinternet.org/Reports/2013/Health-online.aspx>
43. Glynn RW, Kelly JC, Coffey N, Sweeney KJ, Kerin MJ. The effect of breast cancer awareness month on internet search activity - a comparison with awareness campaigns for lung and prostate cancer. *BMC Cancer* 2011; 11(1): 442.
44. Cotten SR, Gupta SS. Characteristics of online and offline health information seekers and factors that discriminate between them. *Soc Sci Med* 2004; 59(9): 1795–806.
45. Finney RL, Hesse BW, Moser RP, Ortiz MA, Kornfeld J, Vanderpool RC, et al. Socioeconomic and geographic disparities in health information seeking and Internet use in Puerto Rico. *J Med Internet Res* 2012; 14(4): e104.
46. Larsson A, Oxman AD, Carling C, Herrin J. Medical messages in the media—barriers and solutions to improving medical journalism. *Health Expect* 2003; 6(4): 323–31.
47. Freeman B. New media and tobacco control. *Tob Control* 2012; 21(2): 139–44.
48. Webb MS, Rodríguez-Esquivel D, Baker EA. Smoking cessation interventions among Hispanics in the United States: A systematic review and mini meta-analysis. *Am J Health Promot* 2010; 25(2): 109–18.
49. Bottorff JL, Struik LL, Bissell LJ, Graham R, Stevens J, Richardson CG. A social media approach to inform youth about breast cancer and smoking: an exploratory descriptive study. *Collegian* 2014; 21(2): 159–68.
50. Denecke K, Nejdil W. How valuable is medical social media data? Content analysis of the medical web. *Inform Sci* 2009; 179(12): 1870–80.
51. Lorence D, Park H. Gender and online health information: a partitioned technology assessment. *Health Inform Libr J* 2007; 24(3): 204–9.
52. Fisher TL, Burnet DL, Huang ES, Chin MH, Cagney KA. Cultural Leverage: Interventions Using Culture to Narrow Racial Disparities in Health Care. *Med Car Res Rev* 2007; 64(5 Suppl): 243–82.

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