
Šćepan Sinanović^{1,5}, Tanja Prodović¹, Biljana Prodović Milojković²,
Velimir Štavljanin³, Tatjana Kilibarda⁴, Jelena Sekulić¹,
Olivera Milovanović⁵, Danilo Jeremić⁶

DIGITALNE KOMUNIKACIJE U FUNKCIJI PODIZANJA SVESTI O ONKOLOŠKIM BOLESTIMA – Razlike u odgovorima između ispitanika različitih demografskih karakteristika –

Apstrakt: U vremenu kada je korišćenje digitalnih tehnologija u potpunosti postalo dostupno velikom broju ljudi, digitalne transformacije u oblasti zdravstva omogućavaju značajne promene u domenu znanja, informisanja i pružanja zdravstvenih usluga. Upravo, u uslovima povećanja broja obolelih od malignih bolesti, primena digitalnih komunikacija daje nove okvire pružanja zdravstvenih usluga, kao i organizovanja preventivnih aktivnosti.

U radu se testiraju razlike u odgovorima između ispitanika različitih demografskih karakteristika, procene opšteg zdravlja, obavljenom skriningu i primljenim informacijama o malignim bolestima.

Autori sprovedenim istraživanjem upravo žele da skrenu pažnju na aktuelne probleme zdravstvenog sistema, kako bi se definisale strategije za nove načine poslovanja u zdravstvu. U tom kontekstu su i svi njihovi naponi.

Cljučne reči: Digitalne komunikacije, svest pacijenata, informacije, demografske karakteristike, onkološke bolesti

Uvodna razmatranja

Dvadeset prvi vek se karakteriše globalizacijom društva koje postaje najznačajnija i najjača pokretačka poluga savremene civilizacije i predstavlja uzajamnu povezanost,

¹ Šćepan Sinanović, Visoka medicinska škola strukovnih studija „Milutin Milanković”, Beograd, E-mail: scep.anovic@gmail.com

² Univerzitet „Metropolitan” Beograd, Fakultet za primenjenu ekologiju „Futura”, Beograd

³ Univerzitet u Beogradu, Fakultet organizacionih nauka, Beograd

⁴ Akademija vaspitačko-medicinskih strukovnih studija Kruševac – Odsek Čuprija, Čuprija

⁵ Univerzitet u Kragujevcu, Fakultet medicinskih nauka, Kragujevac

⁶ Institut za ortopediju „Banjica”, Beograd

uslovljenost i zavisnost tehnološkog progresa, znanja, ideja i tržišnog privređivanja. Savremeno društvo je društvo digitalnih tehnologija koje su prisutne u svakom domenu ljudskog života, što zahteva unapređenje veština digitalne pismenosti i prevazilaženje prepreka kao što su: stav, starost, socijalni i ekonomski status, jezik i regionalna dostupnost resursa. Digitalne tehnologije postale su sastavni deo svakodnevnog života svakog pojedinca, pre svega zbog lakog i brzog pristupa informacijama i brzog protoka podataka. Na taj način ljudi zadovoljavaju lične, interpersonalne, socijalne, kulturološke, egzistencijalne i druge oblike života.¹

U dinamičnom procesu globalizacije razvoj informacionih tehnologija utiče na stvaranje novih kompetencija, uklanjaju se barijere za internacionalnu razmenu informacija, poslovanje, stvaranje konkurentskih prednosti, kao i razmenu i povezivanje istraživačkih iskustava. Navedena dinamika je praćena kreiranjem novih razvojnih strategija, određenih aktivnosti za njihovu realizaciju, koje se zasnivaju na digitalnoj pismenosti i veštinama neophodnih za kvalitetno korišćenje informaciono-komunikacionih tehnologija i digitalnih medija.

Značajna determinanta sposobnosti nacije da bude uspešna na putu globalnog progresa je očuvanje zdravlja ljudi². Medicinska znanja, povezana sa dostignućima elektronike, robotike i informacionih tehnologija, ostvaruju značajna dostignuća u cilju očuvanja zdravlja i izlečenja. Razmenom znanja i savremenih dostignuća iz oblasti medicine države mogu kreirati adekvatne mehanizme delovanja zdravstvenog sistema, koji se ogledaju u zajedničkim projektima edukacije, promocije zdravih životnih navika, a u cilju prevencije zdravlja. Zbog toga dostignuća u medicini, ma gde nastala, pripadaju svim ljudima, nemaju granice, a eksperti iz određenih oblasti i njihovi timovi nesebično prenose svoja znanja i iskustva širom sveta putem digitalnih medija.

Aktuelnost proizlazi iz strategije SZO³ koja uvažavajući prethodna iskustva zemalja i organizacija, definiše međusobnu povezanost digitalnih tehnologija, način prikupljanja, upravljanja i procene zdravstvenih podataka u skladu sa utvrđenim principima dobre lekarske prakse, uz razmatranje održivosti inovacija i njihove izvodljivosti, obima i inkluzivnosti³. SZO insistira na identifikovanju prioriternih oblasti u kojima bi saveti o digitalnom zdravlju bili korisni u smislu preventivnih aktivnosti i nege, uz poštovanje postojećih standarda, bezbednosti podataka, poštovanje etičkih i pravnih načela.

Autori u radu istražuju uticaj digitalnih komunikacija na pružanje informacija o zdravlju i onkološkim bolestima, a u cilju podizanja svesti, prevencije i ranog skrininga. Njegova društvena primena teži praktičnoj koristi rezultata samog istraživanja, tj. da uz sagledavanje potencijala digitalnih komunikacija⁴ u promociji zdravlja i prevenciji onkoloških bolesti, kako teorijski tako i na praktičnom primeru, ukažu na značaj digitalnih komunikacija u sprovođenju programa prevencije i podizanja svesti o malignim bolestima na lokalnom, ali i globalnom nivou. Svoje

stavove autori u radu iznose na osnovu činjenice da su digitalne komunikacije u zdravstvenom sistemu neophodne u cilju podizanja svesti o onkološkim bolestima i povećanju informisanosti stanovništva.

Metodološka razmatranja – instrumenti i rezultati istraživanja

U istraživanju je korišćen *Upitnik o digitalnim komunikacijama u prevenciji onkoloških bolesti*, koji sadrži 25 pitanja i sastoji se iz više delova (opširnije o upitniku videti u: Sinanović, 2020). Sam upitnik ispitanicima je prosleđen na društvenoj mreži *Facebook*. Pored deskriptivne statistike, korišćene su i statističke analize testiranja.

Na uzorku od 150 ispitanika, oba pola, izabranih metodom slučajnog izbora, sprovedeno je istraživanje. Analiza je realizovana u periodu od septembra do decembra 2019. godine u obliku studije preseka. Uzorak je stratifikovan po:

- polu (muško–žensko)
- starosti (≤ 29 ; 30 do 39; 40 do 59; ≥ 60)
- stepenu edukacije (bez škole, završena osnovna škola, srednja školska sprema, fakultet)
- bračnom stanju (oženjen/udata, razveden/a, udovac/ica, neoženjen/neudata).

Prema *polnoj distribuciji*, u istraživanju su zastupljena oba pola i to 54% (81 ispitanik) ženskog i 46% (69 ispitanika) muškog pola. Ne postoji značajna razlika u distribuciji po polu između ispitanika. Prema *starosnoj dobi*, 61% ispitanika je do 40 godina starosti, što je u podudarnosti sa činjenicom da društvenu mrežu na kojoj je upitnik prosleđen uglavnom prate mlađe osobe.⁵ Najveći broj, 63 ispitanika, je u braku, 43%, dok je manje neoženjenih/neudatih 37% (53), razvedenih 14% (23) i u statusu udovca/udovice 6%, tj. 9 ispitanika. Na osnovu demografskih obeležja ispitanika, prema stepenu obrazovanja najveći broj ispitanika 59% (88) ima srednje obrazovanje, 25% završen fakultet (38), završenu osnovnu školu ima 13% (19) ispitanika i bez obrazovanja je 3%, tj. 5 ispitanika. Pozivajući se opet na *Pew Research Center's report*, 60% odraslih sa srednjoškolskom diplomom ili nižim stepenom obrazovanja koristi *Facebook*, 71% ima višu školu, dok je 77% korisnika sa fakultetom⁵.

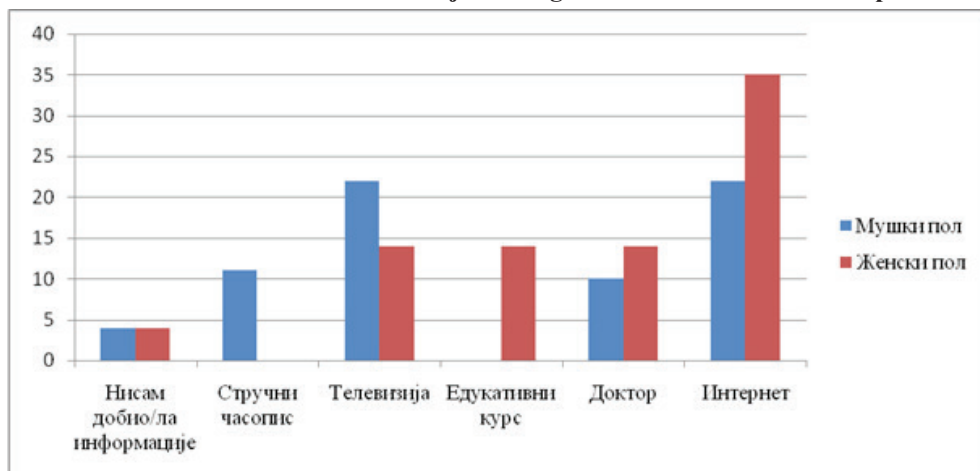
Analiza najpre počinje prikazom postojećih razlika u odgovorima ispitanika različitih demografskih karakteristika. Testirano je da li postoje razlike u odnosu na ispitanike različitih demografskih karakteristika u pogledu procene zdravlja, skrining testa na karcinom i procene obolevanja od karcinoma.

Testiranjem korišćenja t-testa pokazano je da jedino postoje statistički značajne razlike u subjektivnoj proceni obolevanja od raka. Muškarci su imali manji nivo

subjektivne procene obolevanja od raka ($M = 4.79$, $SD = 2.93$) u odnosu na žene ($M = 5.49$, $SD = 2.67$; $t(148) = 4.62$, $p = .068$).

Hi-kvadrat testom je dalje u analizi testirano da li postoje razlike među ispitanicima različitih demografskih karakteristika i čitanja pisanih informacija iz brošura o malignim bolestima. Nije utvrđena statistički značajna razlika između ispitanika različitog pola, godišta, bračnog statusa i obrazovanja. Takođe se proveravalo istim testom da li postoje razlike u pogledu izvora iz kojih se informišu ispitanici različitih demografskih karakteristika. Po pitanju različitih izvora informisanja o malignim bolestima, na prikazanom grafikonu (1) date su informacije o tome kako su se informisali muškarci u odnosu na žene.

Grafikon 1. Razlike u izvoru informacija o malignim bolestima u odnosu na pol



Izvor: Sinanović⁶, 2020: 61

Postoji statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na izvore informisanja ispitanika muškaraca u odnosu na žene $\chi^2(5, n = 150) = 29.63$, $p = .000$.

Nije pokazana statistički značajna razlika ispitanika različite starosti u odnosu na izvore informisanja o malignim bolestima. Analiza nije pokazala ni postojanje statistički značajne razlike ispitanika različitog bračnog statusa. Analizirano je i kako su se o malignim bolestima informisali i ispitanici različitog obrazovanja. Na grafikonu 2 prikazano je kako su se informisali oni koji imaju najviše osnovno, srednje obrazovanje i fakultet. Postoji statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na izvore informisanja ispitanika različitog nivoa obrazovanja, uz nepostojanje pretpostavke o minimumu očekivanih frekvencija u poljima $\chi^2(10, n = 150) = 25.63$, $p = .004$.

Grafikon 2. Razlike u izvoru informacija o malignim bolestima u odnosu na obrazovanje

Izvor: Sinanović⁶, 2020: 62

U nastavku je analizirano postojanje razlike u potrebama za informisanjem u odnosu na različite demografske karakteristike. Analizirana je razlika između pola ispitanika i potrebe za više informacija o malignim bolestima. Utvrđena je statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na potrebu za informisanjem ispitanika muškaraca u odnosu na žene $\chi^2(2, n = 150) = 7.91, p = .019$. Analiza nije pokazala statistički značajnu razliku u odnosu na potrebu za više informacija o malignim bolestima i ispitanika različitog godišta, bračnog statusa i obrazovanja.

Kako bi se ispitalo da li postoje razlike u ponašanju u *online* okruženju između ispitanika različitih demografskih karakteristika, analizirane su najkorišćenije društvene platforme i frekvencije korišćenja društvenih platformi. Tom prilikom je utvrđeno da postoji samo razlika između pola ispitanika i najčešće korišćene platforme za društvene medije. Dakle, postoji statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na najčešće korišćene platforme za društvene medije ispitanika muškog u odnosu na ženski pol $\chi^2(2, n = 150) = 10.36, p = .006$.

Što se tiče razlike u demografskim karakteristikama u odnosu na dobijanje poruka o zdravlju na različitim društvenim platformama (*WhatsApp, Facebook, Twitter*) jedina statistički značajna razlika dobijena Hi-kvadrat testom je u odnosu na primanje poruka o zdravlju putem *Twitter* društvene platforme i ispitanika muškog u odnosu na ženski pol $\chi^2(2, n = 150) = 7.80, p = .021$. Za isto pitanje takođe postoji statistički značajna razlika ispitanika različitog nivoa obrazovanja $\chi^2(4, n = 150) = 8.72, p = .068$. Dok analiza razlika u dobijanju poruka o zdravlju na društvenim platformama (*WhatsApp, Facebook, Twitter*) u odnosu na starost i na bračni status nije utvrdila postojanje statistički značajnih razlika. U daljoj analizi ispitano je da li postoji razlika u odnosu na uticaj društvenih mreža na donošenje odluke o zdravstvenoj zaštiti članova porodice ispitanika različitih demografskih karakteristika. Tako je utvrđeno da postoji

statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na starost χ^2 (8, $n = 150$) = 15.47, $p = .051$. Istraživanje je takođe pokazalo da postoji statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na lečenje prema objavi na društvenim medijima bez konsultacija sa lekarom u odnosu na pol χ^2 (2, $n = 150$) = 12.001, $p = .002$. Analizom nije dobijena statistički značajna razlika ispitanika različitih demografskih karakteristika u odnosu na razgovor sa lekarom ili drugim zdravstvenim radnikom o tačnosti informacija primljenih sa platforme društvenih medija.

U daljoj analizi istraživanja razlika između ispitanika različitih demografskih karakteristika i brojnih analiziranih stavova jasno je ustanovljeno postojanje značajne statističke razlike Hi-kvadrat testom u odnosu na pol, i to prema sledećim stavovima: a) stava o platformi sa najboljim informacijama o zdravlju χ^2 (4, $n = 150$) = 11.12, $p = .025$; stava o onlajn razgovoru sa medicinskim stručnjakom o zdravstvenim problemima ili zdravlju članova porodice od kuće χ^2 (2, $n = 150$) = 9.53, $p = .009$; ali i stava o mogućnosti kontakta mobilnim telefonom sa lekarom u slučaju potrebe za zdravstvenim savetom ispitanika različitog pola χ^2 (2, $n = 150$) = 41.22, $p = .000$. Potvrđeno je i da postoji statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na stav o mogućnosti kontakta mobilnim telefonom sa lekarom u slučaju potrebe za zdravstvenim savetom u odnosu na bračni status χ^2 (6, $n = 150$) = 12.88, $p = .045$. Pri čemu u analizi nije utvrđena statistički značajna razlika između ispitanika različitih demografskih karakteristika i poseta foruma o zdravlju, kao i značajna iskustva i preporuka ljudi sa sličnim zdravstvenih problemima. Ona nije utvrđena ni po pitanju mogućnosti kontakta mobilnim telefonom sa lekarom u slučaju potrebe za zdravstvenim savetom i posedovanja aplikacije o zdravlju na mobilnom telefonu.

U nastavku analize ispitana je veza urađenog skrining testa na karcinom i različitih izvora informisanja o malignim bolestima, uticaja poruka sa društvenih mreža na odluku o zdravstvenoj zaštiti, razgovora o tačnosti informacija sa društvenih mreža sa lekarom, posetama forumima, značaju iskustva ljudi koji imaju slične zdravstvene probleme, razgovora onlajn sa lekarom, kontakta mobilnim telefonom sa doktorom o posedovanju mobilne aplikacije o zdravlju. Ono što smo otkrili u ovom delu analize je da postoji statistički značajna razlika dobijena Hi-kvadrat testom u odnosu na ispitanike koji su obavili skrining test i: a) potrebe za više informacija o malignim bolestima χ^2 (4, $n = 150$) = 7.87, $p = .097$; b) potvrde o tačnosti informacija sa društvenih medija χ^2 (4, $n = 150$) = 11.49, $p = .022$; c) lečenja prema objavi na društvenim medijima bez konsultacija sa lekarom χ^2 (4, $n = 150$) = 14.17, $p = .007$; d) komunikacije onlajn sa medicinskim stručnjakom od kuće χ^2 (4, $n = 150$) = 9.12, $p = .058$; e) mogućnosti kontakta mobilnim telefonom sa lekarom u slučaju potrebe za zdravstvenim savetom χ^2 (4, $n = 150$) = 11.54, $p = .021$.

Akcentat je stavljen i na ispitivanje veza potrebe za više informacija o malignim bolestima i različitih izvora informisanja o malignim bolestima, uticaja poruka sa

društvenih mreža na odluku o zdravstvenoj zaštiti, razgovora o tačnosti informacija sa društvenih mreža sa lekarom, posetama forumima, značaju iskustva ljudi koji imaju slične zdravstvene probleme, razgovora onlajn sa lekarom, kontakta mobilnim telefonom sa doktorom o posedovanju mobilne aplikacije, e-zdravlje.

Primećeno je da postoji statistički značajna razlika dobijena Hi-kvadrat testom u dobijanju poruka o zdravlju na određenoj platformi u odnosu na ispitanike različitih potreba za informacijama o malignim bolestima, i to: na *Fejsbuku* $\chi^2(4, n = 150) = 43.14, p = .000$ i na *Tviteru* $\chi^2(4, n = 150) = 8.65, p = .071$. Takođe je konstatovana statistički značajna razlika dobijena Hi-kvadrat testom u stavu o platformi sa najboljim informacijama o zdravlju u odnosu na potrebu za informacijama o malignim bolestima $\chi^2(8, n = 150) = 14.89, p = .061$.

Nadalje je u analizi korišćena i korelacija kako bi se utvrdilo da li između različitih stavova ispitanika postoje veze, koje su jačine i kog su tipa. U tabeli (1) koja sledi prikazane su samo statistički značajne veze.

Tabela 1. Koeficijenti korelacije

		Samostalno lečenje prema objavi na društvenim mrežama	Značaj preporuka i iskustava ljudi sa foruma	Komunikacija online/ od kuće sa doktorom	Telefonski kontakt sa doktorom
Potvrda informacija sa društvenih mreža o zdravlju	Koeficijent korelacije	.239**			
	P	0.001			
	N	150			
Poseta foruma o zdravlju	Koeficijent korelacije		.526**		
	P		0.000		
	N		150		
Značaj preporuka i iskustva ljudi sa foruma	Koeficijent korelacije			.481**	.362**
	P			0.000	0.000
	N			150	150
Komunikacija online/od kuće sa doktorom	Koeficijent korelacije				.712**
	P				0.000
	N				150

Koeficijenti korelacije pokazuju da ljudi u većini slučajeva (koristeći savremena sredstva komunikacije i savremene tehnologije) daju prednost *on line* komunikaciji od kuće sa lekarom, ali da se isto tako dobar deo njih (imajući poverenja pre svega u izgovorenu reč) ne odriče ni telefonskog kontakta sa doktorom.

Zaključak

Zdravstvena informaciona tehnologija sve više postaje deo standardne medicinske nege, efikasna i u svakom trenutku dostupna komunikacija lekar–pacijent ne samo da poboljšava emocionalno zdravlje pacijenata, već pomaže u rešavanju simptoma, funkcionalnom i fiziološkom statusu i kontroli bola⁷.

Digitalne tehnologije su nova stvarnost savremenog društva, vrtoglavom brzinom menjaju način života i okvire funkcionisanja⁸ omogućavajući brz pristup informacijama, promenu znanja, inteligencije, akcije i poslovanja⁹. Komunikacija putem digitalnih tehnologija je od suštinskog značaja za pružanje visokokvalitetne kliničke prakse jer omogućuje: individualnu negu koja poštuje autonomiju pacijenta, sigurniju i efikasniju zdravstvenu zaštitu, bolji ishod bolesti, zadovoljnije i samostalnije pacijente i efikasnije i ekonomski isplativije usluge nege i lečenja. Upravo je, zbog visoke učestalosti malignih oboljenja, visoke stope smrtnosti u cilju sprovođenja prevencije i ranog otkrivanja malignih tumora, ali i bolje dijagnostike, lečenja i nege obolelih, neophodna izrada i sprovođenje sveobuhvatnih nacionalnih programa prevencije i kontrole malignih bolesti. Prevencija malignih bolesti ima ogroman javno-zdravstveni potencijal i predstavlja najefikasniji pristup kontroli maligniteta. Odgovarajuća primena znanja na svim nivoima zdravstvene zaštite i sveobuhvatna mobilizacija nacije u borbi protiv karcinoma moguća je upotrebom informacionih i komunikacionih tehnologija, pre svega u podizanju svesti ljudi o onkološkim bolestima.

Prevencija malignih bolesti ima ogroman javno-zdravstveni potencijal i predstavlja najefikasniji pristup kontroli, jer rano dijagnostikovanje karcinoma spašava živote i smanjuje troškove lečenja. Neophodno je osnažiti čitavu zajednicu kreiranjem i sprovođenjem medijskih kampanja i povećanja informisanosti ljudi o digitalnom zdravlju, a u cilju dobijanja brzih i stručnih zdravstvenih saveta¹⁰. Nova digitalna rešenja u službi zdravlja, pored podsticaja na usvajanje zdravih životnih navika¹¹, smanjenja faktora rizika u cilju prevencije malignih bolesti, omogućuju i prevazi- laženje nejednakosti zdravstvenih sistema u pružanju usluga¹². Internet povezuje vrhunske stručnjake iz raznih delova sveta koji će nesebično podeliti svoje znanje, kako sa kolegama tako i sa pacijentima u cilju pružanja sveobuhvatne i kvalitetne zdravstvene zaštite^{13,14,15}. Postoje dokazi da komunikacija preko interneta s pružateljima zdravstvene zaštite unapređuje kvalitet zdravlja i da bi potrošači zdravstvene zaštite imali koristi od povećanja partnerstva između zdravstvene informacione tehnologije

i pružatelja zdravstvenih usluga⁶. Brojne inovacije šire mogućnosti zdravstvenog delovanja u cilju zadovoljavanja osnovnog cilja – da dostigne najveći mogući nivo unapređenja i očuvanja zdravlja ljudi. Uz pomoć interneta informacije o zdravlju nisu više u isključivom posedu medicinara – one postaju dostupne javnosti, čime pojedinci aktivnim interesovanjem učestvuju u rešavanju svojih zdravstvenih problema i na taj način postaju ravnopravni članovi zdravstvenog tima¹⁶.

Odgovornost za zdravlje nacije je na vladama koje treba da osnažuju i razvijaju programe prevencije malignih bolesti, ali i na svakom pojedincu. Digitalni mediji pružaju neograničene mogućnosti informisanja, bez granica i jezičkih barijera, omogućuju prave i proverene informacije, kontakt sa stručnjacima iz različitih oblasti medicine, pravovremeno savetovanje – zbog toga jedini pravilni izbor je: *informišimo se i izaberimo zdravlje!*

Literatura

1. Krotoski A. (2010), The internet can facilitate social change, preuzeto sa adrese: <https://www.theguardian.com/technology/2010/aug/08/my-bright-idea-charlesleadbea-ter>.
2. Prođovic, T, Ignjatovic-Ristic, D, Prođovic-Milojkovic, B, “Bio-psycho-social concept of ageing”, Zbornik radova Filozofskog fakulteta u Prištini, sa privremenim sedištem u Kosovskoj Mitrovici, 309–326, XLIV (3)/2014.
3. WHO (2018), WHO seventi-first world health assembly, May 21, 2018. Document A71/20. Agenda item 12.4.
4. Prođovic, B. (2012), „Uticaj medija na stavove i ponašanje čoveka – mediji i moralna panika”, Zbornik: Kriza i perspektiva znanja i nauke, Nauka i savremeni univerzitet br. 1, Drugi tom, Filozofski fakultet u Nišu, 380–390.
5. Maddock C, Camporesi S, Lewis I, Ahmad K, Sullivan R. (2012), Online information as a decision making aid for cancer patients: recommendations from the Eurocancercoms project. Eur. J. Cancer. 48(7): 10⁵5–59.
6. Sinanovic, Š. (2020), Digitalne komunikacije u funkciji podizanja svesti o onkološkim bolestima, Univerzitet u Beogradu, Medicinski fakultet. Master rad, 1–94.
7. Travaline J. M, Ruchinskas R, D’Alonzo GE, Jr. (2005), “Patient-physician communication: why and how”. J Am Osteopath Assoc. 2005; 105(1): 13–18.
8. Kemp S. (2019), Digital 2019: global digital overview. Retrieved from <https://datareportal.com/reports/digital-2019-global-digital-overview>.
9. Lemke, C. (2003). EnGauge 21st century skills: Literacy in the digital age. USA: North central regional educational laboratory. Retrieved from <http://pict.sdsu.edu/engauge21st.pdf>.
10. Turner S, Maher EJ., Young, T, Young, J, Vaughan, HG. (1996), „What are the information priorities for cancer patients involved in treatment decisions? An experienced surrogate study in Hodgkin’s disease”. Br J Cancer. 1996; 73(2): 222–27.

11. Prodovic, T, Prodovic Milojkovic, B, Krstovic, M. (2020), „Demografski aspekti starenja i zdrav život starijeg stanovništva Jugoistočne Srbije, Gerontologija, 1/2020, Godina XLVIII, 101–119, Beograd. ISSN 2560-5704.
12. Leong SL, Gingrich, D, Lewis, PR, Mauger, DT, George, JH. (2005), “Enhancing doctor–patient communication using email: a pilot study”. J Am Board Fam Pract. 2005; 18(3): 180–8.
13. Katz SJ., Nissan, N, Moyer, CA. (2004), “Crossing the digital divide: evaluating online communication between patients and their providers”. Am J Manag Care. 2004; 10(9): 593–8.
14. Prodovic, T, Prodovic Milojkovic, B. (2014), „Neki aspekti zdravstvene zaštite i mreže zdravstvenih institucija u nerazvijenim područjima Jugoistočne Srbije”, Zbornik: Stanovništvo Jugoistočne Srbije: Regionalne disproporcije u razvoju Srbije, migracije i demografska reprodukcija, Filozofski fakultet, Centar za sociološka istraživanja, Centar za naučnoistraživački rad SANU Univerziteta u Nišu, Niš, 114–133.
15. Prodovic, T, Prodovic Milojkovic, B. (2015), „Koncept starenja i kvalitet života”, Zbornik: Starenje i kvalitet života: tranzicija i evrointegracije, Tematski međunarodni zbornik radova. Kosovska Mitrovica: Filozofski fakultet. 29–43.
16. Horrigan J, Rainie L. (2006), The Internet’s Growing Role in Life’s Major Moments. Washington, DC: Pew Internet & American Life Project.

Šćepan Sinanović^{1,5}, Tanja Prodović¹, Biljana Prodović Milojković²,
Velimir Štavljanin³, Tatjana Kilibarda⁴, Jelena Sekulić¹,
Olivera Milovanović⁵, Danilo Jeremić⁶

DIGITAL COMMUNICATIONS IN THE FUNCTION OF RAISING AWARENESS ABOUT ONCOLOGIC DISEASES

– Differences in responses between respondents with different demographic characteristics –

Abstract: At a time when the use of digital technologies has become totally available to a large number of people, digital transformations in the domain of health enable significant changes when it comes to knowledge, information and provision of healthcare services. Therefore, in the conditions of an increase in the number of people suffering from malignant diseases, the application of digital communications provides new frameworks for the provision of healthcare services as well as the organization of some preventive activities.

The paper tests the differences in answers between respondents who have different demographic characteristics, general health assessment, performed screening and received information about malignant diseases.

Carrying out this research, the authors want to draw attention to the current issues of the healthcare system, in order to define some strategies for new ways of doing business in healthcare. All their efforts are in that context.

Keywords: Digital communications, patient awareness, information, demographic characteristics, oncological diseases

¹ Šćepan Sinanović, High Medical College of Professional Studies “Milutin Milankovic”, Belgrade, E-mail: scep.sinanovic@gmail.com

² Metropolitan University – Faculty of Applied Ecology “Futura”, Belgrade

³ University of Belgrade, Faculty of Organizational Sciences, Belgrade

⁴ Academy of Applied Preschool Teaching and Health Studies – Department in Čuprija

⁵ University in Kragujevac, Faculty of Medical Sciences

⁶ Institute for Orthopedic Surgery “Banjica”, Belgrade

Abstract: U vremenu kada je korišćenje digitalnih tehnologija u potpunosti postalo dostupno velikom broju ljudi, digitalne transformacije u oblasti zdravstva omogućavaju značajne promene u domenu znanja, informisanja i pružanja zdravstvenih usluga. Upravo, u uslovima povećanja broja obolelih od malignih bolesti, primena digitalnih komunikacija daje nove okvire pružanja zdravstvenih usluga, kao i organizovanja preventivnih aktivnosti. U radu se testiraju razlike u odgovorima između ispitanika različitih demografskih karakteristika, procene opšteg zdravlja, obavljenom skriningu i primljenim informacijama o malignim bolestima.

Autori sprovedenim istraživanjem upravo žele da skrenu pažnju na aktuelne probleme zdravstvenog sistema, kako bi se definisale strategije za nove načine poslovanja u zdravstvu. U tom kontekstu su i svi njihovi naponi.

Ključne reči: digitalne komunikacije, svest pacijenata, informacije, demografske karakteristike, onkološke bolesti

Introductory consideration

The 21st century is characterized by the globalization of society, which becomes the most significant and strongest driving lever of modern civilization and represents mutual connection, conditioning and dependence of technological progress, knowledge, ideas and market economy. Modern society is a society of digital technologies that are omnipresent in every single part of human life and which requires improving digital literacy skills and overcoming obstacles such as: attitude, age, social and economic status, language and regional availability of resources. Digital technologies have become an integral part of every individual's daily life, primarily because of easy and fast access to information and fast flow of data. In this way, people satisfy personal, interpersonal, social, cultural, existential and other forms of life¹.

In the dynamic process of globalization, the development of information technologies has an impact on the creation of some new competencies and as a result the barriers to international exchange of information and business, the creation of competitive advantages, as well as the exchange and connection of research experiences are removed. The mentioned dynamic is accompanied by the creation of new development strategies and certain activities for their realization, which are based on new digital literacy and new skills necessary for quality use of information, communication technologies and digital media.

A significant determinant of a nation's ability to be successful on the path of global progress is the preservation of people's health². Medical knowledge, connected with the achievements of electronics, robotics and information technologies achieve significant achievements in order to preserve health and cure. By exchanging knowledge and modern achievements in the field of medicine, states can create adequate mechanisms for the healthcare system, which are reflected in joint projects of education, promotion of healthy lifestyle habits and all with the goal of health prevention. That is why

achievements in medicine, no matter where they originate, belong to all people, they have no borders and experts from certain fields and their teams generously transfer their knowledge and experiences around the world through digital media.

Current affairs come from the WHO strategy which³ taking into account the previous experiences of countries and organizations, defines the interconnectedness of digital technologies, the way of collecting, managing and evaluating health data in accordance with established principles of good medical practice, while at the same time consider the sustainability of innovations and their feasibility, scope and inclusiveness³. WHO insists on identifying priority areas in which advice on digital health would be useful in terms of preventive activities and care, while respecting existing standards, data security, respect for ethical and legal principles.

In the paper, the authors investigate the impact of digital communications on the provision of information about health and oncological diseases, with the goal of raising awareness, prevention and early screening. Its social application is to practically use the results of the research while considering the potential of digital communications⁴ in the promotion of health and the prevention of oncological diseases, both theoretically and on a practical example, highlight the importance of digital communications in the implementation of prevention programs and raising awareness of malignant diseases at the local and global level. The authors present their views in the paper based on the fact that digital communications in the healthcare system are necessary in order to raise awareness about oncological diseases and increase the information of the population.

Methodological considerations – research instruments and results

In the research is used *Questionnaire on digital communications in the prevention of oncological diseases* which contains 25 questions and comprises of many sections. The questionnaire was sent to the respondents on the social network *Facebook*. In addition to descriptive statistics, statistical testing analyzes were also used.

- gender (male-female)
- age (≤ 29 ; 30 to 39; 40 to 59; ≥ 60)
- education (no school, primary school, secondary school, faculty)
- marital status (married, divorced, widower/widow, single).

According to *the gender distribution*, both genders are represented in the research, namely 54% or 81 respondents are female and 46% or 69 respondents are male. There is no significant difference in gender distribution between respondents. According to *age*, 61% of the respondents are up to 40 years old, which is in line with the fact that the social network on which the questionnaire was forwarded is mostly followed by younger people⁵. The largest number, 43% or 63 respondents are married, 37% or 53 respondents are single, 14% 23 respondents are divorced and 6% or 9 respondents

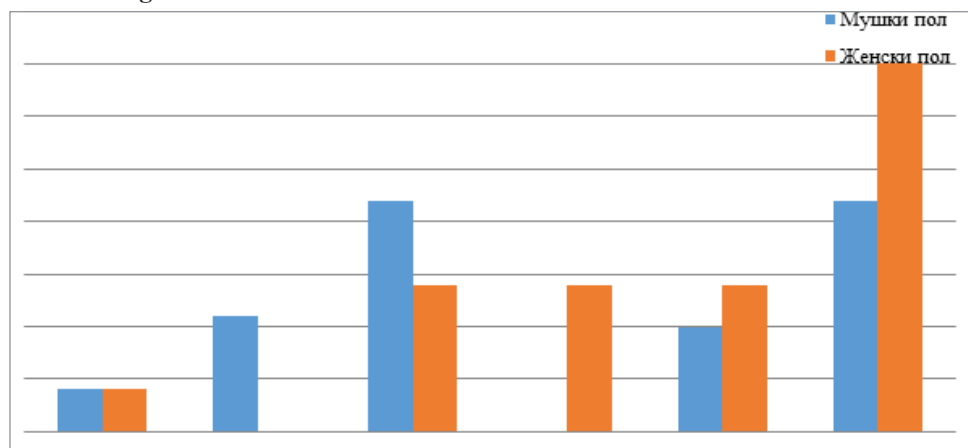
are widowed. Based on the demographic characteristics of the respondents according to the *level of education*, the largest number 59% or 88 respondents have finished secondary education, 25% or 38 respondents have graduated from university, 13% or 19 respondents have finished primary school and 3% or 5 respondents have no education. Referring again to the *Pew Research Center's report*, 60% of adults with a secondary school diploma or less use Facebook, 71% have a college degree, while 77% of users have a university degree⁵.

The analysis first begins with the presentation of the existing differences in the responses of respondents with different demographic characteristics. It was tested whether there are differences of respondents with different demographic characteristics in terms of health assessment, cancer screening test and cancer incidence assessment.

By testing the use of the t-test, it has been shown that there are only statistically significant differences in the subjective assessment of cancer and the gender of the respondents. Men had a lower level of subjective evaluation of cancer ($M=4.79$, $SD=2.93$) in comparison to women ($M=5.49$, $SD=2.67$; $t(148)=4.62$, $p=.068$).

The chi-square test was further used in the analysis to test whether there are differences between respondents of different demographic characteristics and reading written information from brochures about malignant diseases. No statistically significant difference was found between respondents of different gender, age, marital status and education. The same test was also used to check whether there are differences when it comes to the information sources from which respondents of different demographic characteristics are informed. Regarding different sources of information about malignant diseases, the graph (1) shows information on how men were informed in comparison to women.

Graph 1. Differences in the source of information about malignant diseases in relation to gender

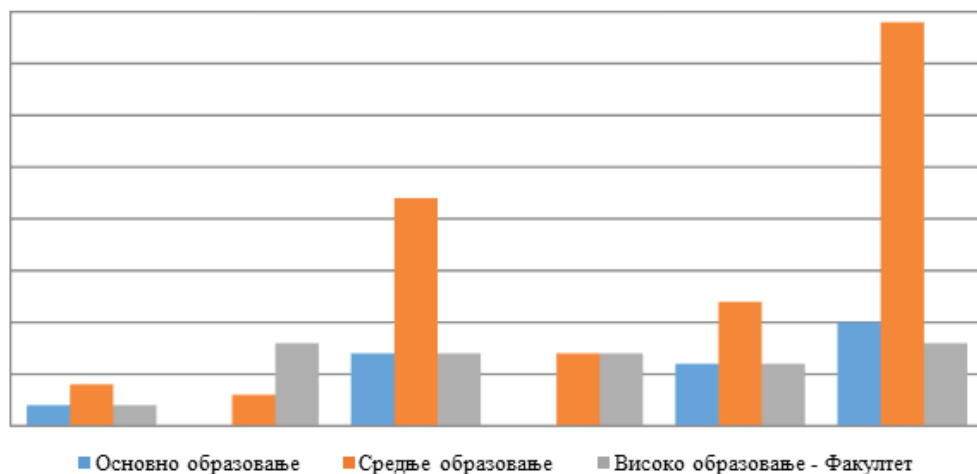


Source: Sinanovic⁶, 2020: 61

There is a statistically significant difference obtained by the Chi-square test in relation to the sources of information of male and female respondents $\chi^2 (5, n=150)=29.63, p=.000$.

No statistically significant difference was shown between respondents of different ages in relation to the sources of information about malignant diseases. The analysis did not show the existence of a statistically significant difference between respondents of different marital status. It was also analyzed how respondents with different educational backgrounds were informed about malignant diseases. Graph 2 shows how those with the primary, secondary and university education were informed. There is a statistically significant difference obtained by the Chi-square test in relation to the sources of information of respondents with different levels of education, with the absence of the assumption of the minimum expected frequencies in the fields $\chi^2 (10, n=150)=25.63, p=.004$.

Graph 2. Differences in the source of information about malignant diseases in relation to education



Source: Sinanovic⁶, 2020: 62

The existence of differences in the need for information in relation to different demographic characteristics is analyzed below. The gender difference of respondents was analyzed and their need for more information about malignant diseases. A statistically significant difference was determined using the Chi-square test in relation to the need for information among male respondents in comparison to female respondents $\chi^2 (2, n=150)=7.91, p=.019$. The analysis did not show a statistically significant difference in relation to the need for more information about malignant diseases and respondents of different age, marital status and education.

In order to examine whether there are differences in behavior in the online environment between respondents of different demographic characteristics, the most used social platforms and the frequency of use of social platforms were analyzed. On that occasion, it was determined that there was only a difference between the gender of the respondents and the most used social media platform. We can conclude that there is a statistically significant difference obtained by the Chi-square test in relation to the most frequently used social media platforms of male in comparison to female respondents. $\chi^2(2, n=150)=10.36, p=.006$.

Regarding the difference in demographic characteristics related to receiving messages about health on different social platforms (WhatsApp, Facebook, Twitter), the only statistically significant difference obtained by the Chi-square test is related to receiving messages about health through the Twitter social platform and male respondents compared to female respondents $\chi^2(2, n=150)=7.80, p=.021$. There is also a statistically significant difference between respondents of different levels of education for the same question $\chi^2(4, n=150)=8.72, p=.068$. On the other side, the analysis of differences in receiving messages about health on social platforms (WhatsApp, Facebook, Twitter) in relation to age and marital status did not establish the existence of statistically significant differences. In a further analysis it was examined whether there is a difference in relation to the influence of social networks on the decision-making about healthcare of family members of respondents with different demographic characteristics. Finally, it was determined that there is a statistically significant difference obtained by the Chi-square test in relation to age. $\chi^2(8, n=150)=15.47, p=.051$. The research also showed that there was a statistically significant difference obtained by the Chi-square test in relation to the medical treatment according to the post on social media without consulting a doctor related to gender $\chi^2(2, n=150)=12.001, p=.002$. The analysis did not show a statistically significant difference between respondents of different demographic characteristics in relation to a conversation with a doctor or other healthcare professional about the accuracy of information received from the social media platform.

In the further analysis of the research on the differences between respondents with different demographic characteristics and numerous analyzed attitudes, the existence of a significant statistical difference was clearly established by the Chi-square test related to gender, according to the following attitudes: a) attitudes about the platform with the best health information $\chi^2(4, n=150)=11.12, p=.025$; b) attitude about talking online with a medical professional about health problems or the health of family members from home $\chi^2(2, n=150)=9.53, p=.009$; c) but also the attitude about the possibility of contact with a doctor by mobile phone in case of need for health advice of respondents of different gender $\chi^2(2, n=150)=41.22, p=.000$. It was also confirmed that there is a statistically significant difference obtained by the Chi-square test in relation to the attitude about the possibility of contacting a doctor by mobile phone

in case of need for health advice in relation to marital status $\chi^2(6, n=150)=12.88$, $p=.045$. In the analysis, no statistically significant difference was found between respondents of different demographic characteristics and visits to health forums, as well as important experiences and recommendations of people with similar health problems. The difference has not been determined even in terms of the possibility of contacting a doctor by mobile phone in case of need for health advice and having a health application on a mobile phone.

In the second part of the analysis it is examined the link between the performed screening test for cancer and different sources of information about malignant diseases, the impact of messages from social networks on the decision making about healthcare, discussions about the accuracy of information from social networks with a doctor, visits to forums, the importance of the experience of people who have similar health conditions, online conversations with a doctor, mobile phone contact with a doctor about having a mobile health application. What we discovered in this part of the analysis is that there is a statistically significant difference obtained by the Chi-square test related to the respondents who completed the screening test and: a) the need for more information about malignant diseases $\chi^2(4, n=150)=7.87$, $p=.097$; b) confirmation of the accuracy of information from social media $\chi^2(4, n=150)=11.49$, $p=.022$; c) treatment based on a post found on social media without consulting a doctor $\chi^2(4, n=150)=14.17$, $p=.007$; d) online communication with a medical professional from home $\chi^2(4, n=150)=9.12$, $p=.058$; e) the possibility of contacting a doctor by mobile phone in case of need for health advice $\chi^2(4, n=150)=11.54$, $p=.021$.

Emphasis is also placed on examining the relationship between the need for more information about malignant diseases and different sources of information about malignant diseases, the influence of messages found on social networks on the decision about healthcare, discussions about the accuracy of information from social networks with a doctor, visits to forums, the importance of the experience of people who have similar health problems, online conversations with a doctor, mobile phone contact with a doctor about having mobile e-health applications.

It has been observed that there is a statistically significant difference obtained by the Chi-square test in receiving messages about health on a certain platform in relation to respondents with different needs for information about malignant diseases, namely: on *Facebook* $\chi^2(4, n=150)=43.14$, $p=.000$ and on *Twitter* $\chi^2(4, n=150)=8.65$, $p=.071$. A statistically significant difference obtained by the Chi-square test is also found in the attitude about the platform with the best information about health in relation to the need for information about malignant diseases $\chi^2(8, n=150)=14.89$, $p=.061$.

Furthermore, correlation was used in the analysis in order to determine whether there are connections between the different attitudes of the respondents, what their strength is and what type they are. In the table (1) which follows, only statistically significant relationships are shown.

Table 1. Correlation coefficients

		Self treatment according to a post found on social networks	The importance of recommendations and experiences of people from the forum	Communication online/from home with the doctor	Telephone contact with the doctor
Confirmation of information found on social networks about health	Correlation coefficient	.239**			
	P	0.001			
	N	150			
Visit to forums about health	Correlation coefficient		.526**		
	P		0.000		
	N		150		
The importance of recommendations and experiences of people from the forum	Correlation coefficient			.481**	.362**
	P			0.000	0.000
	N			150	150
Communication online/from home with the doctor	Correlation coefficient				.712**
	P				0.000
	N				150

Source: Sinanovic⁶, 2020: 77

The correlation coefficients show that people in most cases (using modern means of communication and modern technology) prefer online communication from home with a doctor, but also a large number of them (having confidence first of all in the spoken word) does not reject telephone contact with the doctor.

Conclusion

Health information technology is increasingly becoming a part of standard medical care, effective and available doctor-patient communication at any time not only improves the emotional health of patients, but also helps in management of symptom, functional and physiological status of patients and pain control⁷.

Digital technologies are the new reality of modern society, changing the way of life and the framework of functioning at a very fast speed⁸ enabling swift access to

information, change of knowledge, intelligence, action and business⁹. Communication through digital technologies is essential for providing high-quality clinical practice because it enables: individual care that respects patient's autonomy, safer and more efficient healthcare, better disease outcomes, more satisfied and independent patients, and more efficient and cost-effective services of care and treatment. Precisely because of the high frequency of malignant diseases and the high mortality rate in order to implement the prevention and early detection of malignant tumors, as well as better diagnostics, treatment and care of patients, it is necessary to develop and implement comprehensive national programs for the prevention and control of malignant diseases. Prevention of malignant diseases has enormous public health potential and is the most effective approach to malignancy control. Appropriate application of knowledge at all levels of healthcare and comprehensive mobilization of the nation in the fight against cancer is possible through the use of information and communication technologies, primarily in raising people's awareness of oncological diseases.

Prevention of malignant diseases has a huge public health potential and is the most effective approach to control, because early diagnosis of cancer saves lives and reduces treatment costs. It is necessary to empower the entire community by creating and implementing media campaigns and increasing people's information about digital health, with the aim of obtaining swift and expert health advice¹⁰. New digital solutions in the service of health in addition to incentives to adopt healthy lifestyle habits¹¹ reduction of risk factors in order to prevent malignant diseases also enable overcoming the inequality of healthcare systems in the provision of services¹². The Internet connects supreme experts from various parts of the world who generously share their knowledge with both colleagues and patients in order to provide comprehensive and quality healthcare^{13,14,15}. There is evidence that online communication with healthcare providers improves the quality of health and that healthcare consumers would benefit from increased partnerships between health information technology and healthcare providers.⁶ Numerous innovations expand the possibilities of health action in order to meet the basic goal - to reach the highest possible level of improvement and preservation of people's health. With the help of the Internet, information about health is no longer in the exclusive possession of doctors - it becomes available to the public, which enables individuals to take an active interest in solving their health problems and thus become equal members of the healthcare team¹⁶.

The government is responsible for the health of the nation and should strengthen and develop programs for the prevention of malignant diseases, but also each individual is responsible for its health. Digital media provide unlimited opportunities for information, without borders and language barriers. They enable real and confident information, contact with experts from various fields of medicine, timely counseling - that's why the only correct choice is: *let's get informed and choose health!*

Literature

1. Krotoski A. (2010), The internet can facilitate social change, preuzeto sa adrese: <https://www.theguardian.com/technology/2010/aug/08/my-bright-idea-charlesleadbea-ter>.
2. Prođovic, T, Ignjatovic-Ristic, D, Prođovic-Milojkovic, B, "Bio-psycho-social concept of ageing", Zbornik radova Filozofskog fakulteta u Prištini, sa privremenim sedištem u Kosovskoj Mitrovici, 309–326, XLIV (3)/2014.
3. WHO (2018), WHO seventi-first world health assembly, May 21, 2018. Document A71/20. Agenda item 12.4.
4. Prođovic, B. (2012), „Uticaj medija na stavove i ponašanje čoveka – mediji i moralna panika”, Zbornik: Kriza i perspektiva znanja i nauke, Nauka i savremeni univerzitet br. 1, Drugi tom, Filozofski fakultet u Nišu, 380–390.
5. Maddock C, Camporesi S, Lewis I, Ahmad K, Sullivan R. (2012), Online information as a decision making aid for cancer patients: recommendations from the Eurocancercoms project. *Eur. J. Cancer.* 48(7): 10⁵5–59.
6. Sinanovic, Š. (2020), Digitalne komunikacije u funkciji podizanja svesti o onkološkim bolestima, Univerzitet u Beogradu, Medicinski fakultet. Master rad, 1–94.
7. Travaline J. M, Ruchinskas R, D'Alonzo GE, Jr. (2005), "Patient-physician communication: why and how". *J Am Osteopath Assoc.* 2005; 105(1): 13–18.
8. Kemp S. (2019), Digital 2019: global digital overview. Retrieved from <https://datareportal.com/reports/digital-2019-global-digital-overview>.
9. Lemke, C. (2003). *EnGauge 21st century skills: Literacy in the digital age.* USA: North central regional educational laboratory. Retrieved from <http://pict.sdsu.edu/engauge21st.pdf>.
10. Turner S, Maher EJ., Young, T, Young, J, Vaughan, HG. (1996), "What are the information priorities for cancer patients involved in treatment decisions? An experienced surrogate study in Hodgkin's disease". *Br J Cancer.* 1996; 73(2): 222–27.
11. Prođovic, T, Prođovic Milojkovic, B, Krstovic, M. (2020), „Demografski aspekti starenja i zdrav život starijeg stanovništva Jugoistočne Srbije, Gerontologija, 1/2020, Godina XLVIII, 101–119, Beograd. ISSN 2560-5704.
12. Leong SL, Gingrich, D, Lewis, PR, Mauger, DT, George, JH. (2005), "Enhancing doctor–patient communication using email: a pilot study". *J Am Board Fam Pract.* 2005; 18(3): 180–8.
13. Katz SJ., Nissan, N, Moyer, CA. (2004), "Crossing the digital divide: evaluating online communication between patients and their providers". *Am J Manag Care.* 2004; 10(9): 593–8.
14. Prođovic, T, Prođovic Milojkovic, B. (2014), „Neki aspekti zdravstvene zaštite i mreže zdravstvenih institucija u nerazvijenim područjima Jugoistočne Srbije”, Zbornik: Stanovništvo Jugoistočne Srbije: Regionalne disproporcije u razvoju Srbije, migracije i demografska reprodukcija, Filozofski fakultet, Centar za sociološka istraživanja, Centar za naučnoistraživački rad SANU Univerziteta u Nišu, Niš, 114–133.
15. Prođovic, T, Prođovic Milojkovic, B. (2015), „Koncept starenja i kvalitet života”, Zbornik: Starenje i kvalitet života: tranzicija i evrointegracije, Tematski međunarodni zbornik radova. Kosovska Mitrovica: Filozofski fakultet. 29–43.
16. Horrigan J, Rainie L. (2006), *The Internet's Growing Role in Life's Major Moments.* Washington, DC: Pew Internet & American Life Project.