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**Creating social marketing strategy on the internet within preventive
health care – human papilloma virus vaccination campaign**

Креирање друштвене маркетинг стратегије на интернету у оквиру
превентивне здравствене заштите – кампања вакцинације
против хуманог папилома вируса

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Креирање друштвене маркетинг стратегије на интернету у оквиру превентивне здравствене заштите – кампања вакцинације против хуманог папилома вируса

SUMMARY

Introduction/Objective The main aim of the paper is to develop a foundation for creating Internet social marketing strategy in preventive health care, through research and campaign for vaccination against human papillomavirus. The aim of the study was to introduce a strategic approach of social marketing on social networks, for vaccination against human papillomavirus (HPV) campaign in Serbia.

Methods Quantitative research was conducted through the Internet, during December 2016, using survey method. Participants in the study were parents whose children are candidates for vaccination.

Results Research has shown that nearly one third of respondents do not know what HPV is, and about the same number of respondents know that HPV cause cancer. In addition, only 14.5% of respondents know that HPV is the most common transmitted disease in the world. With adequate awareness about safety, 97% of respondents would decide to vaccinate their children. Vaccinations could afford only 39% of parents, although opinion change is caused by information about the price of HPV vaccine. Consequently 97.5% respondents would opt for vaccination in the case that it is free.

Conclusion Based on the results, and compared with best practices of other countries, we provided a marketing strategy via social networks. The campaign focuses on the raising awareness of the need for HPV vaccination and cancer prevention, including disseminating information to the target population, through social networks.

Keywords: human papillomavirus, vaccination, prevention, Social marketing, strategic marketing on the internet

САЖЕТАК

Увод/Циљ Основни циљ овог чланка је да се развије основа за креирање стратегије Интернет маркетинга у превентивној здравственој заштити кроз истраживање и кампању за вакцинацију против хуманог папилома вируса. Циљ студије је био увођење стратешког приступа социјалног маркетинга на друштвене мреже у кампањи за вакцинацију против хуманог папилома вируса (ХПВ) у Србији.

Метод Квантитативно истраживање је спроведено путем Интернета, током децембра 2016. године, користећи анкетирање, у које су били укључени родитељи чија су деца кандидати за вакцинацију.

Резултати Добијени резултати истраживања показали су да скоро једна трећина испитаника не зна шта је ХПВ, а око истог броја испитаника зна да ХПВ узрокује рак. Поред тога, само 14,5% испитаника зна да је ХПВ болест која се најчешће преноси у свету. Уз одговарајући ниво свести о безбедности вакцине, 97% испитаника би одлучило да вакцинише своју децу. Вакцинацију може да приуштити само 39% родитеља, мада на промену њиховог мишљења утиче информација о цени ХПВ вакцине. Сходно томе, 97,5% испитаника би се определило за вакцинацију у случају да је бесплатно.

Закључак На основу резултата и поређења са најбољим праксама других земаља, предложили смо маркетиншку стратегију преко друштвених мрежа. Кампања се фокусира на подизање свести о потреби вакцинације против ХПВ-а и превенцију карцинома, укључујући ширење информација циљној популацији путем друштвених мрежа.

Кључне речи: хумани папилома вирус, вакцинација, превенција, социјални маркетинг, стратешки маркетинг на интернету

INTRODUCTION

Practical experiences and evidence of health promotion programs, campaigns, and national strategies for key disease groups, such as HPV virus infection have increased throughout Europe.

Enhancing social behavioral research could provide a larger basis of evidence, as the foundation for movements in prevention. Start-up guidance through programs and campaigns for the prevention of human papillomavirus, through vaccination, is especially important for young people.

There are two basic groups gathered around the interest - the fight against HVP. The first group is teenagers, during the period of maturity for vaccination and the second group is the parents of those teenagers, who have the need and responsibility to protect their children. For young people programs for the prevention of human papillomavirus can include peer education, inclusion of youth organizations, and school health literacy programs. However, more significant effects could be achieved through social networks.

Human papillomavirus (HPV) infection is the most important risk factor and a necessary condition for the development of cervical cancer [1]. In Serbia, an average of 482 women die of cervical cancer each year, based on the estimates of the International Agency for Research on Cancer (IARC) and the European Network of Registries for Cancer (ENCR), Serbia remains in the group of European countries with the highest rates of illness and dying from cervical cancer.

Human papillomavirus is also responsible for more than 90% of cases of colon cancer, 71 % Percentage of cases of cancer of the genital organs in both sexes and 72% of cases of lung and throat cancer, according to US National Cancer Institute. To date, more than 120 types of Human papillomavirus have been identified. Some of them (about 40 types of viruses) are sexually transmitted and lead to infection of sex organs and anogenital region of both women and men [2].

The HPV virus is so widespread that most adults (about 70% of people) have had an HPV infection in their lifetime. Primary HPV infection usually does not give any symptoms and most people create antibodies without being aware that it has been infected. In some cases HPV infection can be maintained without any symptoms and for many years. It is therefore very difficult to say with certainty when and how the infection occurred.

A study of 194 studies involving over one million women with normal cytology showed that the global prevalence of HPV infection in the world was 11.7% [3]. At younger ages it is very high and reaches a peak of 20-25 years. In most women infected with HPV, the immune system will generate antibodies and overcome viral infection within 6-24 months to create antibodies and to overcome viral infection. Spontaneous disappearance of the infection occurs in about 85-90% of cases, which is confirmed by the low prevalence of latent HPV infection in women over 30 years of age [4]. In a small number of women, the infection persists (10-15%), and this occurs mainly when it is caused by high-risk HPV types [5].

There are several ways for prevention of infection with Human papillomavirus. This includes vaccination against HPV, change in sexual behavior, smoking prevention, and other health education activities. In this study, the focus of the research relates to vaccination against HPV. In Serbia, the Health policy 2020 supports sustained efforts to combat infectious diseases such as HPV. So far, there have been no vaccine advocacy campaigns against HPV in Serbia, but have been implemented for many years in developed countries of the world.

The use of HPV vaccines prevents the emergence of persistent infection, precancerous changes, and malignancies caused by certain types of HPV. Based on data on the high incidence of HPV infection and the high risk of developing an infection immediately after starting sexual activity, the highest level of protection is achieved by the use of the vaccine before the onset of sexual activity. For this reason, vaccination is recommended at the age of 10 to 14 years. The vaccine is not recommended for girls younger than 9 years, because in this group the immunogenicity and efficacy of the vaccine have not been investigated. Vaccine efficacy in women over 26 years of age has not been confirmed and additional research is ongoing. High protection is achieved by immunization in women of the age of 14 or 15 to 26 years old if they have not started sexual activity [6]. From the introduction of the vaccine in Europe in 2006, the girls were at the center of attention. However, the question of the usefulness of the vaccine of the boy was also raised. Only the effectiveness of the Gardasil vaccine was evaluated and it turned out to be as effective as the girls, if not more effective.

At the moment, there are two vaccines - Gardasil by Merck and Cervarix by Glaxo Smith Kline. According to the ECDC report, both protect against high-risk types of HPV 16 and 18, which are believed to be cancer susceptors in 73% of cases in Europe. Gardasil, in addition, protects against types HPV 6 and 11, which are the most common causes of condyloma of the genital organs. Vaccines are given in three doses within six months. Both are registered in Serbia, but the health insurance fund does not cover them. Although, for ordinary citizens the vaccines are quite expensive and it is not easy to find them at many clinics and pharmacies.

The role of parents and health workers is crucial, as the vaccine is not mandatory, and parents' approval is required. Of the 29 EU Member States, Norway, and Iceland, vaccination against HPV is carried out in 19 countries. The rate of vaccination, however, is uneven and ranges between 17 and 84%. A full coverage of over 80% was in Portugal and the UK in 2010.

The governments of the countries of the European Union, and of Serbia themselves, currently only spend a small part of the health budget for health promotion and disease prevention - around 3% [7]. According to Serbia's current strategy for health development by 2020, real health benefits can be achieved at affordable costs and within resource constraints if effective strategies are adopted.

The main aim of the study is to develop a foundation for promotional strategy for increasing public awareness of the capabilities, significance and safety of HPV prevention through immunization. The specific aims of the study were to determine the correlation between knowledge about HPV virus and decisions of parents to vaccinate their children, as well as to determine whether the price of the vaccine is a significant factor that affects parents to vaccinate their children.

METHODS

Participants

The population for this research were parents with children up to 15 years of age. The sample consists of 200 participants, representatives of the general population of Republic of Serbia. The survey involved 172 women (86%) and 28 men (14%).

21% of respondents have only 1 child, 72% have two children, and only 7% have three children. The total number of children is 228, of which 126 boys (55.26%) and 102 girls (44.74%).

Materials and methods

In this research we applied quantitative research using a survey method. The instrument used for this research was questionnaire which is given in the Appendix A. The questionnaire contains 15 questions. First group of 3 questions served for collecting demographic data. The next 6 questions were designed to examine participant's familiarity with different aspects of HPV. The last group of 6 questions was intended to collect data on intentions of parents to vaccinate their children.

Data collection has been performed using online questionnaire, which is uploaded to Google Drive. Link to the questionnaire is forwarded to the parent sample, set to the active forums.

The sample in this study has characteristics similar to those in the population. In addition it was stratified sample, since it was derived from the target population as a subset of the baseline, according to the criteria of the position of the HPV vaccination decision-maker. Sampling was conducted without the probability, and the sample elements were selected based on the researchers own estimates. The research sample was intentional pattern; it represents a basic set, which represents the optimal model used in this kind of pilot studies.

RESULTS

Even 62% of the respondents (124) have responded positively to the question: *Do you know what HPV is?* Only 14.5% of those surveyed (29) know that HPV is the most communicable disease in the world. 34.5% of respondents answered positively to the question *Do you know that HPV virus is a direct cause of certain carcinogens?* But only 15% of respondents (30) know that HPV can cause cervical cancer, vagina, and vulva in women, cancer penis in men, and anus and mouth or throat cancer, as well as colorectal cancer in both sexes. Some more questioned parents, 22% (44) have the knowledge that HVP is the main cause of condyloma in men and women.

With the knowledge that many years of scientific research has confirmed that HPV vaccine is very effective against the types of HPV viruses that cause cancer of the cervical and conjunctival, when asked if they would decide to vaccinate their child, as many as 94% of respondents answered (188) affirmatively. Figure 2 shows different parameters that influence parents' decision to vaccinate their children.

With the knowledge that more than 57 million doses of HVP vaccine have been distributed to date, and there were no serious safety omissions, the question is whether they would decide to vaccinate their child, as many as 96.5% of respondents answered affirmatively (193). The same number of respondents would decide to vaccinate their child if there is a possibility of free HPV vaccination in Serbia.

A certain outcome is due to finding out about the price of HPV vaccine in order to vaccinate her child against the HPV virus, with the current market price of the vaccine of about 300EUR after treatment (three necessary doses), only 39% of the parents decided (78), which indicates a high and the economically unacceptable existing price, despite the parents' desire to vaccinate their children. As a confirmation of financial inadmissibility (inability) there is an answer to the following in a series of questions. *Would you decide to vaccinate before if the price was significantly reduced from the existing one?* To which even 97.5 respondents (195) answered affirmatively. At the same time, as many as 93.5% (187) of the respondents consider that the current market price of HPV vaccines in Serbia is high.

DISCUSSION

Aside from the significance of the HPV vaccine itself, vaccination in Serbia has only recently been applied. Also, a vaccination campaign against human papillomavirus has not been done in Serbia so far, according to our knowledge.

Our results suggest that knowledge on the importance of vaccination against HPV contributes to willingness of the parents to vaccinate their children. This is in accordance with other authors that recognize the importance of conducting campaigns with the main aim to rise awareness and readiness of parents to vaccinate their children [8]. For example, the major promoter of the HPV vaccination in Canada was the Society of Obstetricians and Gynecologists of Canada [8]. They used website (hpvinfo.ca) as the main channel for communication in the HPV vaccination campaign. Throughout website they provided all necessary information to widespread the importance of HPV vaccination.

Similarly, our results evidenced that the cost of vaccination process is one of the main obstacles for HPV vaccination process in Serbia. Similar findings reached authors [9, 10] concluding that strongest influence on acceptability, besides type of vaccine is its cost.

Some limitations of the present study should be acknowledged. First, we observed parents that vaccinated, and those who not vaccinated their children together. Splitting those two samples would probably be useful to find out which were the main drivers that lead some parents to vaccinate their children, in addition to determine obstacles such as absence of knowledge and high costs. Also, we did not analyze cultural and social factors that could play very important role in making a decision on vaccination.

CONCLUSION

HPV vaccine provides highly effective cervical cancer and other HPV-induced diseases. The aim of the HPV vaccination campaign is to significantly reduce the incidence of malignancies caused by HPV infection through the promotion of public awareness of the possibilities, significance and safety of HPV prevention of the disease through immunization.

The basic principle of communication that is pursued through social networks is continuity. The advantage is a direct channel of communication with clearly defined target groups, with properly created messages. Campaigns implemented in this way give a detailed insight into the ratio of invested resources and achieved results. The campaign focuses on developing awareness of the need for vaccination of HPV viruses, cancer prevention, including the spread of information through social networks such as Facebook, Tweeter, and YouTube to target populations.

The strategy of social marketing on the Internet in preventive health care is an important segment of the overall communication of health care with the public. The specificity of the activity requires the authenticity of the approach, as well as the need for promotion campaigns and public advocacy of certain values in order to improve health..

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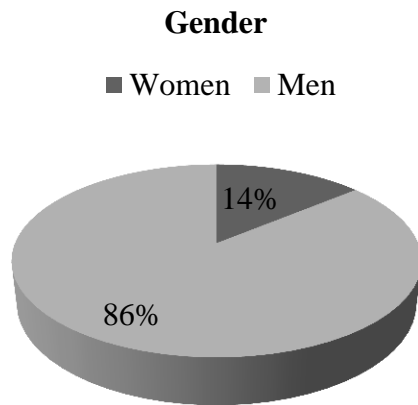


Figure 1: Gender structure of respondents

Paper accepted

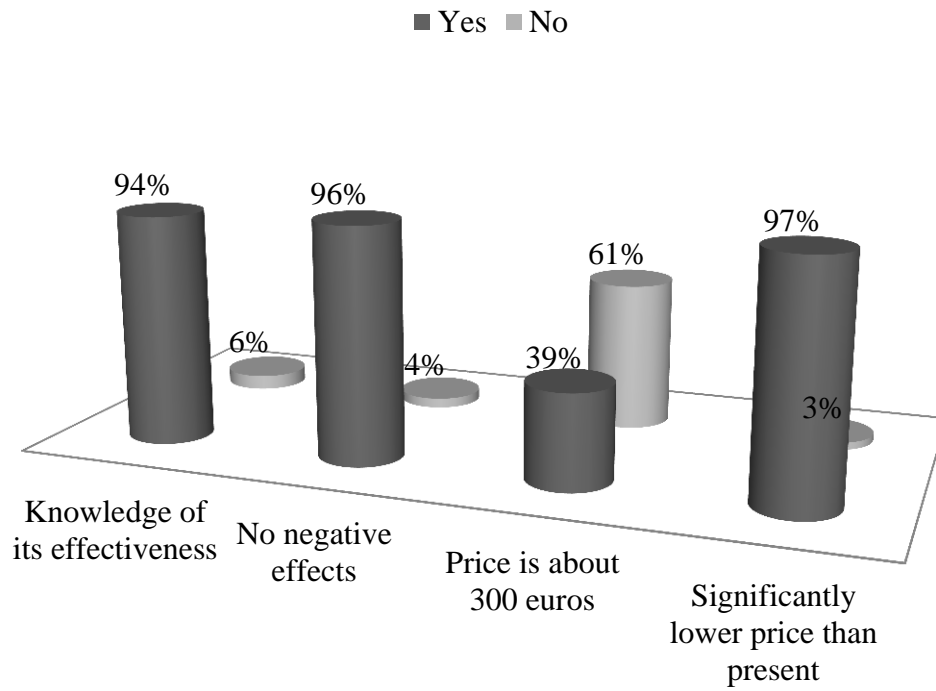


Figure 2: Decisions based on different parameters

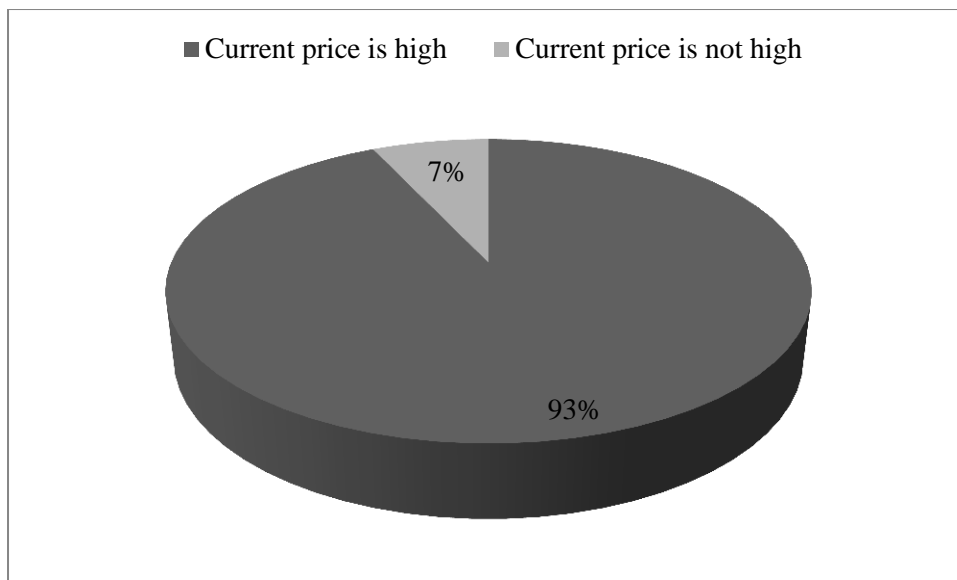


Figure 3: The percentage of respondents who believe that the current market price of HPV vaccines in Serbia is high

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Table 1: Opinions of the respondents on the acceptability of the HPV vaccine's price

Offered price	Number of respondents	Percentage
20 000 – 30 000 RSD	1	0.5
10 000 – 20 000 RSD	3	1.5
5 000 – 10 000 RSD	15	7.5
1 000 – 5 000 RSD	61	30.5
Under 1 000 RSD	120	60

Paper accepted

Appendix A RESEARCH QUESTIONNAIRE

- | | | |
|--|-------|----|
| 1. Male or Female: | M | F |
| 2. Number of children (male or female): | _____ | |
| 3. How old are children: | _____ | |
| 4. Do you know what is HPV virus? | Yes | No |
| 5. Do you know that HPV is the most common reason for diseases in the world? | Yes | No |
| 6. Do you know that HPV virus has direct impact on trigger malignant diseases? | Yes | No |
| 7. Do you know that HPV virus can cause cervical cancer in women, as well as cancer in men? | Yes | No |
| 8. Do you know that HPV virus is key cause for intimacy diseases in women and men? | Yes | No |
| 9. Scientific research have proved that HPV vaccine is efficiency in prevent of diseases. In that way you can protect your children. Do you know that? | Yes | No |
| 10. More that 57 million dose of HPV vaccine have been distributed till today and all reports are positive. Do you decide to vaccinate your children? | Yes | No |
| 11. Is in Serbia exist opportunity to vaccinate children for free and do you vaccinate children in that case? | Yes | No |
| 12. Do you decide to vaccinate children, even the price for treatment is 300 euro per treatment (three is needed)? | Yes | No |
| 13. Will you decide to vaccine children if price could be less? | Yes | No |
| 14. Do you think that the price for HPV vaccine in Serbia is high? | Yes | No |
| 15. What is the high level of price for HPV vaccine, in your opinion? | | |
| • 20 000 – 30 000 RSD | | |
| • 10 000 – 20 000 RSD | | |
| • 5 000 – 10 000 RSD | | |
| • 1 000 – 5 000 RSD | | |
| • Under 1 000 RSD | | |