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SEDENTARNO PONAŠANJE KOD GOJAZNE DECE I OMLADINE

Rezime: U radu je prikazano istraživanje sedentarnog ponašanja kod gojazne dece i omladine ispitivano kroz vreme provedeno uz kompjuter i televiziju i stepen fizičkog angažovanja. Na uzorku od 375 gojazne dece i adolescenata uzrasta 12–18 godina 47,9% muškog i 52,1% ženskog pola upotrebljen je upitnik konstruisan za potrebe programa Čigotica, kojim je ispitano vreme provedeno u sedentarnom ponašanju. Dečija percepcija vremena provedenog uz televiziju i kompjuter je 4,9 časova i niža je od percepcije roditelja za vreme provedeno uz televiziju i kompjuter, koja iznosi 5,2 časova. Frekvenciona analiza ukazuje da 79,9% ispitanika nema redovne sportske aktivnosti, a da samo 30,7% ispitanika ima hobije, od kojih većina podržava sedentarno ponašanje. Poređenjem aritmetičkih sredina utvrđene su polne razlike u korišćenju televizije i kompjutera, kao i u stepenu fizičkog angažovanja kroz sport i hobije. Rezultati su u skladu sa postojećim nalazima o udelu sedentarnog ponašanja u gojaznosti.

Ključne reči: dečija gojaznost, sedentarno ponašanje, fizičke aktivnosti

Summary: This work presents a research of sedentary behavior at obese children and youth, which was examined considering the amount of time spent on activities that include computers and television, and the amount of children's physical engagement. The sample is made of 375 obese children and adolescents, aged 12-18 years, 47.7% of which are male, and 52.1% female. They all filled in the questionnaire designed for the purpose of "Cigotica" program. The questionnaire examined the amount of time spent on sedentary behavior. The children's perception of the amount of time spent watching television and using the computer

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is 4.9 hours, and it is lower than parent's perception, 5.2 hours. The frequency analysis shows that 79.9% of these children do not practice regular sports activities, and also that only 30.7% of them has hobbies, most of which include sedentary behavior. Differences between males and females were found by comparing means of the amount of time spent using television and computer, as well as the amount of physical engagement through sport activities and hobbies. These results are coherent to the results of previous research of effect of sedentary behavior on obesity.

Key words: child obesity, sedentary behavior, physical activities

Uvod

Preterana uhranjenost i gojaznost se definiše kao preterano ili abnormalno akumuliranje masti koje može ugroziti zdravlje (SZO). Primarna gojaznost nastaje kao posledica disbalansa u unosu i potrošnji energije, gde je energija koja se unese ishranom značajno veća od energije koja se potroši fizičkim angažovanjem. Sekundarna gojaznost je prouzrokovana genetičkim, endokrinim poremećajima, lezijama CNS, jatrogenim uzrocima (Banićević M. i sar., 2007).

Još uvek se sa sigurnošću ne može reći koliki je udeo genetičkih, neuroendokrinih, metaboličkih, socijalno-ekonomskih, sredinskih i psiholoških uzročnika, ali je sigurno njihovo međudejstvo u nastajanju gojaznosti. (Raj, M.; Kumar, R. K., 2010) Dodatan problem predstavlja različita metodologija izučavanja uzročnika i slaba mogućnost poređenja rezultata iz endokrinološke, genetičke, psihološke i socijalno-kulturne perspektive.

Kod primarne gojaznosti od psihosocijalnih uzročnika najčešće se navode: period dojenja, mentalni poremećaji dece (Braet C. i sar., 2010) i njihovih roditelja (Dejvisa i sar., 2011), socioekonomski status, neke psihosocijalne karakteristike i sedentarno ponašanje. Pod sedentarnim ponašanjem se podrazumeva sedenje, ležanje, trošenje izuzetno malih količina energije i razlikuje se od smanjene fizičke aktivnosti gde je utrošak energije nešto veći i podrazumeva stajanje, aktivnosti vezane za ličnu higijenu i spor hod (Owen N. i sar., 2010). Međutim, u istraživanjima, trošenje izuzetno malih količina energije i smanjena fizička aktivnost se nazivaju jednim imenom, sedentarno ponašanje. U zavisnosti od istraživačevih preferencija, sedentarno ponašanje podrazumeva različite vidove ponašanja. U ovom radu biće razmatrano sedentarno ponašanje mereno vremenom koje je provedeno uz upotrebu kompjutera, televizije, ispitivanjem sportskog angažovanja i hobija.

U Iranu devojčice i devojke koje su gojazne potiču iz porodica nižeg ekonomskog statusa, gde su i roditelji gojazni, sa navikama izostavljanja doručka. Po navodima autora, od mnogo ispitivanih faktora navedeni faktori su najsnažnije povezani sa gojaznošću ovih devojaka. Međutim, navodi se i da ne postoji kultura upražnjavanja fizičkih aktivnosti

kod žena iz religijskih razloga. Kod ispitivanih devojaka nema izveštaja o upražnjavanju fizičkih aktivnosti, dok je vreme provedeno gledajući televiziju u proseku 3.5 ± 1.7 sati u toku dana. (Maddah, M.; Nikooyeh, B., 2010). Na Tajvanu adolescenti provode u proseku 450 minuta dnevno u gledanju televizije, korišćenju kompjutera, i ostalim vidovima sedentarnog ponašanja, gde devojke više gledaju televiziju, a mladići koriste više kompjuter, dok se minutaža sedentarnog ponašanja povećava za vikende čak do 480 min za mladiće i 510 za devojke (Liou, Y. M.; Liou, T-H.; Chang, L-C, 2010). U Velikoj Britaniji momci provode 234 minuta, 56% gledajući televiziju, a devojke 331 minut dnevno u sedentarnom ponašanju, 31% gledajući televiziju, gde se minutaža i procenat gledanja TV-a povećava vikendima. Pomenuta studija ukazuje na visoku negativnu korelaciju između vremena provedenog u gledanju televizije sa vremenom provedenim u drugim sedentarnim aktivnostima i vremenu provedenom u fizičkim aktivnostima (Biddle, S.; Gorely, T.; Marshall, S., 2009). Osim nepokretanja za vreme gledanja televizije, postoji i uticaj prisustva uključenog TV uređaja na poremećaj spavanja i sna, gde adolescenti sa televizorom u svojoj sobi spavaju značajno kraće od neophodnog, čime se povećavaju rizici za pojavu gojaznosti (Must, A.; Parisi, S. M, 2009).

Polovina evropske dece u 11. godini života je fizički angažovana 5 dana nedeljno u sportskim aktivnostima. Procenat fizički angažovane dece se smanjuje sa starošću ispitanika. Nacionalne razlike u stepenu fizičkog angažovanja dece i adolescenata su velike, ali je utvrđena pravilnost u kojoj su devojčice i adolescentkinje manje fizički angažovane od dečaka i adolescenata. (SZO, 2009). Iako postoje varijacije u preferencijama određenih sportova, najčešće se pod fizičkom aktivnošću koju gojazni adolescenti vole navodi „zabava“. (Power, T. G.; Bindler, R. C.; Goetz, S.; Daratha, K. B, 2010).

Gojaznost dece i adolescenata je povezana sa velikim brojem zdravstvenih teškoća i poremećaja koji nastaju od samog detinjstva, kao i onih koji traju čitav život. Gojaznost je u direktnoj vezi sa poremećajima povezanim sa kardiovaskularnim, respiratornim, endokrinološkim sistemom (Banićević M. i sar, 2007). Gojaznost izaziva ginekološke, metaboličke, ortopedske i druge poremećaje i promene na pomenutim sistemima (Lešović, 2010a; Lešović 2010b).

Postoji jasna povezanost između slike o sopstvenom telu i pripadnosti određenoj telesnoj kategoriji, odnosno gojazna deca i adolescenti pokazuju veći stepen nezadovoljstva sopstvenim izgledom, nisko samopouzdanje, depresivne simptome, u odnosu na decu koja pripadaju kategorijama normalno uhranjenih i neuhranjenih. (Goldfield i sar., 2010). Verovatnoća da se pomenute teškoće i poremećaji, udruženi sa mnogobrojnim organskim oboljenjima, pojave znatno je veća u populaciji dece i adolescenata sa autizmom i Daunovim sindromom u odnosu na populaciju bez intelektualnih smetnji, kod koje je verovatnoća od pojave gojaznosti 2 do 3 puta manja (Rimmer, J. H.; Yamaki, K.; Davis Lowry, B. M, 2010). Na Jamajci devojčice imaju izmenjenu percepciju sopstvenog tela, znatno potcenjuju sopstveni ITM u odnosu na realni, dok dečaci imaju realniju predstavu o sebi, ali žele da imaju znatno veći ITM. U oba navedena slučaja nastaju problemi u promeni životnih stilova, jer ne postoji

uvid o gojaznosti kao bolesti sa visokim faktorima rizika po dalje obolevanje (Barrett S.C., Huffman F. G., 2010).

Osobe koje imaju više fizičkih aktivnosti imaju bolje mentalno zdravlje. Broj provedenih sati u sedećem položaju u obrnutom je odnosu sa fizičkim i socijalnim funkcionisanjem, vitalnošću, telesnim bolom, emocionalnom ulogom, odnosno što je više vremena provedeno u sedećem položaju lošije je opšte fizičko i psihičko stanje organizma. (Balboa-Castillo, T i sar. 2011)

Podaci o sedentarnom ponašanju na teritoriji RS su malobrojni i ovom studijom se nastoje obezbediti i prikazati rezultati korisni pre svega za prevenciju, rehabilitaciju obolele dece i adolescenata, kao i za edukaciju medicinskog osoblja koje radi na prevenciji u osnovnim i srednjoškolskim ustanovama, domovima učenika... Iako je prevencija osnova, pokazalo se da medicinske sestre nemaju adekvatno znanje o datom problemu i da postoji barijera kod promovisanja zdravog životnog stila, gde postoje očekivanja pomoći od školskih uprava u promociji programa. (Nauta, C.; Byrne, C.; Wesley, Y., 2009). Dok medicinske sestre očekuju pomoć škola, nastavnici za gojaznost učenika okrivljuju njihove roditelje, roditelji okrivljuju svoju decu, a adolescenti razloge za nezdravi životni stil nalaze u situacionim okolnostima (Power, T. G.; Bindler, R. C.; Goetz, S.; Daratha, K. B., 2010).

Ciljevi ovog istraživanja su: 1) da se utvrdi vreme koje gojazna deca provode koristeći kompjuter i televizor ispitivanjem percepcije gojazne dece i njihovih roditelja; 2) utvrditi koliko je gojazne dece fizički angažovano u redovnim sportskim aktivnostima; 3) utvrditi koliko dece ima hobije i koju vrstu hobija; 4) da ispita da li postoje polne razlike u vremenu provedenom u pomenutim aspektima sedentarnog ponašanja.

Da bi se održavala normalna telesna težina (ITM= 20–25) potrebno je provoditi u upotrebi kompjutera i televizije najviše 2 sata u toku dana. Kako su ispitanici gojazni pretpostavka je da će u proseku provoditi više od 2 sata dnevno uz kompjuter i televiziju. U skladu sa ovom pretpostavkom su i nalazi istraživača iz Irana (Maddah, M.; Nikooyeh, B., 2010), Tajvana (Liou, Y. M.; Liou, T-H.; Chang, L-C, 2010) i Velike Britanije (Biddle, S.; Gorely, T.; Marshall, S., 2009). Gojaznost je izazvana smanjenim fizičkim aktivnostima, zbog čega se očekuje da veći deo ispitanika nema redovne sportske fizičke aktivnosti i da hobiji kojim se bave zahtevaju minimalno fizičko angažovanje. Takođe, pretpostavka je da će postojati polne razlike, gde se očekuje da će ispitanice provoditi više vremena uz televiziju od ispitanika, dok se kod korišćenja kompjutera očekuje obratni odnos.

Metod

Uzorak: Uzorak čini 379 dece i adolescenata uzrasta od 12 do 18 godina, koji su boravili na programu Čigotica u periodu 6. 2011 – 2. 2012. Uzorak čini 197 devojčica

i 181 dečak, koji su upućeni na Čigoticu iz više od 20 gradova Republike Srbije iz različitih verskih, nacionalnih, jezičkih i socioekonomskih sredina.

Tabela 1.

Frekvencija i procenat gojazne dece i adolescenata prema polu i uzrastu

uzrast	muški	%	ženski	%
12	29	16.0	21	10.7
13	43	23.8	40	20.3
14	29	16.0	35	17.8
15	13	7.2	26	13.2
16	28	15.5	35	17.8
17	27	14.9	27	13.7
18	12	6.6	13	6.6
ukupno	181	100	197	100

Varijable i instrumenti: Nezavisna varijabla je pol, prirodno dihotomna varijabla. Zavisna varijabla je sedentarno ponašanje opisana preko vremena provedenog uz kompjuter i televiziju, sportske aktivnosti i hobije.

Upitnik zadat ispitanicima sadrži 20 pitanja od kojih su za istraživanje značajna četiri koja se odnose na vreme provedeno u: 1) gledanju televizije; 2) korišćenju kompjutera (surfovanje internetom, a da nije za domaći, i kompjuterske igrice); 3) bavljenje hobijima (navesti kojim); 4) bavljenju sportom (navesti kojim). Upitnici zadati roditeljima sadrže takođe 20 pitanja od kojih su za istraživanje 2 značajna i odnose se na vreme provedeno u 1) gledanju televizije, 2) korišćenju kompjutera, surfovanju internetom (da nije za domaće zadatke) i kompjuterske igrice.

Vreme provedeno uz kompjuter i televiziju utvrđeno je obračunavanjem aritmetičke sredine, dok se frekvenciona analiza koristila za utvrđivanje broja sportski aktivnih ispitanika. Kvalitativnom analizom navedeni hobiji su kategorisani u hobije u kojima se sedi ili se troši minimum energije i na one koji zahtevaju fizičku aktivnost. Svi hobiji su zatim podvrgnuti frekvencijskoj analizi. Za stepen slaganja roditeljskih i dečijih percepcija provedenog vremena u korišćenju kompjutera i televizije upotrebljena je linearna korelacija. Za utvrđivanje razlika među polovima korišćeno je poređenje aritmetičkih sredina po grupama. Sve analize rađene su pomoću softverskog paketa SPSS.

Postupak: Popunjavanje upitnika se odvija pre početka tretmana, kao sastavni deo prijema na tretman. Roditeljima i učesnicima programa Čigotica Centra za prevenciju i lečenje dečje i adolescencne gojaznosti Instituta Čigota date su jasne instrukcije o popunjavanju upitnika. Prosečno vreme popunjavanja iznosi 20 minuta.

Rezultati

Vreme provedeno sedeći pred kompjuterom i televizorom izračunato je primenom aritmetičke sredine i standardne devijacije, a dobijene vrednosti su prikazane u tabeli 2.

Tabela 2.

Aritmetičke sredine i standardne devijacije roditeljske i dečje percepcije vremena u satima provedenim u korišćenju televizije i kompjutera

	N	M	SD
vreme provedeno uz televiziju, percepcija deteta	375	2.33	1.52
vreme provedeno uz televiziju, percepcija roditelja	370	2.51	1.57
vreme provedeno uz kompjuter, percepcija deteta	377	2.60	1.79
vreme provedeno uz kompjuter, percepcija roditelja	370	2.73	2.05

Iz tabele vidimo da se, po izveštavanju roditelja i dece, uz kompjuter provodi više vremena nego uz televiziju. Vrednosti su veće i za vreme provedeno kraj kompjutera i kraj televizora u izveštajima roditelja u odnosu na njihovu decu, međutim, postoji visok stepen slaganja među percepcijama roditelja i dece, što je provereno linearnom korelacijom čije su vrednosti prikazane u tabeli 3.

Tabela 3.

Korelacija roditeljske i dečje percepcije vremena u satima provedenim u korišćenju televizije i kompjutera

	vreme provedeno uz tv, percepcija deteta	vreme provedeno uz kompjuter, percepcija deteta
vreme provedeno uz tv, percepcija roditelja	.838**	
vreme provedeno uz kompjuter, percepcija roditelja		0.770**

** korelacija značajna na nivou 0.01

Pretpostavke o polnim razlikama ispitane su poređenjem aritmetičkih sredina vremena provedenog uz televizor i kompjuter.

Tabela 4.

Aritmetičke sredine i standardne devijacije roditeljske i dečje percepcije vremena u satima provedenim u korišćenju televizije i kompjutera po polu

		N	M	Std. D
vreme provedeno uz tv, percepcija deteta	ženski pol	196	2.39	1.59
	muški pol	179	2.28	1.44
vreme provedeno za tv-om, percepcija roditelja	ženski pol	196	2.57	1.63
	muški pol	174	2.44	1.49
vreme provedeno uz kompjuter, percepcija deteta	ženski pol	196	2.21	1.48
	muški pol	181	3.04	1.99
vreme provedeno uz kompjuter, percepcija roditelja	ženski pol	196	2.24	1.59
	muški pol	174	3.30	2.35

Iz tabele vidimo da postoje razlike u vremenu provedenom uz televiziju, gde ispitanice provode više vremena uz televiziju nego ispitanici, dok ispitanici prednjače kod korišćenja kompjutera. Sa izveštajima dece se slažu i roditelji, s tim što navode još duže vreme provedeno uz televiziju i kompjuter.

Tabela 5.

Frekvencije ispitanika po varijabli sportska aktivnost na ukupnom uzorku i po polu

	ukupni uzorak		ženski pol		muški pol	
	f	%	f	%	f	%
da	76	20.2	35	17.9	41	22.7
ne	259	68.9	141	71.9	118	65.2
povremeno	41	10.9	20	10.2	21	11.6
	376		196		181	

Ukupno 68,9% svih ispitanika se ne bavi nikakvim sportom, pri čemu ispitanice, njih čak (71,9%), još manje od ispitanika (65,2).

Tabela 6.*Frekvencije ispitanika po varijabli hobi na ukupnom uzorku i po polu*

	ukupni uzorak		ženski pol		muški pol	
	f	%	f	%	f	%
ima hobi	116	30.6	48	24.4	68	37.6
nema hobi	262	69.3	149	75.6	113	62.4
	378	100	197	100	181	100

Od 378 ispitanika 69,3% ispitanika se ne bavi nikakvim hobijem. Od 197 ispitanica 75,6 % se ne bavi nijednim hobijem.

Navedeni hobiji su daljom obradom kategorisani u hobije u kojima se sedi ili se troši minimum energije i na one koji zahtevaju fizičku aktivnost. U kategoriji onih koji bi potkrepljivali sedentarno ponašanje jesu hobiji iz oblasti umetnosti; sviranje muzičkih instrumenata i pohađanje muzičke škole (5), horsko pevanje (2), pevanje i slušanje muzike (3), gluma (3), čitanje i pisanje poezije i proze (4), crtanje i slikanje (5). Sem hobija iz domena umetnosti, tu su i sportski hobiji sa minimalnom potrošnjom energije kao što su streljaštvo (1) i neki nespecifični hobiji: lakiranje noktiju, skupljanje razglednica, ikonopisanje i slično (7). (Videti dodatak 1)

Od hobija koji zahtevaju veći stepen fizičkog angažovanja navode se najčešće folklor (10), vožnja rolera (2), plivanje (2), vožnja bicikla (1), šetnja psa (1), šetnja (1), trčanje (1), treniranje hip hopa (1). Od hobija, koji su ujedno i sportovi, pominju se oni sportovi koji se upražnjavaju najmanje jednom mesečno sa drugarima iz škole i komšiluka kao vid zabave: fitnes (2). Kako je postojao određen broj dece sa više hobija svi pomenuti hobiji su ušli u razmatranje i kategorisani su. Iz datih frekvencija zaključuje se da od 24,4% ispitanica, koje imaju hobije, više od polovine ima hobije koji podržavaju sedentarno ponašanje.

Od 181 ispitanika 37,6% bavi se nekim hobijem. U kategoriji onih koji bi potkrepljivali sedentarno ponašanje jesu hobiji iz oblasti umetnosti; sviranje muzičkih instrumenata i pohađanje muzičke škole (12), čitanje (6), crtanje i slikanje (5), gluma (3), horsko pevanje (1). Sem hobija iz domena umetnosti, tu su i sportski hobiji sa minimalnom potrošnjom energije kao što su pecanje (7) i streljaštvo (1), kao i neki nespecifični hobiji: gajenje zečeva, telefonska tehnika i slično (7). (Videti dodatak 1)

Od hobija koji zahtevaju veći stepen fizičkog angažovanja navode se najčešće stoni tenis (4), folklor (3), vožnja bicikla (2), treniranje hip hopa (2), plivanje (2), vožnja rolera (1), šetnja (1). Od hobija, koji su ujedno i sportovi, pominju se oni sportovi koji se upražnjavaju najmanje jednom mesečno sa drugarima iz škole i komšiluka kao vid zabave: fudbal, košarka, vaterpolo, kimboks, rukomet, itd (ukupno 21). Kako je postojao određen broj dece sa više hobija, svi pomenuti hobiji su ušli u razmatranje

i kategorisani su. Iz datih frekvencija zaključuje se da više od polovine ispitanika koji imaju hobije upražnjavaju hobije koji podržavaju sedentarno ponašanje.

Diskusija

Gojazna deca u Srbiji prate svetske trendove kada je reč o vremenu provedenom u upražnjavanju aktivnosti koje podržavaju sedentarno ponašanje. Prosečno vreme provedeno uz televiziju i kompjuter je 4,9 časova dnevno po izveštajima ispitanika, dok njihovi roditelji ukazuju da je vreme u tim aktivnostima i do 20 minuta duže. Moguće je da razlika u percepciji vremena provedenog u ovim aktivnostima posledica objektivnijeg procenjivanja situacije od strane roditelja u odnosu na decu. Ipak, stepen roditeljske objektivnosti može se dovesti u pitanje, s obzirom na sve manji stepen kontrole i uvida u dečje ponašanje koji imaju roditelji, naročito kada se uzme u obzir da se kompjuteri i/ili televizijski aparati najčešće nalaze u dečijim sobama, tako da upotreba ovih uređaja do kasnih večernjih (jutarnjih) časova roditeljima uglavnom nije poznata. Hipoteza o provođenju više od 2 sata dnevno u upotrebi kompjutera i TV-a je potvrđena (nažalost, u proseku više od dva sata za svaki od pomenutih aparata). Ovakvi nalazi su u skladu sa nalazima istraživača iz Irana i Tajvana, dok naša deca prednjače u gledanju televizije u odnosu na decu iz Velike Britanije. Upotreba kompjutera vremenski više okupira decu, za 18 minuta duže u odnosu na televiziju (u proseku 2 sata i 43 minuta). Razlozi zbog kojih se kompjuter vremenski koristi duže u odnosu na televiziju leži u mogućnosti interakcije, pri čemu korisnici aktivno biraju sadržaje u kojima će učestvovati, za razliku od televizije, gde su korisnici pasivni primaoci ponuđenih sadržaja. Privlačnost interneta se u omladinskoj populaciji ogleda u upoznavanju vršnjaka i drugih korisnika koji dele zajednička interesovanja putem društvenih mreža, kao i u korišćenju zabavnih sadržaja (sajtovi sa vicevima, smešnim klipovima, zanimljivim fotografijama i slično).

Hipoteza o smanjenim fizičkim aktivnostima je takođe potvrđena, gde se 20,2% ispitanika izjašnjava da se bavi redovnom sportskom aktivnošću. Ovaj nalaz potvrđuje nalaze Balboa-Kastila i saradnika da je broj provedenih časova u sedećem položaju u obrnutom odnosu sa fizičkim funkcionisanjem (Balboa-Castillo, T i sar. 2011). U skladu sa prethodnim nalazom, u proseku se provede oko 5 časova u korišćenju kompjutera i televizije, zatim se najmanje 6 časova (često i više) provede u školi, a kada se doda 8 časova sna koji su predviđeni za dati uzrast ostaje na raspolaganju 5 časova za obroke, učenje, slobodne aktivnosti i vreme provedeno u putovanju od kuće do škole i obratno. Iz datog se vidi da u toku dana nije moguće izdvojiti vreme koje je potrebno da se iskoristi za fizičke aktivnosti. Međutim, ovo istraživanje ne daje odgovor na pitanje da li ispitanici imaju smanjenu motivaciju da se fizički aktiviraju zbog nedostatka vremena ili zbog toga što date aktivnosti iziskuju ulaganje i doslednost, što ih čine manje privlačnim sadržajima od upotrebe kompjutera i televizije. Ovome u

prilog idu nalazi i Pavera i saradnika da se gojazni adolescenti najčešće opredeljuju za zabavu kao fizičku aktivnost koju najviše vole (Power, T. G.; Bindler, R. C.; Goetz, S.; Daratha, K. B, 2010). Takođe, nisko samopouzdanje i nizak stepen samopoštovanja, kao i socijalno odbacivanje, mogu biti uzroci fizičkog neangažovanja, mada na pitanje oko uzročno-posledičnih odnosa pomenutih mentalnih poteškoća i gojaznosti u naučnoj zajednici još uvek nije dat nedvosmislen odgovor.

Moguća je potvrda i hipoteze da se gojazna deca bave hobijima koja podržavaju sedentarno ponašanje, jer polovina dece koja ima hobije učestvuje u aktivnostima koje zahtevaju povremeno fizičko angažovanje. Međutim, kako se samo 30% ispitanika bavi nekim hobijem, od kojih polovina povremenim fizičkim aktivnostima, to čini 85% ispitanika fizički neangažovanim. Kao i u razmatranju prethodne hipoteze, mogući razlozi se mogu naći u nedostatku vremena, sniženoj motivaciji za fizičko angažovanje zbog niskog samopouzdanja i smanjenog socijalnog funkcionisanja, kao i u manjoj privlačnosti datih sadržaja.

Poređenjem po polu pronađene su razlike u korišćenju kompjutera u korist muških ispitanika u odnosu na ispitanice, koje više vremena provode uz televiziju. Ovaj nalaz je u skladu sa hipotezom o postojanju polnih razlika, kao i u skladu sa nalazima iz Velike Britanije, Irana, Tajlanda. Ovo se može objasniti većim stepenom angažovanja muških ispitanika u igranju kompjuterskih igrica koje su manje značajne ženskim ispitanicima. Kvalitativnom analizom hobija utvrđen je veći stepen angažovanja muških ispitanika u hobijima koji zahtevaju rad na računaru (videti dodatak 1), što može dodatno doprineti objašnjenju vremena više provedenog uz kompjuter od strane muških ispitanika. Takođe, pronađene su razlike na nivou fizičkog angažovanja u sportskim aktivnostima i hobijima, gde su u oba slučaja ispitanice manje angažovane u odnosu na muške ispitanike. Ovaj rezultat je u skladu sa nalazima SZO za evropske države, što ukazuje da ne postoje nacionalne specifičnosti našeg uzorka.

Nalazi istraživanja potvrđuju značajan uticaj sedentarnog ponašanja u nastajanju i održavanju gojaznosti. Dati nalazi su u skladu sa rezultatima utvrđenim na ispitanicima iz drugih zemalja, čime se potvrđuje univerzalnost uticaja sedentarnog ponašanja na gojaznost, kao i da se data problematika odnosi i na gojaznu decu i adolescente Srbije. Da bi se nalazi sa sigurnošću mogli iskoristiti u cilju potvrde uticaja sedentarnog ponašanja na gojaznost, neophodno je ispitati i druge važne aspekte koji bi uticali na gojaznost, kao što su uzrasne razlike u sedentarnom ponašanju. Takođe, neophodno je, zarad celovite slike, uključiti i psihosocijalne karakteristike, versku i nacionalnu pripadnost, kao i neke ekonomske faktore koji su se u nekim istraživanjima pokazale kao značajne za davanje kompletne slike o gojaznosti (Maddah, M.; Nikooyeh, B., 2010). Nedostaci istraživanja se odnose na potrebu za preciznijom operacionalizacijom sedentarnog ponašanja koja bi obezbedila preciznije merne instrumente, gde bi neophodno bilo razdvojiti određene aspekte upotrebe kompjutera i televizije. Ovi podaci bi obezbedili jasnu sliku protiv čega je neophodno povesti bitku (da li su to serije, filmovi, društvene mreže, igrice, rialiti serijali), što bi bio neprocenjiv podatak

u preventivnom radu. Ovo istraživanje otvara i potrebu za detaljnijim ispitivanjem uzročnika dobijenih polnih razlika u angažovanju u sportskim aktivnostima, odnosno preciziranjem da li su nalazi psihološka, sociološka ili kulturološka specifičnost naših ispitanika.

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Dodatak 1

ženski pol	muški pol
nail art	gajenje zečeva
ikonopisanje	3d modelovanje
glina, italijanski jezik	telefonska tehnika
skupljanje razglednica	igranje igrice na kompjuteru
učenje čitave knjige	preferans, šah
kupovina	produkcija muzike
izrada nakita	programiranje

Jasmina Milanović*

SEDENTARY BEHAVIOR AT OBESE CHILDREN AND YOUTH

Summary: This work presents a research of sedentary behavior at obese children and youth, which was examined considering the amount of time spent on activities that include computers and television, and the amount of children's physical engagement. The sample is made of 375 obese children and adolescents, aged 12-18 years, 47.7% of which are male, and 52.1% female. They all filled in the questionnaire designed for the purpose of "Cigotica" program. The questionnaire examined the amount of time spent on sedentary behavior. The children's perception of the amount of time spent watching television and using the computer is 4.9 hours, and it is lower than parent's perception, 5.2 hours. The frequency analysis shows that 79.9% of these children do not practice regular sports activities, and also that only 30.7% of them has hobbies, most of which include sedentary behavior. Differences between males and females were found by comparing means of the amount of time spent using television and computer, as well as the amount of physical engagement through sport activities and hobbies. These results are coherent to the results of previous research of effect of sedentary behavior on obesity.

Key words: child obesity, sedentary behavior, physical activities

Introduction

Overfeeding and obesity are defined as abnormal accumulation of fat that can endanger one's health (WHO). The primary obesity emerges as a result of imbalance between the amount of energy brought in and the amount of energy spent, meaning that the amount of energy brought in by food is significantly larger than the amount of energy spent in physical activity. Secondary obesity is the result of

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genetic and endocrine disorders, brain lesions and iatrogenic causes. (Banićević M et al, 2007.).

It is still not possible to know what is the share of genetic, neuroendocrine, metabolic, socially-economical, environmental and psychological causes in creating obesity, but their interaction is certain (Raj, M.; Kumar, R. K, 2010.). The other problem is the difference between methodologies of exploring causes from endocrine, genetic, psychological and socially-cultural perspective, as well as low possibility of comparing results from these perspectives.

The most mentioned causes of primary obesity are: the breastfeeding period, the child's mental disorder (Braet C. et al, 2010), the parents' mental disorder (Dejvisa et al., 2011.), social-economic status, psychosocial characteristics and sedentary behavior. Sedentary behavior includes sitting, lying down, spending extremely small amounts of energy and is different from low physical activity, which means that the amount of energy spent is somewhat larger and includes standing up, personal hygiene activities and slow walk (Owen N. et al., 2010.). However, these two terms are in surveys combined in one, the term sedentary behavior. Sedentary behavior can include different kinds of behavior, depending on researcher's preferences. In this research sedentary behavior will be measured considering the amount of time spent using computer and television, practicing hobbies and sport activities.

In Iran obese girls come from families with low economic status, with obese parents who have a habit of omitting breakfast. According to author's words, among many factors examined, these two (low social and economic status, omitting breakfast) are in the strongest relation with girls' obesity. However, the author also says that Iranian women have no culture of practicing physical activities because of religious reasons. There is no data of these girls' physical activities. The average time they spend on watching television is 3.5+-1.7 hours a day (Maddah, M.; Nikooyeh, B., 2010.). Adolescents in Taiwan spend, on average, 450 minutes a day watching television, using the computer, or in other kinds of sedentary behavior. Girls spend more time watching the television, whereas boys spend more time using the computer. The amount of times spent in sedentary behavior on weekends is raised up to 480 minutes for boys and up to 510 minutes for girls (Liou, Y. M.; Liou, T-H.; Chang, L-C, 2010.). In UK boys spend 243 minutes a day in sedentary behavior, 56% of that time watching television, whereas girls spend 331 minutes a day in sedentary behavior, and 31% of that time watching television. The amount of time spent on these activities and the percentage for watching television is raised during weekends. That study implies high negative correlation between times spent watching television and time spent on other sedentary or physical activities (Biddle, S.; Gorely, T.; Marshall, S., 2009.). Apart from sedentary behavior while watching television, there is also the effect of presence of working television device on sleep disorders, i.e. adolescents who have TVs in their bedrooms sleep significantly shorter than necessary, raising up the risk of becoming obese (Must, A.; Parisi, S. M, 2009.).

The half of European children age 11 is physically engaged in sport activities 5 days a week, but this percentage is declined with examinee's age. National differences between children's and adolescents' physical engagement are great, but one constant is found – girls are less physically engaged than boys (WHO, 2009.). There are varieties of preferences in sport, but the physical activity that the obese children most frequently name as favorite is “fun” (Power, T. G.; Bindler, R. C.; Goetz, S.; Daratha, K. B, 2010.).

Child and adolescent obesity is related to numerous health issues and disorders that emerge in childhood, as well as ones that last for a lifetime. Obesity is directly related to disorders of cardiovascular, respiratory and endocrine systems. Obesity causes gynecological, metabolic, orthopedic, and number of other disorders and changes (Lešović, 2010a; Lešović 2010b).

There is a clear link between the self-image child has of its body, and belonging to a certain body type. Obese children and adolescents show more dissatisfaction with their physical appearance, lower self-confidence and more depressive symptoms compared to normally fed and underfed children (Goldfield et al., 2010.). The chances of appearance of those difficulties and disorders among other numerous organic diseases are 2-3 times higher in population of children diagnosed with autism and Down syndrome compared to intellectually healthy children (Rimmer, J. H.; Yamaki, K.; Davis Lowry, B. M, 2010.). Girls in Jamaica have wrong self-image of their body; they perceive their BMI as significantly lower than it really is, whereas boys have more realistic body self-image, but they would like they BMI to be higher. In both cases, there are problems in changing lifestyles, because there is no insight in obesity as an illness with high risk factors of future health problems (Barrett S.C., Huffman F. G., 2010.).

People who practice more physical activities have a better mental health. The number of hours spent sitting down is inversely proportional to physical and social functioning, vitality, physical pain and emotional engagement, i.e. the more time spent sitting down – the worse physical and psychological health (Balboa-Castillo, T et al. 2011.).

The data about sedentary behavior in Serbia are not very numerous, and this study is trying to provide results that will be useful, above all, for prevention and rehabilitation that children with this diseases need, as well as education for medical staff working on prevention in elementary and secondary schools and student homes. Even though prevention is the basic problem, nurses don't have adequate knowledge of that problem, and that is an obstacle in healthy lifestyle promotion, because school boards are expected to help promoting the program (Nauta, C.; Byrne, C.; Wesley, Y., 2009.). While nurses expect help from schools, teachers blame children's obesity on their parents, parents blame it on children, and adolescents find excuses for their unhealthy lifestyle in situational occasions (Power, T. G.; Bindler, R. C.; Goetz, S.; Daratha, K. B, 2010.).

The goals of this research are: 1) to find what amount of time obese children spend using the computer and television by examining children's and parents' perception; 2) to find how many of the obese children are physically engaged in regular sport activities; 3) to find out how many children have hobbies, and what kind of hobbies;

4) to find out is there a gender difference in the amount of time spent in certain aspect of sedentary behavior.

To maintain a normal body weight (BMI= 20- 25) it is recommended to spend maximum 2 hours a day using the computer and television. With our examinees being obese, it is justified that they spend more than 2 hours a day using computer and television. This assumption is coherent with the studies conducted in Iran and UK. Obesity is caused by low level of physical activity, because of which it is expected that most of the examinees doesn't practice regular sport activities and that their hobbies demand minimal physical engagement. It is also assumed that there will be gender differences, i.e. girls spending more time watching television, and boys spending more time using the computer.

Method

Sample: Sample is made of 379 children and adolescents age 12-18, who have been to "Cigotica" programme from June 2011 to February 2012. The sample is made of 197 girls and 181 boys that have been sent to "Cigotica" from over 20 Serbian towns, from different religious, national and social-economical environments.

Tab. 1: *Frequency and percentage of obese children and adolescents by gender and age*

age	male	%	female	%
12	29	16.0	21	10.7
13	43	23.8	40	20.3
14	29	16.0	35	17.8
15	13	7.2	26	13.2
16	28	15.5	35	17.8
17	27	14.9	27	13.7
18	12	6.6	13	6.6
total	181	100	197	100

Variables and instruments: Independent variable is gender, which is a naturally binary category. Dependent variable is sedentary behavior, described using the amount of time spent on the computer and television, sport activities and hobbies.

The questionnaire contains 20 questions, 4 of which are relevant to the study. They rely on time spent on: 1) watching television; 2) using the computer – for videogames and internet (not for homework); 3) practicing hobbies (what kind of hobby); 4) practicing sports (what kind of sport). The questionnaire for parents also contains 20 questions, 2 of which are relevant to the study. They rely on the amount of time that child spends on: 1) watching television; 2) using the computer – for videogames and internet (not for homework).

The time spent on the computer and television is determined by calculating means. Frequency analysis was used for determining the number of examinees that actively practice sorts. Using the quality analysis, hobbies were categorized as hobbies that require sitting or using minimal amount of energy or as hobbies that require physical activity. The hobbies were put through frequency analysis. Linear correlations is used to determine the level of children's and parents' perception matching. Comparing means for groups is used for determining gender influence. All these analysis were performed by SPSS software package.

Procedure: Participants filled in the questionnaire before the beginning of the treatment, as the part of registering for the treatment. Both parents and children in the "Cigotica" programme were given clear instructions about filling in the questionnaire. The average time for filling in the questionnaire is 20 minutes.

Results

The amount of time spent sitting in front of the computer and television is measured using means and standard deviations. Calculated values are presented in Tab.2.

Tab. 2: Means and standard deviations of parents' and children's perception of time in hours spent using the computer and television

	N	M	SD
Time spent watching television, child's perception	375	2.33	1.52
Time spent watching television, parent's perception	370	2.51	1.57
Time spent using the computer, child's perception	377	2.60	1.79
Time spent using the computer, parent's perception	370	2.73	2.05

The tab shows that, according to both children's and parents' account, the larger amount of time is spent in front of the computer, than in front of the TV. The both values are higher from parents' than children's perspective, but the level of coherence between children's and parents' perspective is high, as shown in the linear correlation tab.

Tab. 3: The correlation between children's and parents' perception of time spent in hours using the computer and television

	Time spent watching television, child's perception	Time spent using the computer, child's perception
Time spent watching television, parent's perception	.838**	
Time spent using the computer, parent's perception		0.770**

**significance level 0.01

Tab. 4: Means and Standard deviations for children's and parents' perception of time spent in hours using the computer and television by gender

		N	M	Std. D
Time spent watching television, child's perception	females	196	2.39	1.59
	males	179	2.28	1.44
Time spent watching television, parent's perception	females	196	2.57	1.63
	males	174	2.44	1.49
Time spent using the computer, child's perception	females	196	2.21	1.48
	males	181	3.04	1.99
Time spent using the computer, parent's perception	females	196	2.24	1.59
	males	174	3.30	2.35

Tab. 5: *Frequencies for variable Sport activity (total and by gender)*

	total		female		male	
	f	%	F	%	f	%
yes	76	20.2	35	17.9	41	22.7
no	259	68.9	141	71.9	118	65.2
occasionally	41	10.9	20	10.2	21	11.6
	376		196		181	

68% in total do not practice any sport, females (71.9%) less than males (65.2%).

Tab. 5: *Frequencies for variable Hobbies (total and by gender)*

	total		female		male	
	f	%	F	%	F	%
Doesn't have a hobby	116	30.6	48	24.4	68	37.6
Has a hobby	262	69.3	149	75.6	113	62.4
	378	100	197	100	181	100

69.3% in total do not have a hobby, whereas 75.6% of female examinees do not have a hobby.

Named hobbies are categorized as hobbies that require sitting down or using the minimal amount of energy or as ones that require physical activity. The category of sedentary behavior supporting hobbies includes art-related hobbies – playing musical instruments and going to music school (5), singing in chore (2), singing and listening to music (3), acting (3), reading and writing poetry and prose (4), drawing and painting (5). Besides art-related hobbies, this category also includes sport hobbies that require minimal energy – archery (1), and some unusual hobbies – nail polishing, collecting postcards, icon writing, etc. (see Addition1).

In the category of hobbies that require a higher level of physical engagement the most common are: folklore dancing (10), roller-skating (2), swimming (2), bicycle riding (1), dog walking (1), walking (1), running (1) and hip-hop dancing (1).

Sport hobbies mentioned here are the ones that are practiced at least once a month as an entertainment with school friends and neighbors – fitness (2). Some of the participants have more than one hobby, and all of their hobbies are considered and categorized.

The frequencies show that more than half of the girls that have any hobbies (24.4%) have a sedentary behavior supporting hobbies.

37.6% of male examinees have a hobby. The category of sedentary behavior supporting hobbies includes art-related hobbies – playing musical instruments and going to music schools (12), reading (6), drawing and painting (5), acting (3), chore singing (1). Besides art-related hobbies, this category also includes sport hobbies that require minimal energy – fishing (7) and archery (1), and some unusual hobbies – rabbit breeding, telephone technology, etc. (7) (see Addition1).

In the category of hobbies that require a higher level of physical engagement the most common are: table tennis (4), folklore dancing (3), bicycle riding (2), hip-hop dancing (2), swimming (2), roller-skating (1) and walking (1). Sport hobbies mentioned here are the ones that are practiced at least once a month as an entertainment with school friends and neighbors – soccer, basketball, water polo, kickboxing, handball, etc. (21 total). Some of the participants have more than one hobby, and all of their hobbies are considered and categorized.

Discussion

The time that Serbian obese children spend in sedentary behavior is similar to the time that obese children from all around the world spend in sedentary behavior. Participants report that they spend in average 4.9 hours a day in front of the computer and TV, whereas their parents report that time to be up to 20 minutes longer. This difference is probably the result of parents' more objective evaluation. Still, the level of parents' objectivity can be questionable, considering that the degree of parents' insight in children's behavior is shrinking due to computers and TVs usually being in children's bedrooms, so parents don't always know if their children use these devices until late at night. The hypothesis about using the computer and television for over 2 hours a day is confirmed (unfortunately, over two hours is spent on each of these two devices). These findings are coherent with findings of studies in Iran and Taiwan. The findings also show that Serbian children watch more TV than children from UK. Participants use the computer in average for 18 minutes longer than they watch television (they use the computer in average for 2 hours and 43 minutes). The reasons for spending more time in front of the computer probably lie in the possibility of interaction, and the possibility to actively choose the content which they want to participate in (unlike television, where users are passively receiving given content). The attractiveness of the internet to the young people is probably the result of meeting other people their age, and other people who share their interests by using social networks. Watching amusing contents (jokes, amusing videos, interesting photos, etc.) is another reason these children are so fond of the internet.

The hypothesis of decreased physical activity is also confirmed. Only 20.2% of the participants report they practice sports on regular bases. This finding confirms Balboa-Castillo findings that the number of hours spent in sedentary behavior is inversely proportional to physical functioning. Again coherent to the previous findings, averagely 5 hours are spent in front of TV and the computer; at least 6 hours are spent in school; 8 hours are spent sleeping (optimal amount for examinees' age), leaving only 5 hours a day for meals, studying, free time activities and going from home to school and back. This shows that it is almost impossible to find the time for physical activities. However, this research does not show if the examinees are not motivated enough for physical activities because of lack of time, or because they require investing and determination, which makes them less interesting than computers and television. The findings of Paver and his associates also confirm that obese adolescents usually choose fun as their favorite physical activity (Power, T. G.; Bindler, R. C.; Goetz, S.; Daratha, K. B, 2010). Low self-esteem and low self-respect, as well as the social refusal can also be the causes of physical inactivity, although the question of what is the cause, and what is the aftermath still remains unanswered.

It is also possible to confirm the hypothesis that obese children have sedentary behavior supporting hobbies, because half of them that have any hobbies practice activities that require only occasional physical engagement. However, only 30% of the

participants have a hobby (half of which only practices occasional physical activities), which makes 85% of the participants physically inactive. As said above, the possible reasons can be found in the lack of time, low motivation due to low self-esteem and social functioning, and low attractiveness of these contents.

By gender comparing, differences are found between using the computer and television – females use TV more, males use computer more. This result is coherent to hypothesis of gender influence, as well as to the results of research in UK, Iran and Thailand. This can be explained by the fact that playing videogames is more significant to males than to females. Using quality analysis of children's hobbies, it is found that males practice more hobbies related to computer work (Addition1), which also explains why males spend more time in front of the computer. Differences were also found in the level of physical engagement in sport activities and hobbies – girls are less engaged in both cases. This result follows the pattern of WHO results, proving that our sample is not nationally specific.

The results of this research show that sedentary behavior has a significant effect on emerging obesity and its maintaining. These results are coherent to those found for examinees from all over the world, showing the universality of sedentary behavior's effects on obesity. In order to use these findings as a confirmation of effect that sedentary behavior has on obesity, it is necessary to examine other important aspects of becoming obese (such as age differences in sedentary behavior) to get the big picture. It is also necessary to include psycho-social characteristics, religion, nationality and economic factors, which have already been proven significant in effecting obesity (Maddah, M.; Nikooyeh, B., 2010.). These are also the flaws of this research. A more precise defining of sedentary behavior would enable making more precise instruments which would be able to separate different aspects of using computers and television. These data would provide the clearer big picture of what is the enemy that has to be battled (TV shows, movies, social networks, videogames, reality shows), which would be a priceless information for preventive work. This research shows a need for more detailed examination of causes of gender differences in practicing physical activities, i.e. discovering are these findings psychological, sociological or cultural specificity of our examinees.

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Addition 1:

female	male
nail art	Rabbit breeding
Icon painting	3d modeling
Clay, Italian language	Telephone technology
Postcard collecting	Playing videogames
Studying the entire book	preferans, chess
shopping	Music production
Making jewelry	Programing