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SUBJEKTIVNA PROCJENA RODITELJA DJECE ŠKOLSKOG UZRASTA O HPV VAKCINACIJI

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APSTRAKT

Uvod. Humani papiloma virus (HPV) predstavlja jednu od najčešćih polno prenosivih infekcija i glavni je uzročnik karcinoma grlića materice. Informisanost roditelja o HPV infekciji i vakcinaciji ima ključnu ulogu u donošenju odluka o imunizaciji djece. Cilj ovog rada bio je spitati samoprocjenu informisanosti roditelja djece školskog uzrasta o HPV infekciji i HPV vakcinaciji, te utvrditi povezanost sociodemografskih karakteristika sa stepenom informisanosti.

Materijal i metode. Sprovedena je deskriptivna studija presjeka na uzorku od 101 roditelja djece uzrasta 9–14 godina sa područja grada Prijedora. Podaci su prikupljeni pomoću originalnog upitnika distribuiranog metodom „snježne kugle“. Za obradu podataka korišten je SPSS 26, uz primjenu deskriptivne statistike i hi-kvadrat testa.

Rezultati. Većina ispitanika (91,1%) navela je da je čula za HPV. Nije utvrđena statistički značajna povezanost između pola ispitanika i informisanosti o

PARENTS' SUBJECTIVE ASSESSMENT OF HPV VACCINATION IN SCHOOL - AGED CHILDREN

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ABSTRACT

Introduction. Human papillomavirus (HPV) is one of the most common sexually transmitted infections and the leading cause of cervical cancer. Parents' knowledge about HPV infection and vaccination plays a crucial role in decision-making regarding childhood immunization. The aim of the study was to examine parents' self-assessment of their level of knowledge regarding HPV infection and HPV vaccination among school-aged children, and to determine the association between sociodemographic characteristics and the level of knowledge.

Material and methods. A descriptive cross-sectional study was conducted among 101 parents of children aged 9–14 years in the city of Prijedor. Data were collected using an original questionnaire distributed through the snowball sampling method. Statistical analysis was performed using SPSS version 26, applying descriptive statistics and the chi-square test.

HPV infekciji ($p=0,808$). Utvrđena je statistički značajna povezanost između nivoa obrazovanja i informisanosti o HPV-u ($\chi^2=23,909$; $p<0,001$), pri čemu su ispitanici sa višim nivoom obrazovanja bili bolje informisani. Takođe, mjesto stanovanja bilo je značajno povezano sa znanjem o besplatnoj HPV vakcinaciji za djecu školskog uzrasta ($\chi^2=12,340$; $p=0,015$), pri čemu su ispitanici iz urbanih sredina češće posjedovali ovu informaciju. Postojala je i statistički značajna povezanost između stručne spreme i izvora informacija o HPV vakcini ($\chi^2=18,5$; $p=0,005$).

Zaključak. Roditelji djece školskog uzrasta pokazuju visok nivo opšte informisanosti o HPV infekciji, ali postoje značajne razlike u nivou znanja u odnosu na obrazovanje i mjesto stanovanja. Rezultati ukazuju na potrebu za ciljanim edukativnim intervencijama usmjerenim ka roditeljima sa nižim nivoom obrazovanja i stanovnicima ruralnih područja kako bi se unaprijedila informisanost i povećao obuhvat HPV vakcinacijom.

Ključne riječi: Intrahospitalna infekcija, vakcinacija, roditelji, informisanost, javno zdravlje.

UVOD

Humani papiloma virus (HPV) predstavlja jednu od najčešćih polno prenosivih infekcija u svijetu i značajan je javnozdravstveni problem zbog svoje povezanosti sa razvojem malignih i premalignih oboljenja. Do danas je identifikovano više od 200 genotipova HPV-a, pri čemu se visokorizični tipovi, naročito HPV 16 i HPV 18, povezuju sa nastankom karcinoma grlića materice, ali i karcinoma vulve, vagine, penisa, anusa i orofarinksa [1]. Prema podacima Svjetske zdravstvene organizacije (WHO), gotovo svi slučajevi karcinoma grlića materice povezani su sa HPV infekcijom, što ovu bolest čini jednom od rijetkih malignih bolesti sa jasno definisanim uzročnikom i mogućnošću

Results. The majority of respondents (91.1%) reported having heard of HPV. No statistically significant association was found between respondents' gender and awareness of HPV infection ($p=0.808$). A statistically significant association was observed between educational level and HPV-related knowledge ($\chi^2=23.909$; $p<0.001$), with higher-educated respondents demonstrating better awareness. Place of residence was significantly associated with knowledge that HPV vaccination is provided free of charge for school-aged children ($\chi^2=12.340$; $p=0.015$), with urban residents being more informed. Furthermore, a significant association was identified between educational level and sources of information about HPV vaccination ($\chi^2=18.5$; $p=0.005$).

Conclusion. Parents of school-aged children demonstrate a high level of general awareness about HPV infection; however, significant differences in knowledge exist according to educational attainment and place of residence. The findings highlight the need for targeted educational interventions aimed at parents with lower educational levels and those living in rural areas in order to improve awareness and increase HPV vaccination coverage.

Keywords: HPV infection, HPV vaccination, parents, awareness, public health.

INTRODUCTION

Human papillomavirus (HPV) is one of the most common sexually transmitted infections worldwide and represents a major public health concern due to its association with the development of malignant and premalignant diseases. To date, more than 200 HPV types have been identified, with high-risk types, particularly HPV 16 and HPV 18, being strongly associated with the development of cervical cancer, as well as cancers of the vulva, vagina, penis, anus, and oropharynx [1]. According to the World Health Organization (WHO), nearly all cases of cervical cancer are linked to HPV infection, making this disease one of the few malignancies with a clearly defined etiological agent and an effective primary prevention strategy through vaccination [2].

efikasne primarne prevencije putem vakcinacije [2]. Karcinom grlića materice i dalje predstavlja značajan uzrok obolijevanja i umiranja žena širom svijeta, posebno u zemljama sa niskim i srednjim prihodima. Procjenjuje se da više od 90% smrtnih slučajeva od karcinoma grlića materice nastaje upravo u ovim zemljama, gdje su programi skrininga i imunizacije često nedovoljno razvijeni [2]. Zbog toga je WHO 2020. godine pokrenula globalnu strategiju za eliminaciju karcinoma grlića materice kao javnozdravstvenog problema, pri čemu HPV vakcinacija predstavlja jedan od ključnih stubova prevencije [2]. HPV vakcine pokazale su visok stepen efikasnosti u prevenciji infekcija visokorizičnim tipovima virusa i nastanka premalignih promjena grlića materice. Dugoročna istraživanja pokazala su značajno smanjenje incidencije HPV infekcija, genitalnih bradavica i cervikalnih intraepitelnih neoplazija kod vakcinisanih populacija [3]. Pored toga, noviji podaci ukazuju da zemlje sa visokim obuhvatom vakcinacije bilježe značajno smanjenje učestalosti invazivnog karcinoma grlića materice među mladim ženama koje su vakcinisane u adolescenciji [4]. Ovi rezultati potvrđuju da HPV vakcinacija predstavlja jednu od najuspješnijih preventivnih intervencija savremene medicine. Svjetska zdravstvena organizacija preporučuje rutinsku vakcinaciju djevojčica uzrasta od 9 do 14 godina prije početka seksualne aktivnosti, jer je tada imunološki odgovor najizraženiji, a vjerovatnoća prethodne izloženosti virusu minimalna [2]. Posljednjih godina preporuke su proširene i na vakcinaciju dječaka, imajući u vidu značaj HPV infekcije u nastanku različitih malignih oboljenja kod oba pola, kao i doprinos kolektivnoj zaštiti stanovništva [2]. Takođe, novije preporuke ukazuju da jednodozna vakcinacija može pružiti adekvatnu zaštitu kod određenih uzrasnih grupa, što može doprinijeti povećanju dostupnosti vakcine i obuhvata imunizacijom [5]. Uprkos dokazanoj bezbjednosti i efikasnosti HPV vakcina, obuhvat vakcinacijom u mnogim zemljama i dalje nije na zadovoljavajućem nivou. Jedan od najvažnijih faktora koji utiču na prihvatanje vakcinacije jeste

Cervical cancer remains a significant cause of morbidity and mortality among women worldwide, particularly in low- and middle-income countries. It is estimated that more than 90% of cervical cancer-related deaths occur in these countries, where screening and immunization programs are often inadequately developed [2]. For this reason, WHO launched a global strategy in 2020 to eliminate cervical cancer as a public health problem, with HPV vaccination serving as one of the key pillars of prevention [2]. HPV vaccines have demonstrated a high level of effectiveness in preventing infections caused by high-risk HPV types and the development of precancerous cervical lesions. Long-term studies have shown a substantial reduction in the incidence of HPV infections, genital warts, and cervical intraepithelial neoplasia among vaccinated populations [3]. Furthermore, recent evidence indicates that countries with high vaccination coverage have recorded a significant decrease in the incidence of invasive cervical cancer among young women vaccinated during adolescence [4]. These findings confirm that HPV vaccination is one of the most successful preventive interventions in modern medicine. The World Health Organization recommends routine vaccination of girls aged 9–14 years before the onset of sexual activity, as the immune response is strongest at this age and the likelihood of prior exposure to the virus is minimal [2]. In recent years, recommendations have been expanded to include boys, considering the role of HPV infection in the development of various malignancies in both sexes and its contribution to herd immunity [2]. Additionally, newer recommendations suggest that a single-dose vaccination schedule may provide adequate protection for certain age groups, potentially improving vaccine accessibility and immunization coverage [5]. Despite the proven safety and effectiveness of HPV vaccines, vaccination coverage remains suboptimal in many countries. One of the most important factors influencing vaccine acceptance is the level of parental awareness and knowledge. Parents play a crucial role in

nivo informisanosti roditelja. Roditelji imaju ključnu ulogu u donošenju odluke o vakcinaciji djece školskog uzrasta, posebno u sredinama gdje je za imunizaciju potrebna roditeljska saglasnost. Nedovoljno znanje o HPV infekciji, strah od neželjenih efekata vakcine, nepovjerenje prema zdravstvenim institucijama i prisustvo dezinformacija predstavljaju značajne prepreke za postizanje optimalnog obuhvata vakcinacijom [6]. U zemljama regiona Zapadnog Balkana HPV vakcinacija je relativno nov preventivni program, zbog čega je istraživanje nivoa informisanosti roditelja od posebnog značaja. Razumijevanje faktora koji utiču na znanje roditelja može pomoći u planiranju ciljanih edukativnih aktivnosti i unapređenju programa imunizacije. Procjena informisanosti roditelja djece školskog uzrasta omogućava identifikaciju područja u kojima postoje nedostaci znanja, kao i razvoj strategija koje će doprinijeti povećanju obuhvata HPV vakcinacijom i smanjenju opterećenja bolestima povezanim sa HPV infekcijom. Cilj ovog rada bio je ispitati samoprocjenu informisanosti roditelja djece školskog uzrasta o HPV infekciji i HPV vakcinaciji, te utvrditi povezanost sociodemografskih karakteristika sa stepenom informisanosti.

MATERIJAL I METODE

Studija je sprovedena kao deskriptivna, kvantitativna studija presjeka u periodu od 10.11. do 10.12.2025. godine, na teritoriji grada Prijedora. Uzorak istraživanja čine roditelji djece uzrasta od 9 do 14 godina starosti. U istraživanju je učestvovao 101 ispitanik, oba pola. Kriterijumi za uključivanje u istraživanje je da ispitanik ima djecu uzrasta od 9 do 14 godina starosti i da su dali saglasnost za učestvovanje u istraživanju. Kriterijumi za neuključivanje: roditelji djece mlađe ili starije životne dobi, neadekvatno ispunjen upitnik i odbijanje učešća u studiji. Istraživanje je sprovedeno uz pomoć originalnog autorskog upitnika, koji je kreiran na platformi doc.google.com. Upitnik je distribuiran metodom „snježne kugle“. Za statističku obradu podataka korišten je SPSS softverski paket,

deciding whether their school-aged children will be vaccinated, particularly in settings where parental consent is required for immunization. Insufficient knowledge about HPV infection, concerns regarding vaccine side effects, distrust in healthcare institutions, and the spread of misinformation represent significant barriers to achieving optimal vaccination coverage [6]. In the countries of the Western Balkans, HPV vaccination is a relatively new preventive program, making the assessment of parental awareness particularly important. Understanding the factors that influence parental knowledge can assist in planning targeted educational activities and improving immunization programs. Evaluating the level of awareness among parents of school-aged children enables the identification of knowledge gaps and supports the development of strategies aimed at increasing HPV vaccination coverage and reducing the burden of HPV-related diseases. To examine parents' self-assessment of their level of knowledge regarding HPV infection and HPV vaccination among school-aged children, and to determine the association between sociodemographic characteristics and the level of knowledge.

MATERIAL AND METHODS

This study was conducted as a descriptive cross-sectional quantitative study between November 10 and December 10, 2025, in the city of Prijedor. The study sample consisted of parents of children aged 9 to 14 years. A total of 101 respondents of both sexes participated in the study. The inclusion criteria were: being a parent of a child aged 9–14 years and providing informed consent to participate in the study. Exclusion criteria included parents of children younger or older than the specified age range, incompletely completed questionnaires, and refusal to participate in the study. Data were collected using an author-developed questionnaire created on the Google Forms platform (doc.google.com). The questionnaire was distributed using the snowball sampling method. Statistical data processing was performed using the Statistical Package for the

verzija 26, a za statističku analizu podataka korištene su metode deskriptivne statistike i hi-kvadrat test. Kao nivo statističke značajnosti uzeta je vrijednost $p < 0,05$.

REZULTATI

U istraživanju je učestvovao 101 ispitanik, pri čemu je bila veća zastupljenost ispitanika ženskog pola (72,3%), dok je prosječna starost ispitanika iznosila 41,67 godina. Većina ispitanika (53,6%) je navela da stanuje u urbanoj sredini. Analiza stručne spreme pokazala je da je najveći broj ispitanika imao završenu srednju stručnu spremu (SSŠ) i to 55 ispitanika (54,5%). Visoku ili višu stručnu spremu (VŠS/VSS) imalo je 39 ispitanika (38,6%), dok je najmanji broj ispitanika imao završenu osnovnu školu (6,9%). Analiza povezanosti pola ispitanika i informisanosti o HPV infekciji pokazala je da je velika većina ispitanika, bez obzira na pol, izjavila da je čula za HPV. Među muškarcima je 92,9% ispitanika navelo da je upoznato sa HPV-om, dok je među ženama taj procenat iznosio 90,4%. Mali procenat ispitanika oba pola naveo je da nije čuo za HPV ili da nije siguran u vezi sa tim, što je predstavljeno u tabeli 1. Hi-kvadrat test nije pokazao statistički značajnu povezanost između pola ispitanika i informisanosti o HPV infekciji ($\chi^2 = 0,426$; $p = 0,808$), što ukazuje da se nivo osnovne informisanosti o HPV-u ne razlikuje značajno između muškaraca i žena u ispitivanom uzorku.

Tabela 1. Povezanost pola ispitanika i informisanosti o HPV-u

Da li ste čuli za HPV?	Muško N (%)	Žensko N (%)	UKUPNO N (%)	χ^2	p
Da	26 (92,9)	66 (90,4)	92 (91,1)	0,426	0,808
Ne	1 (3,6)	5 (6,8)	6 (5,9)		
Nisam siguran/a	1 (3,6)	2 (2,7)	3 (3,0)		
Ukupno	28 (100,0)	73 (100,0)	101 (100,0)		

U tabeli 2 je predstavljena analiza povezanosti stručne spreme ispitanika i subjektivne procjene

Social Sciences (SPSS), version 26. Descriptive statistical methods and the chi-square test were used for data analysis. A p-value of less than 0.05 ($p < 0.05$) was considered statistically significant.

RESULTS

A total of 101 respondents participated in the study, with a higher proportion of female participants (72.3%). The mean age of respondents was 41.67 years. Most respondents (43.6%) reported living in urban areas. Analysis of educational attainment showed that the largest proportion of respondents had completed secondary education (55 respondents; 54.5%). Higher education (college or university degree) was reported by 39 respondents (38.6%), while the smallest group consisted of respondents with only primary education (7 respondents; 6.9%). Analysis of the association between respondents' sex and awareness of HPV infection showed that the vast majority of respondents, regardless of sex, had heard of HPV. Among male respondents, 92.9% reported being familiar with HPV, while among females this percentage was 90.4%. A small proportion of respondents of both sexes stated that they had not heard of HPV or were unsure, as presented in Table 1. The chi-square test did not reveal a statistically significant association between respondents' sex and awareness of HPV infection ($\chi^2 = 0.426$; $p = 0.808$), indicating that the level of basic awareness of HPV did not differ significantly between men and women in the study sample.

Table 1. Association between respondents' sex and awareness of HPV

Have you heard of HPV?	Male N (%)	Female N (%)	Total N (%)	χ^2	p
Yes	26 (92.9)	66 (90.4)	92 (91.1)	0.426	0.808
No	1 (3.6)	5 (6.8)	6 (5.9)		
Not sure	1 (3.6)	2 (2.7)	3 (3.0)		
Total	28 (100.0)	73 (100.0)	101 (100.0)		

nivoa informisanosti o HPV infekciji, gdje je uočena statistički značajna razlika između posmatranih grupa. Većina ispitanika sa osnovnom i srednjom stručnom spremom izjavila je da je nedovoljno informisana o HPV-u, dok je među ispitanicima sa višom ili visokom stručnom spremom najveći broj naveo da je dovoljno dobro informisan. Gotovo svi ispitanici koji su se izjasnili da uopšte nisu informisani pripadali su grupi sa nižim nivoom obrazovanja. Rezultati hi-kvadrat testa ukazuju na postojanje statistički značajne povezanosti između stručne spreme i nivoa informisanosti o HPV infekciji ($\chi^2 = 23,909$; $p < 0,001$), što znači da viši nivo obrazovanja prati i viši stepen informisanosti o ovoj temi.

Tabela 2. Povezanost nivoa stručne spreme i informisanost o HPV-u

U kojoj mjeri smatrate da ste informisani o HPV infekciji?					χ^2	p
Stručna sprema	Nedovoljno N (%)	Dovoljno dobro N (%)	Nisam uopšte informisan/a N (%)	Ukupno N (%)		
OŠ	5 (71,4)	1 (14,3)	1 (14,3)	7 (6,93)	23,90	<0,001
SSŠ	38 (69,1)	17 (30,9)	0 (0,0)	55 (54,45)		
VŠŠ/ VSS	15 (38,5)	24 (61,5)	0 (0,0)	39 (36,62)		
Ukupno	58 (57,4)	42 (41,5)	1 (0,99)	101 (100)		

Ispitanici iz urbanih sredina u najvećem procentu su znali da je vakcinacija djece u Republici Srpskoj besplatna (88,6%), dok je među ispitanicima iz prigradskih sredina taj procenat bio 69,8%, a među ruralnim ispitanicima samo 64,3%. U ruralnim područjima primjetan je i veći udio ispitanika koji nisu bili sigurni u ovu informaciju (28,6%), što ukazuje na potencijalnu potrebu za dodatnom edukacijom u tim sredinama. Između ispitanika je uočeno da postoji statistički značajna povezanost u odnosu na mjesto stanovanja i znanja da je HPV

Table 2 presents the association between respondents' educational level and their self-assessed level of knowledge about HPV infection, revealing a statistically significant difference among the observed groups. Most respondents with primary and secondary education stated that they were insufficiently informed about HPV, whereas the majority of respondents with higher education reported being adequately informed. Nearly all respondents who reported being completely uninformed belonged to the lower educational groups. The chi-square test demonstrated a statistically significant association between educational level and awareness of HPV infection ($\chi^2 = 23.909$; $p < 0.001$), indicating that a higher level of education was associated with greater awareness of this topic.

Table 2. Association between educational level and awareness of HPV

To what extent do you consider yourself informed about HPV infection?					χ^2	p
Qualifications	Insufficiently informed N (%)	Adequately informed N (%)	Not informed at all N (%)	Total N (%)		
PS	5 (71.4)	1 (14.3)	1 (14.3)	7 (6.93)	23.909	<0.001
SS	38 (69.1)	17 (30.9)	0 (0.0)	55 (54.45)		
CU	15 (38.5)	24 (61.5)	0 (0.0)	39 (36.62)		
Total	58 (57.42)	42 (41.58)	1 (0.99)	101 (100)		

Respondents from urban areas most frequently knew that HPV vaccination is provided free of charge for children in Republika Srpska (88.6%), whereas this proportion was 69.8% among respondents from suburban areas and only 64.3% among those from rural areas. Rural respondents also showed a higher proportion of uncertainty regarding this information (28.6%), suggesting a potential need for additional educational activities in these communities. A

vakcina besplatna za djecu školskog uzrasta ($\chi^2 = 12,340$; $p = 0,015$), što je prikazano u tabeli 3.

Tabela 3. Povezanost između mjesta stanovanja i znanja o besplatnoj vakcini za djecu školskog uzrasta

Da li znate da je vakcina protiv HPV-a besplatna za djecu školskog uzrasta?					
Mjesto stanovanja	Da N (%)	Ne N (%)	Nisam siguran/a N (%)	χ^2	p
Urbano	39 (88,6)	4 (9,1)	1 (2,3)	12,340	0,015
Prigradsko	30 (69,8)	9 (20,9)	4 (9,3)		
Ruralno	9 (64,3)	1 (7,1)	4 (28,6)		
Ukupno N (%)	78 (77,23)	14 (13,86)	9 (8,91)		

Zbog višestrukih odgovora ispitanika na pitanje o izvoru informacija o HPV-u, za analizu su odgovori objedinjeni u tri kategorije: formalni izvori (škola/predavanja, lekar/medicinsko osoblje), masovni/neformalni izvori (mediji, prijatelji/poznanici) i nisam informisan. Ovaj pristup omogućava pregledniju statističku analizu i upoređivanje učestalosti izvora informacija. Analiza povezanosti između stručne spreme ispitanika i izvora informacija o HPV vakcini pokazala je statistički značajne razlike ($\chi^2 = 18,5$; $p = 0,005$). Rezultati ukazuju na to da postoji značajna razlika u izboru izvora informacija u zavisnosti od stručne spreme ispitanika. Ispitanici sa osnovnom školom uglavnom su se oslanjali na masovne i neformalne izvore, poput medija i prijatelja, ili su bili neinformisani. U ovoj grupi, veći broj ispitanika nije bio informisan o HPV vakcini, dok su formalni izvori bili gotovo potpuno neiskorišćeni. Ispitanici sa srednjom stručnom spremom najčešće su se informisali putem masovnih/neformalnih izvora, ali je zabilježena i veća učestalost korišćenja višestrukih izvora. Formalni izvori su bili prisutni, ali u manjoj mjeri, dok se manji broj ispitanika iz ove grupe osjećao neinformisano. Ispitanici sa višim ili visokim obrazovanjem koristili su širok spektar

statistički značajnu asocijaciju između mjesta stanovanja i znanja da je HPV vakcina besplatna za školsku djecu ($\chi^2 = 12,340$; $p = 0,015$), kao što je prikazano u Tabeli 3.

Table 3. Association between place of residence and knowledge of free HPV vaccination for school-aged children

Do you know that the HPV vaccine is free of charge for school-aged children?					
Place of residence	Yes N (%)	No N (%)	Not sure N (%)	χ^2	p
Urban	39 (88.6)	4 (9.1)	1 (2.3)	12.34	0.015
Suburban	30 (69.8)	9 (20.9)	4 (9.3)		
Rural	9 (64.3)	1 (7.1)	4 (28.6)		
Total	78 (77.23)	14 (13.86)	9 (8.91)		

Because respondents could select multiple answers regarding their sources of information about HPV, responses were grouped into three categories for analysis: formal sources (school/lectures, physician/healthcare professionals), mass/informal sources (media, friends/acquaintances), and not informed. This approach enabled clearer statistical analysis and comparison of the frequency of information sources. Analysis of the association between educational level and sources of information about the HPV vaccine revealed statistically significant differences ($\chi^2 = 18.5$; $p = 0.005$). The results indicate that respondents' choice of information sources differed significantly according to their educational level. Respondents with primary education mainly relied on mass and informal sources such as media and friends or reported being uninformed. In this group, a larger proportion of respondents had no information about the HPV vaccine, while formal sources were almost completely absent. Respondents with secondary education most frequently obtained information from mass/informal sources, although a higher frequency of using multiple sources was also observed. Formal sources were present to a lesser

izvora informacija, uključujući kako formalne, tako i višestruke izvore. Ova grupa ispitanika imala je najmanji procenat onih koji nisu bili informisani, što ukazuje na viši nivo edukacije i dostupnost pouzdanih izvora (tabela 4).

Tabela 4. Povezanost glavnog izvora informacija o HPV vakcini i stručne sprema

Stručna sprema ispitanika					χ^2	p
Izvor informacija	OŠ N(%)	SSŠ N(%)	VŠŠ/ VSS N(%)	Ukupno N		
Formalni izvori	0 (0,0)	7 (12,7)	9 (23,1)	16	18,5	0,005
Masovni/neformalni izvori	3 (42,9)	28 (50,9)	12 (30,8)	43		
Višestruki izvori	1 (14,3)	22 (40,0)	16 (41,0)	39		
Nisam informisan	3 (42,9)	4 (7,3)	2 (5,1)	9		
Ukupno	7	55	39	101		

DISKUSIJA

Rezultati ovog istraživanja pokazuju da je većina roditelja djece školskog uzrasta upoznata sa HPV infekcijom, budući da je 91,1% ispitanika navelo da je čulo za HPV. Ovakav nalaz ukazuje na relativno visok nivo opšte svjesnosti o HPV infekciji među roditeljima. Slični rezultati prikazani su u KAPPAS studiji sprovedenoj u Španiji, gdje je većina roditelja adolescenata navela da je upoznata sa HPV infekcijom i postojanjem vakcine, iako je detaljno znanje o načinima prenosa virusa i prevenciji bilo značajno niže od opšte informisanosti o samom postojanju HPV-a. Autori zaključuju da poznavanje pojma HPV ne mora nužno podrazumijevati adekvatno razumijevanje rizika infekcije i značaja vakcinacije [7]. U našem istraživanju nije utvrđena statistički značajna povezanost između pola ispitanika i informisanosti o HPV infekciji. Slične rezultate navodi Anuforo i saradnici u istraživanju sprovedenom među multietničkom populacijom roditelja u SAD, gdje pol roditelja nije predstavljao značajan prediktor nivoa znanja o HPV vakcinaciji, dok su obrazovanje i socioekonomski faktori imali

extent, and only a small number of respondents in this group reported being uninformed. Respondents with college or university education used a broad range of information sources, including both formal and multiple sources. This group had the lowest proportion of uninformed respondents, indicating a higher level of education and better access to reliable information (Table 4).

Table 4. Association between the main source of information about the HPV vaccine and educational level

Examiner's professional qualifications						
Source of information	PS N(%)	SS N(%)	CU N(%)	Total N	χ^2	p
Formal sources	0 (0.0)	7 (12.7)	9 (23.1)	16	18.5	0.005
Mass/informal sources	3 (42.9)	28 (50.9)	12 (30.8)	43		
Multiple sources	1 (14.3)	22 (40.0)	16 (41.0)	39		
Not informed	3 (42.9)	4 (7.3)	2 (5.1)	9		
Total	7	55	39	101		

DISCUSSION

The results of this study indicate that the majority of parents of school-aged children were familiar with HPV infection, as 91.1% of respondents reported having heard of HPV. This finding suggests a relatively high level of general awareness regarding HPV infection among parents. Similar results were reported in the KAPPAS study conducted in Spain, where most parents of adolescents were aware of HPV infection and the existence of the vaccine, although detailed knowledge regarding transmission routes and preventive measures was substantially lower than general awareness of HPV itself. The authors concluded that awareness of HPV does not necessarily imply an adequate understanding of infection risks and the importance of vaccination [7]. In our study, no statistically significant association was found between respondents' sex and awareness of HPV infection. Similar findings were reported by

znatno veći uticaj [8]. Jedan od najvažnijih nalaza našeg istraživanja jeste postojanje statistički značajne povezanosti između nivoa obrazovanja i informisanosti o HPV infekciji. Roditelji sa višim i visokim obrazovanjem značajno češće su smatrali da su dovoljno informisani u odnosu na roditelje sa nižim nivoom obrazovanja. Ovaj nalaz je u skladu sa rezultatima sistematskog pregleda Chen i saradnika, koji pokazuje da viši nivo obrazovanja doprinosi boljem razumijevanju HPV infekcije, većoj zdravstvenoj pismenosti i boljem poznavanju koristi HPV vakcinacije [6]. Autori navode da obrazovanje predstavlja jedan od najdosljednijih prediktora znanja i prihvatanja HPV vakcinacije među roditeljima. Značaj obrazovanja potvrđuju i rezultati KAPPAS studije, u kojoj su roditelji sa višim stepenom obrazovanja imali značajno bolje rezultate na testovima znanja o HPV infekciji i vakcinaciji u poređenju sa roditeljima nižeg obrazovnog nivoa [7]. Ovakvi nalazi ukazuju da zdravstvena pismenost predstavlja važan faktor u razumijevanju preventivnih mjera i donošenju informisanih odluka vezanih za zdravlje djece. U ovom istraživanju utvrđena je statistički značajna povezanost između mjesta stanovanja i znanja o tome da je HPV vakcina besplatna za djecu školskog uzrasta. Roditelji iz urbanih sredina značajno češće su posjedovali ovu informaciju u odnosu na roditelje iz ruralnih područja. Slične razlike između urbanih i ruralnih sredina opisane su u više istraživanja. Studija Dickinson i saradnika sprovedena među roditeljima u ruralnim područjima Oregona pokazala je da roditelji iz ruralnih zajednica imaju ograničeniji pristup informacijama o HPV vakcinaciji i rjeđe razgovaraju sa zdravstvenim radnicima o ovoj temi [9]. Takođe, istraživanje o faktorima povezanim sa HPV vakcinacijom u ruralnim i urbanim područjima SAD pokazalo je da roditelji iz ruralnih sredina imaju niži nivo informisanosti i manju vjerovatnoću da će njihova djeca biti vakcinisana protiv HPV-a u poređenju sa roditeljima iz urbanih sredina. Autori ističu da dostupnost zdravstvenih usluga i kvaliteta zdravstvene komunikacije predstavljaju važne faktore koji doprinose ovim razlikama [10].

Anuforo et al. in a study conducted among a multiethnic population of parents in the United States, where parental sex was not a significant predictor of HPV vaccination knowledge, while educational and socioeconomic factors exerted a considerably greater influence [8]. One of the most important findings of our study is the statistically significant association between educational level and awareness of HPV infection. Parents with higher educational attainment were significantly more likely to consider themselves adequately informed compared with parents with lower educational levels. This finding is consistent with the systematic review by Chen et al., which demonstrated that higher educational attainment contributes to a better understanding of HPV infection, greater health literacy, and improved knowledge of the benefits of HPV vaccination [6]. The authors identified education as one of the most consistent predictors of parental knowledge and acceptance of HPV vaccination. The importance of education is further supported by the findings of the KAPPAS study, in which parents with higher educational attainment achieved significantly better scores on HPV knowledge and vaccination assessments than parents with lower educational levels [7]. These findings suggest that health literacy is a key factor in understanding preventive measures and making informed decisions regarding children's health. This study also identified a statistically significant association between place of residence and awareness that HPV vaccination is free of charge for school-aged children. Parents from urban areas were significantly more likely to possess this information than parents from rural areas. Similar urban-rural differences have been reported in several studies. Dickinson et al., in a study conducted among parents in rural Oregon, found that parents from rural communities had more limited access to information regarding HPV vaccination and were less likely to discuss this topic with healthcare professionals [9]. Furthermore, research examining factors associated with HPV vaccination in rural and urban areas of the United States demonstrated that parents from rural

Posebno značajan nalaz našeg istraživanja odnosi se na izvore informacija o HPV vakcini. Roditelji sa nižim nivoom obrazovanja češće su koristili neformalne izvore informacija, poput medija i prijatelja, dok su ispitanici sa višim obrazovanjem češće koristili formalne izvore ili kombinovali više različitih izvora informisanja. Ovakvi rezultati u skladu su sa istraživanjem McKenzie i saradnika, koje pokazuje da način traženja informacija značajno utiče na stavove roditelja prema HPV vakcinaciji. Roditelji koji informacije dobijaju od zdravstvenih radnika pokazuju veće povjerenje u vakcinu i bolje razumijevanje njenog preventivnog značaja, dok se oslanjanje na društvene mreže i neprovjerene izvore povezuje sa češćim prisustvom zabluda i nedoumica [11]. Ograničenje ovog istraživanja predstavlja relativno mali i prigodni uzorak ispitanika, kao i primjena metode „snježne kugle“, što može ograničiti mogućnost generalizacije rezultata na širu populaciju roditelja u Republici Srpskoj. Takođe, podaci su prikupljeni samoprocjenom ispitanika, što može dovesti do pojave informacione pristrasnosti. Uprkos navedenim ograničenjima, istraživanje pruža vrijedan uvid u nivo informisanosti roditelja djece školskog uzrasta o HPV vakcinaciji i identifikuje ključne faktore povezane sa znanjem o ovoj važnoj preventivnoj mjeri.

ZAKLJUČAK

Rezultati ovog istraživanja imaju značajne implikacije za javno zdravstvo. Uočene razlike u informisanosti u odnosu na obrazovanje i mjesto stanovanja ukazuju na potrebu razvoja ciljano usmjerenih edukativnih programa koji će biti prilagođeni specifičnim potrebama različitih grupa stanovništva. Posebnu pažnju potrebno je usmjeriti na roditelje sa nižim nivoom obrazovanja i stanovnike ruralnih područja, kod kojih je identifikovan niži nivo informisanosti o HPV infekciji i mogućnostima vakcinacije.

communities had lower levels of awareness and were less likely to have their children vaccinated against HPV compared with parents from urban settings. The authors emphasized that access to healthcare services and the quality of health communication are important contributors to these disparities [10]. A particularly important finding of our study concerns the sources of information about the HPV vaccine. Parents with lower educational attainment relied more frequently on informal sources of information, such as media and friends, whereas respondents with higher educational attainment more commonly used formal sources or combined multiple information sources. These findings are consistent with the study by McKenzie et al., which demonstrated that information-seeking behavior significantly influences parental attitudes toward HPV vaccination. Parents who receive information from healthcare professionals exhibit greater trust in the vaccine and a better understanding of its preventive value, whereas reliance on social media and unverified sources is associated with more frequent misconceptions and uncertainties [11]. The limitations of this study include the relatively small convenience sample and the use of snowball sampling, which may limit the generalizability of the findings to the broader population of parents in Republika Srpska. Additionally, data were collected through self-report measures, which may introduce information bias. Despite these limitations, the study provides valuable insight into the level of awareness among parents of school-aged children regarding HPV vaccination and identifies key factors associated with knowledge of this important preventive measure.

CONCLUSION

The findings of this study have important public health implications. The observed differences in awareness according to educational level and place of residence highlight the need for targeted educational programs tailored to the specific needs

of different population groups. Particular attention should be directed toward parents with lower educational attainment and residents of rural areas, among whom lower levels of awareness regarding HPV infection and vaccination opportunities were identified.

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