

# Knowledge About Head and Neck Cancer in the Population of Vojvodina: A Comparative Study

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## ABSTRACT

*In 2009, the Institute of Oncology of Vojvodina reported the total of 553 newly registered patients with head and neck cancer (HNC) in the Province of Vojvodina, with a lethal outcome in 332 HNC patients. These facts impose the need of investigating the health education of the general population and proposing possible prevention measures. The present prospective study included 200 subjects classified into two groups. Group I (100 subjects) consisted of randomly selected adults from urban and rural regions of Vojvodina. Group II (100 subjects) included the adults from the same regions affected by HNC. All subjects answered the anonymous questionnaire which complied with the standards of a similar European Union research project »About Faces«. The results showed that 96% of the subjects from the Group II and only 77% of the subjects from the Group I were familiar with the term »head and neck cancer« what represented a significant difference. The results from Vojvodina were significantly better than those from the European study (23%). Most subjects were informed about HNC through television programs (60%), hospital leaflets (41%) or internet (37%). Both the patients and the citizens of Vojvodina were better informed about the most common localizations of HNC – pharynx and larynx, but less informed about other HNC localizations than the citizens of seven European countries. The citizens and the HNC patients from Vojvodina were equally well informed about some risk factors (e.g. smoking, alcoholism, aging and sun exposure) as the citizens in Europe. Both the patients and the general population of Vojvodina are mostly worried about the consequences/side effects of the applied surgical treatment. The obtained results may be a good starting point in the prevention and early detection of HNC in Vojvodina.*

**Key words:** health education, head and neck cancer, etiology, symptoms, treatment

## Introduction

In general, lay population is insufficiently informed about head and neck cancer (HNC)<sup>1</sup>. The reports of the Serbian Institute of Oncology and Radiology confirm that 85-90% of the patients with the early stage I or II HNC are successfully cured and live their normal life span. However, in about 65%-75% of the cases HNC is diagnosed in the stages III or IV (advanced operable or inoperable stages, in many cases also a metastatic disease)<sup>2</sup>. In 2009 the Institute of Oncology of Vojvodina region reported about 533 new patients (369 men, 164 women) with some kind of the head or neck malignancy. A total of 332 patients (278 men, 54 women) died of their HNC in 2009<sup>2</sup>. Milisavljevic et al. (2012) found that survival after 5 years of operation rang 55-70%, regarding to age and stage of disease<sup>3</sup>.

A great majority of patients with HNC in Vojvodina are surgically treated at the Ear Nose and Throat Clinic of Novi Sad. In the case of an advanced laryngeal or hypopharyngeal cancer, a partial or total laryngectomy with a dissection of neck lymph nodes is necessary to cure the patient. There were 291 partial and 169 total laryngectomies performed in the period from 2007 to 2011. This large number of total laryngectomies indicates that many patients had the advanced T4 cancer, what suggests that the patients were insufficiently informed about the symptoms of the disease, timely treatment and prevention of their cancer<sup>4</sup>. These and economic factors, the public health care level and general health education of the population, as well as prevention prospects. In Vojvodina, no studies have been undertaken so far to investigate how well the general population and the affected patients are informed about the etiology,

symptoms, modalities and side effects of the treatment of HNC.

Having in mind all these facts, the following goals of the investigation have been formulated:

1. To find out how well the citizens of Vojvodina are informed about head and neck malignancies.
2. To find out how well the affected Vojvodinian patients are informed about head and neck malignancies.
3. To correlate the obtained findings to the situation in some European countries (establish similarities and differences).
4. To define the specific characteristics related to this issue of the general population and the affected patients in the region of Vojvodina.
5. To determine possible ways and modalities of informing the population of Vojvodina about HNC for prevention purposes.

## Subjects and Methods

The investigation was carried out as a prospective study in the period 2011 – 2012. It included 200 subjects classified in two groups. Group I (100 subjects) consisted of the randomly selected healthy citizens from both the urban and rural regions of Vojvodina (Novi Sad, Subotica, Backa Topola and surroundings). Participants were accompanying persons of the patients at other clinics (mostly Orthopedics Clinic and Clinic for Rehabilitation), where patients with HNC are not treated. Group II (100 subjects) included randomly selected adult patients with HNC under different treatment stages at the Oncology Department of the Ear Nose and Throat Clinic of Novi Sad, also coming from different places of the Province of Vojvodina. All subjects answered the anonymous questionnaire complying with the standards of a similar investigation of the international European study »About Face« which included 7520 citizens from seven European countries (France, Italy, Germany, the Netherlands, Spain, Sweden, Great Britain)<sup>5</sup>. The questionnaire included the questions about the subject's knowledge of the term »head and neck cancer«; ways of getting informed about HNC; parts of the body usually affected by HNC; HNC symptoms; risk factors for HNC; HNC incidence in the area, and consequences/side effects of its treatment.

The protocol of the study was in accordance with the ethical standards of the Ear Nose and Throat Clinic Novi Sad and Medical Faculty, University of Novi Sad.

## Statistics

The obtained data were statistically processed by SPSS 18 (SPSS Corp, USA) software. The results were compared between the Group I and Group II, and also correlated to the results of the European study »About Face«. The data were analyzed using the  $\chi^2$ -test, and the Fisher exact test. All the statistical tests were two-sided and a p-value of 0.05 was considered to be statistically significant.

## Results

The question »Are you familiar with the term head and neck cancer?« was positively answered by 77 (77%) subjects from the Group I, and 96 (96%) subjects from the Group II. Comparing these two groups by the Fishers Exact test, the Group II was established as significantly better informed ( $p=0.0001$ ). Correlating the Group I with the same category in the European countries, a significant difference was registered ( $p=0.0001$ ), as only 23% of the same investigated population in the European study »About Face« was familiar with this term.

The question »Where have you heard for the term head and neck cancer from?« was answered by both Vojvodina groups. Comparing the group of patients and the group of citizens, the former one was found to be significantly better informed through all the media. Only 41% of the patients read leaflets and posters about HNC in hospitals (Table 1).

Comparing our examined group of citizens to the same investigated category in the European study, statistically significant differences have been registered in getting informed through television programs, and internet, i.e. the citizens of Vojvodina were significantly more informed through both sources than the citizens of European countries. On the other hand, more European citizens have a

**TABLE 1**  
THE SOURCE OF INFORMATION ABOUT HEAD AND NECK CANCER AMONG CITIZENS AND PATIENTS WITH HEAD AND NECK CANCER IN VOJVODINA

Where have you heard the term head and neck cancer?	Citizens N=100	HNC patients N=100	p
Media	33	53	0.01
Television	37	60	0.002
Newspapers/magazines/books	19	58	0.001
News programs	14	44	0.001
Internet	23	37	0.044
Oral communication	25	56	0.001
Personal experience	4	70	0.001
A family member/friend who suffered/died of the disease	10	44	0.001
Doctor's office/hospital	17	52	0.001
In hospital/posters/leaflets	8	41	0.001
From diverse sources	27	18	0.175
Working in health care	4	14	0.02
Other sources	12	16	0.542

HNC – head and neck cancer

**TABLE 2**  
THE SOURCE OF INFORMATION ABOUT HEAD AND NECK  
CANCER IN CITIZENS OF VOJVODINA (N=100) AND EUROPE  
(»ABOUT FACE«) (N=7520)

Where have you heard the term head and neck cancer?	»About Face« %	Vojvodina citizens %	p
Media	35	33	0.881
TV	18	37	0.004
Newspapers/magazines/ books	10	19	0.107
News programs	7	14	0.165
Internet	4	23	0.0001
Oral communication	19	25	0.393
Personal experience	15	4	0.014
A family member/friend who suffered/died of the disease	14	10	0.514
Doctor's office/hospital	8	9	1
In hospital/posters/leaflets	5	8	0.567
From diverse sources	5	27	0.0001
Working in health care	5	4	1
Other sources	5	12	0.126

personal experience with HNC than inhabitants of Vojvodina (Table 2).

Comparing the answers to the question »According to your opinion, which organs are affected by head and neck cancer?« between the group of patients and the group of citizens in Vojvodina, the group of patients was found to

be better informed about the following localizations of HNC: mouth, nose, lips, and tongue. However, they incorrectly included the esophagus, eyes and ears among the organs affected by HNC. Comparing the results obtained for the category of citizens in Vojvodina and Europe, the citizens of Vojvodina recognized more often all listed localizations as affected by HNC than European citizens (study »About Face«), except for the esophagus (Table 3).

Most subjects in both examined groups in Vojvodina correctly thought that an enlarged neck node, painful swallowing, and chewing problems were the symptoms of HNC. However, almost two fifths of the citizens in Vojvodina did not recognize hoarseness as a symptom of HNC; and only about one fifth of the citizens thought that foul breath, nasal bleeding and blocked nose might be symptoms of HNC. When compared to the citizens in European countries, a significantly lower number of the citizens of Vojvodina considered sore throat as a symptom of HNC. Significantly more citizens of Vojvodina included chewing problems, hair loss, earache, hearing loss, and toothache among the symptoms of HNC (Table 4).

Answering the question »According to your opinion, which of the offered risk factors contribute to the development of head and neck cancer?«, most subjects of both examined groups in Vojvodina believed that smoking and alcoholism are the risk factors for head and neck cancer. On the contrary, less than a half of the citizens in the general population considered the age >40, sun exposure, gender and papilloma virus are the risk factors for HNC (Table 5).

Correlating the study in Vojvodina to the European study »About Face«, it is noticed that the citizens in both studies had similar opinion about smoking and alcohol intake as risk factors, but different opinion about other risk factors. The inhabitants of Vojvodina are better informed

**TABLE 3**  
INFORMATION ON ORGANS AFFECTED BY HEAD AND NECK CANCER AMONG THE PATIENTS WITH HEAD AND NECK CANCER (N=100) AND THE CITIZENS IN VOJVODINA (N=100) AND THE EUROPEAN CITIZENS (»ABOUT FACE«, N=7520)

According to your opinion, which organs are affected by HNC?	Vojvodina HNC patients	Vojvodina patients vs. Vojvodina citizens	Vojvodina citizens	Vojvodina citizens vs. European citizens	European citizens
	%	p	%	p	%
Mouth	78	0.029	63	0.007	43
Pharynx	86	0.264	79	0.735	76
Larynx	83	0.716	80	0.053	67
Brain	77	0.603	81	0.04	60
Esophagus	86	0.001	59	0.319	51
Eyes	55	0.047	40	0.0001	21
Nose	70	0.001	41	0.007	27
Ears	66	0.010	40	0.003	20
Thyroid	69	0.88	67	0.009	48
Lips	73	0.010	40	0.022	24
Tongue	85	0.029	61	0.010	42

**TABLE 4**  
SYMPTOMS OF HEAD AND NECK CANCER, RECOGNIZED BY THE PATIENTS WITH HEAD AND NECK CANCER (N=100), THE CITIZENS (N=100) IN VOJVODINA, AND THE EUROPEAN CITIZENS («ABOUT FACE», N=7520)

According to your opinion, which of the following is the symptom of head and neck cancer?	Vojvodina HNC patients %	Vojvodina patients vs Vojvodina citizens p	Vojvodina citizens %	Vojvodina citizens vs European citizens p	European citizens %
Enlarged neck node	78	0.486	83	0.089	72
Painful swallowing	76	0.270	68	0.302	60
Hoarseness/altered voice	79	0.008	61	0.317	53
Sore throat	56	0.001	28	0.001	51
Face/jaw/ear ache	59	0.002	36	0.085	49
Jaw edema	65	0.003	43	0.564	38
Chewing problems	70	0.296	62	0.0001	33
Red/white or mucosal lesions	50	0.014	32	1	32
Foul breath	67	0.001	19	0.051	32
Lack of saliva	47	0.005	27	1	26
Nosebleed	35	0.026	20	0.498	25
Hearing loss	48	0.329	40	0.005	21
Hair loss	47	1	48	0.0001	19
Earache	63	0.003	41	0.0006	18
Long-term blocked nose	44	0.001	17	0.696	14
Toothache	49	0.001	25	0.027	12
Eye dryness	33	0.008	16	0.408	11
Dry skin	34	0.001	13	0.238	7

**TABLE 5**  
RISK FACTORS FOR HEAD AND NECK CANCER REPORTED BY THE PATIENTS WITH HEAD AND NECK CANCER (N=100), THE CITIZENS IN VOJVODINA (N=100), AND THE EUROPEAN CITIZENS («ABOUT FACE», N=7520)

According to your opinion which of the following is the risk factor for head and neck cancer?	Vojvodina HNC patients %	Vojvodina patients vs Vojvodina citizens p	Vojvodina citizens %	Vojvodina citizens vs European citizens p	European citizens %
Smoking	80	0.253	87	1	88
Alcoholism	69	0.880	67	0.305	59
Age >40	64	0.003	42	0.037	27
Sun exposure	60	0.089	47	0.013	29
Papilloma virus	43	0.144	32	0.007	15
Gender	31	0.048	18	0.0578	8
Recurrent colds	31	0.001	17	0.085	8
Oral mucosal lesions	60	0.033	44	0.0008	21
Excessive fat intake	53	0.004	32	0.205	23
Spicy food	49	0.001	21	0.003	6
Make-up	18	0.704	15	0.032	5
Kissing	21	0.028	9	0.018	1

**TABLE 6**  
THE MOST AND THE LEAST UPSETTING CONSEQUENCES OF HEAD AND NECK CANCER TREATMENT REPORTED BY THE  
CITIZENS OF VOJVODINA (N=100) AND EUROPEAN CITIZENS («ABOUT FACE», N=7520)

Which of the following treatment consequences upset HNC patients most and least?	European citizens		Vojvodina citizens		p most / p least
	%		%		
	Most	Least	Most	Least	
Surgery consequences	13	25	29	26	0.009/1
Speech difficulties/loss	12	20	13	17	1/0.716
Chemotherapy side effects	14	17	11	22	0.669/0.475
Eating /swallowing difficulties	11	17	10	11	1/0.308
Visible lesions/edema	22	10	17	5	0.475/0.282
Mouth bleeding	27	10	17	9	0.123/1
Irradiation side effects	-	-	17	8	-

about the age >40, sun exposure and papilloma viruses as risk factors than the citizens of Europe (Table 5).

Thirty-three subjects (33%) of Group I correctly estimated that the number of new HNC patients in Vojvodina exceeds 500 per year (533 is the official number of the Oncology Institute of Vojvodina), while only 28% of patients from Group II had an accurate assessment ( $p < 0.001$ ).

Significantly more HNC patients think that speaking difficulties appearing after HNC treatment excessively upset HNC patients, when compared to the opinion of the citizens of Vojvodina. Comparing the study of Vojvodina and the European study «About Face» regarding the question «What upsets HNC patients most?», a statistically significant difference has been registered only regarding the surgery consequences (Table 6).

## Discussion

The results of our investigation suggest that a low level of the knowledge of HNC in the general population in Vojvodina contributes to a late diagnosis of these tumors. Low knowledge about HNC has been also confirmed by other studies performed in the world, Europe and in the neighboring countries. An Irish study has reported that the advanced stage disease represents 60% of new HNC cases. In this study, the sample of 200 examined subjects has shown that 70% of them had never heard the term head and neck cancer, and even 146 of the included subjects failed to recognize alcohol as the risk factor for HNC. Less than 100 patients would worry about a long-term not healing small mouth wound<sup>6</sup>. The 1<sup>st</sup> and 4<sup>th</sup> year medical students of two universities in Chicago were polled, including 601 and 304 interviewed subjects respectively. The poll investigated their knowledge of the risk factors, symptoms, screening methods, incidence and physical examination methods in HNC. The study has revealed a significantly better knowledge of the 4<sup>th</sup> year medical students as compared to the 1<sup>st</sup> year ones. However, the 4<sup>th</sup> year

students still failed to fully recognize the symptoms, risk factors, screening methods and physical examination methods in HNC<sup>7</sup>.

A similar study was carried out in Slovenia. It included 314 adults of general population, and 100 patients with head and neck cancer<sup>8</sup>. The methodology of this study was comparable with our study in Vojvodina and the European study «About face»<sup>5</sup>. Analyzing the answers obtained to the question «Are you familiar with the term head and neck cancer?», the term has been established as familiar to 77% of the citizens in the general population, 96% of the affected patients in Vojvodina, and to 50.3% of Slovenian citizens. It is concluded that the patients with HNC are significantly better informed, probably due to their personal experience.

Comparing the group of patients with HNC to the group of citizens in Vojvodina, the former has been found to be considerably better informed via all the media probably due to seeking more information because of their personal experience. But it is shocking that only 41% of patients get information about their malignant disease during their stay in hospital. The hospital departments where these patients are treated should be provided with more posters and other printed material. An active approach of the medical professionals to the patients with HNC is recommended.

Comparing our examined group of citizens to the same category in the European study<sup>5</sup>, statistically significant differences have been registered in getting informed through the television programs ( $p = 0.004$ ). The citizens of Vojvodina get much more information through this medium than the citizens of other European countries (37% vs. 18%, respectively). This can also be applied to the citizens in Slovenia, where 19.4% of them get informed in this way<sup>8</sup>. In order to achieve better knowledge about HNC in general population, it is necessary to increase the available information on the television programs and internet, as this are the media widely used by the people of Vojvodina. Other sources of information should neither be neglected.

Analyzing the results about the investigated subjects' knowledge of HNC localizations, it has been found that both the citizens and the patients in the population of Vojvodina are well informed about the most common localizations of head and neck tumors – the pharynx and the larynx. However, the patients incorrectly include the esophagus, eyes and ears among the organs affected by HNC. Comparing the group of citizens in Vojvodina to the same category in the European study<sup>5</sup>, all the correct and incorrect answers were significantly more frequent in Vojvodina, except for the answer applying to the pharynx. Correlating the citizens of Vojvodina and Slovenia<sup>8</sup>, significantly more citizens of Vojvodina than in Slovenia incorrectly considered the esophagus as an organ affected by HNC. Both the citizens and the patients in Vojvodina seem to be less informed about rare HNC localizations than the population of European and surrounding countries. It is possible that different definitions or different use of the definitions can be the reason for the difference. Therefore, definitions and classifications of HNC need harmonization in Europe and in the whole world.

The analysis of the answers to the question about HNC symptoms has shown that a great majority of both the patients and the citizens in Vojvodina correctly think that an enlarged neck node, painful swallowing, labored chewing may be the symptoms of HNC. However, almost 40% of the citizens in Vojvodina do not recognize hoarseness as a HNC symptom. Only 19% of the citizens think that the foul breath may be a HNC symptom. Less than 20% of the citizens include the nasal bleeding and blocked nose among possible HNC symptoms. There are differences with regard to the better informed citizens in Europe<sup>5</sup> and Slovenia<sup>8</sup>. It is suggested that more detailed information about not the most frequent localizations of HNC should appear in the most popular media in Vojvodina.

The analysis of the knowledge about the risk factors for HNC has revealed that both the citizens and the patients in Vojvodina are well informed about the following risk factors: smoking, excessive alcohol intake and sun exposure. The general population of Vojvodina are less informed about the age >40 and gender as HNC risk factors. If we compare the group of citizens in our study to the same population category in the European study „About Face”<sup>5</sup>, the Europeans showed worse knowledge of other risk factors than smoking, alcohol intake, and gender. There are no notable differences in the knowledge of the risk factors between the citizens of the general population in Vojvodina and Slovenia<sup>8</sup>. The comparison of these three studies shows that the knowledge of risk factors for HNC is better in the south-east of Europe than in other European countries. One of the possible reasons can be a different incidence of HNC and a different life style in the countries where the studies took place.

A majority of the patients and the citizens of Vojvodina incorrectly assessed the number of HNC patients, what was particularly overestimated by the patients. This is probably due to the fact they themselves are affected, they meet a considerable number of similar patients at their follow-up visits, and HNC represents a great problem for

them. The correlation between the study in Vojvodina and the European study »About Face«<sup>5</sup> and the Slovenian study<sup>8</sup> is impossible, as the number of HNC patients in various European countries differs from that number in Vojvodina.

Regarding the question on the most upsetting side effects in HNC patients, the following results have been obtained: speaking difficulties are more upsetting for the patients than for the citizens, probably due to the patients' personal experience. The citizens of Vojvodina are most worried about side effects of surgery and chemotherapy, much more than the citizens in European countries. A good correlation has been registered in this respect between the citizens of Vojvodina and Slovenia, except that Slovenian citizens are somewhat more upset by irradiation side effects<sup>8</sup>.

The obtained results may be a good basis for introducing a program of prevention and early detection of HNC. The efforts should focus on better informing, prevention, treatment and rehabilitation of these patients, as well as on an improvement of the professional engagement of the physician<sup>9,10</sup>. Our and international studies show that additional efforts should be made in education of future medical professionals about HNC. It has already been suggested to medical institutions to establish specific days on which everybody can visit a doctor and be examined free of charge. A special week should be devoted to head and neck malignancies. There is another idea of an introduction of »the month of national awareness« in the whole country, when thousands of doctor's offices will be opened to the public<sup>11</sup>. On the basis of our investigation, we would also suggest to introduce an obligatory ear, nose and throat examination of all smokers every year, or at least of those aged >40, as well as to start an active education campaign about all risk factors for HNC in all the media.

## Conclusions

1. In our study, 96% of the patients and 77% of the citizens of Vojvodina were familiar with the term »head and neck cancer«, what is a significantly better result than in seven European countries (23% of included subjects). The population of Vojvodina has better elementary information about the problem of HNC than population of many countries in Europe.

2. The patients with HNC are better informed about the disease than the citizens in the general population in Vojvodina. Therefore, special efforts should be made to improve the knowledge of the general population.

3. The patients and the citizens of Vojvodina are well informed about the most common HNC localizations (pharynx and larynx), some typical symptoms (enlarged neck node, swallowing or chewing problems), and several risk factors (smoking, alcohol, aging and sun exposure), but not about the other less common localizations, or less well-known symptoms and risk factors. Their knowledge should be improved.

4. Regarding the consequences of the HNC treatment, the patients in Vojvodina are particularly worried about impaired speaking, swallowing, and chemotherapy side effects, while the citizens are afraid of the consequences of surgical treatment. In order to encourage the patients to seek medical help at their first suspicion of HNC, additional information on HNC treatment modalities and rehabilitation after it should be available.

5. Most patients in Vojvodina get the information about HNC through television programs (60%), hospital leaflets (41%), or internet (37%). Both the citizens and the patients can be better informed using these media, but other medias should not be neglected either.

6. The obtained results of the present investigation may be a good basis for undertaking the measures of prevention and early detection of HNC in Vojvodina.

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## ZNANJE O KARCINOMU GLAVE I VRATA U POPULACIJI VOJVODINE: KOMPATIVNA STUDIJA

### SAŽETAK

U 2009-oj Institut za onkologiju Vojvodine prijavio je ukupno 553 novoprijavljenih bolesnika s rakom glave i vrata (HNC) u Pokrajini Vojvodine, sa smrtnim ishodom u 332 bolesnika HNC-a. Te činjenice nameću potrebu za istraživanjem zdravstvene educiranosti opće populacije i prijedlozima za moguće mjere prevencije. U ovu prospektivnu studiju je uključeno 200 ispitanika razvrstanih u dvije skupine. Skupina I (100 ispitanika) sastoji se od slučajno odabranih odraslih iz urbanih i ruralnih područja Vojvodine. Skupina II (100 ispitanika) uključuje odrasle iz iste regije pogođene HNC-om. Svi ispitanici su odgovorili na anonimni upitnik koji poštuje standarde sličnog istraživačkog projekta Europske unije imena »About Face«. Rezultati su pokazali da je 96% ispitanika iz skupine II, a samo 77% ispitanika iz grupe upoznato s pojmom »rak glave i vrata«, što predstavlja značajnu razliku. Rezultati Vojvodana su znatno su bolji od onih iz Europske studije (23%). Većina ispitanika su informirani o HNC-u putem televizijskih programa (60%), bolničkih letaka (41%) ili interneta (37%). Pacijenti i građani Vojvodine bili su bolje informirani o najčešćim položajima HNC-a – ždrijelo i grkljan, ali manje informirani o drugim položajima HNC-a u usporedbi s građanima sedam europskih zemalja. Građani i HNC pacijenti iz Vojvodine jednako su dobro informirani o nekim čimbenicima rizika (npr. pušenje, alkoholizam, starenje i izloženost suncu) kao i građani Europe. Pacijenti i opća populacija Vojvodine su uglavnom zabrinuti zbog posljedica/nuspojava primijenjenog kirurškog liječenja. Dobiveni rezultati mogu biti dobra polazna točka u prevenciji i ranom otkrivanju HNC-a u Vojvodini.