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# Is the size of parathyroid glands a reliable selection criterion for radionuclide imaging?

Nermina Beslic<sup>1</sup>, Sejla Biscevic<sup>2</sup>

<sup>1</sup> Clinic for Nuclear medicine and Endocrinology, Clinical center University of Sarajevo, Sarajevo, Bosnia and Hercegovina,

<sup>2</sup> Department of Nuclear Medicine, General Hospital Sarajevo, Sarajevo, Bosnia and Hercegovina.

## Abstract

**Introduction:** Normal parathyroid glands are too small to be visualized. If parathyroid functioning disorder is present, it causes enlargement and makes them visible. Ultrasound (US) is frequently used in everyday practice for thyroid/parathyroid imaging. Radionuclide parathyroid is a metabolic imaging modality which enables visualization of pathologically active hyper-functioning parathyroid tissue. Combined US and 99m-Tc MIBI scintigraphy are reported to have increased sensitivity for the preoperative localization of parathyroid adenomas. **Patients and methods:** 30 patients with enlargement of the parathyroid gland on the base of the US findings and have undergone two phase parathyroid scintigraphy. **Discussion:** The final treatment of hyper-functional glands is a operative treatment, a combination of the two should offer reliable information for the surgeon. An interpretation of scintigraphy clinicians should take in account a few factors which could affect the results. **Conclusion:** Size of the parathyroid is of great importance in selecting patients for radionuclide imaging but can't be observed as a unique relevant selection factor.

**Key words:** hyperparathyroidism, parathyroid scintigraphy, cervical ultrasound, parathyroid adenoma.

## Introduction

Diagnosis of hyperthyroidism is based on laboratory results showing increased level of blood parathormone (PTH) and calcium. The only efficient treatment is surgical. The most frequent imaging methods used for parathyroid imaging are US and scintigraphy, which are inevitable in preoperative localisation of hyper-functional parathyroid glands.

The number, size and diameter of normal parathyroid glands can vary. The normal glands usually measure 4–6 mm in length, 2–4 mm in width, and 0.5–2 mm in thickness (1).

In about 80%–97% of people there are four parathyroid glands, about 5% have less than four glands, and 3%–13% have supernumerary glands (2).

Hyperthyroidism in approximately 80% is caused by parathyroid adenoma, in 15–20% of cases hyperplasia or parathyroid multi glandular disease (MGD) are origin of hypercalcemia and in less than 1% the reason lays in parathyroid carcinoma. (3)

The normal size of parathyroid glands isn't usually seen on the ultrasound. Generally, visualization of parathyroid glands on the ultrasound is limited. Even pathologically changed parathyroids aren't visualized in many cases, in addition, thyroid nodules can be misinterpreted as parathyroid enlargement (4,5). Enlargement of parathyroids is a important feature which implies hyper-function and suggests the result of scintigraphy imaging. Adenomas are usually larger than parathyroid hyperplasia or glands in MGD and the sensitivity of a consecutive scintigraphy is greater for adenomas. (6)

Radionuclide parathyroid imaging reveals hyper-functioning parathyroid glands, no matter if they are eutopic or ectopic. This metabolic imaging modality reflects the function of glands, not their anatomical structure. Treatment of hyper-functional parathyroids is operative and the exact localization in preoperative work up is essential for a successful surgical treatment.

Overactive parathyroid glands consist of numerous oxiphilic mitochondria rich cells which are responsible for trapping radiopharmaceutical.

Combined US and MIBI scintigraphy (methoxyisobutylisonitrile labeled with technetium-99m), are reported to have increased sensitivity for the preoperative localization of parathyroid adenomas (4).

There are more isotopes and nuclear medicine protocols which could be used for scintigraphic visualization of hyper-functioning parathyroid tissue. In everyday practice, dual-phase single-isotope imaging protocol (7) is predominantly used.

Parathyroid scintigraphy is most performed using Tc-99m MIBI radiopharmaceutical which is a monovalent lipophilic cation, passively diffusing through the cell membrane. It is administered intravenously. Washout rates of Tc-99m MIBI from thyroid tissue and abnormal parathyroid glands are different, which is essential for visualization of hyper-functioning parathyroids with this imaging modality.

Reported sensitivity for a planar scintigraphic imaging method is 80/100%. For more precise localization of hyper functioning parathyroids, a SPECT and SPECT/CT could be done to improve anatomical localization of ectopic glands (8).

Currently, the most widespread preoperative imaging procedure is the combination of Tc-99m MIBI scintigraphy and cervical ultrasonography (cUS), yielding a sensitivity of 81–95% (9).

**Patients and methods**

The study enrolled 30 patients. Patients were randomly selected based on the base of US findings, showing enlargement of one or more parathyroid glands. Some of the patients had underlying thyroid pathology. All patients have undergone a two-phase radionuclide imaging with 740MBq of Tc-99m MIBI. Early images were done after 15 minutes, and delayed ones after 3 hours. Additional images were made in accordance with a clinician’s opinion.

The study was made to assess correlation between size and function of the parathyroid presented on the scintigraphy, independently from laboratory findings.

**Results**

A cohort of 30 patients consisted of 26 females and 4 males.

The US identified 30 enlarged parathyroid glands. Metabolic imaging identified 19 hyper-functional parathyroid glands, 14 adenomas and 5 hyper-plastic parathyroid glands. 11 parathyroid glands were not visualized (Chart 1).

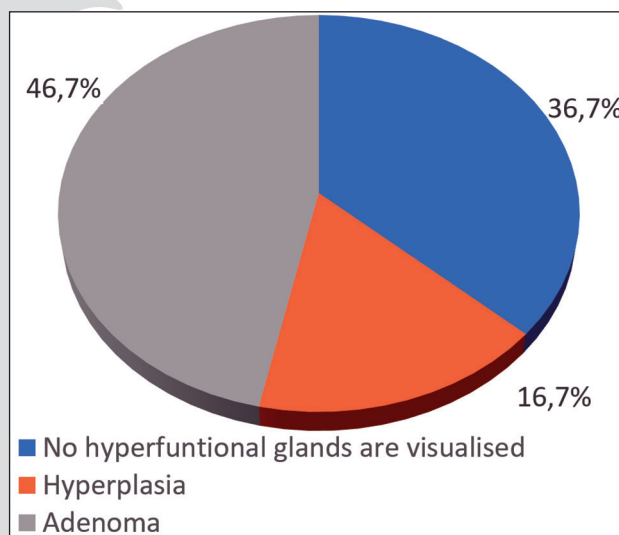


Chart 1. Scintigraphy results

Parathyroid glands identified on the US range in size from 4-27 mm. 11 of them did not visualize on the scintigraphy although maximal size of one parathyroid gland was 17 mm. The size of the hyper-plastic glands was in a range from 6.5-11 mm. The adenoma size was in a range from 6-26 mm.

**Discussion**

Parathyroid radionuclide imaging with scintigraphy is a highly sensitive procedure for the assessment of the presence and number of hyper-functioning parathyroid glands, located either at typical sites or ectopically (7).

Table 1. Comparison of parathyroids size in mm and scintigraphy results

Scintigraphy results	N	Mean	Std. Deviation	Minimum Size mm	Maximum Size mm
No hyperfunctional glands are visualised	11	7.27	4.17	4.00	17.00
Hyperplasia	5	9.10	1.67	6.50	11.00
Adenoma	14	13.68	6.02	6.00	26.00
Total	30	10.57	5.64	4.00	26.00

Metabolic imaging can be affected by different factors which can cause false positive and false negative results. The most common cause of a false positive result in parathyroid scintigraphy are thyroid nodules, both benign and malignant, inflammatory thyroiditis and cervical lymphadenopathy. False negative results occur due to small adenomas, a lack of oxyphil cells, parathyroid hyperplasia, multi-gland parathyroid disease and high expression of P-glycoprotein (7).

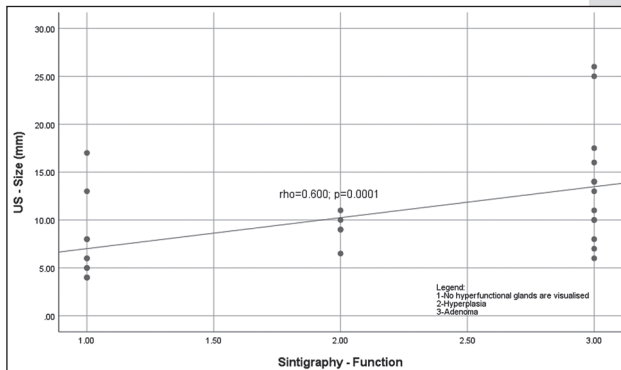


Chart 2. Correlation of US measured nodule size and scintigraphy results

Using planar scintigraphy or SPECT, sensitivity is greater for adenomas compared with hyperplasia. Hyperplastic parathyroid glands are usually smaller in size, which results in decreased sensitivity of radionuclide imaging (6).

For the analysis of the results, it should be considered that the patients were selected because the enlarged parathyroid was visualized on the US, which is a highly operator dependent technique and has a wide range of accuracy ranging from 36% to 76% (8).

Underlying thyroid pathology probably affected scintigraphy results taking in consideration that 11 US verified glands were not metabolically seen (Chart 1). The size of one of them was 17 mm in diameter and was not metabolically recognized (Table 1). Although it could be possible that the thyroid nodule was misinterpreted, it should be taken in observation that parathyroid tissue that expresses P-glycoprotein does not accumulate MIBI. Scintigraphy results can also be affected using calcium channel blockers, which is frequently used medication that may reduce uptake of Tc99m-MIBI in parathyroid tissue (10). Fast washout from parathyroids cannot be excluded.

The remaining observed glands, 19 of them, have been metabolically visualized but the intensity of visualization could be affected by the same causes.

Scintigraphy findings of parathyroid adenoma of 26 mm in size should be correlated to laboratory findings or/and reassessed due to the possibility of retention of a radiotracer in the thyroid nodule (Chart 2).

It should be taken in account that some of the patients had coexisting nodular changes on the thyroid which could affect results.

## Conclusion

Although size of parathyroid glands has significant impact on sensitivity of radionuclide imaging, it alone, can't predict if one is hyper-functional or not.

Diagnosis of hyperthyroidism would be preferable prior to radionuclide imaging.

As metabolic imaging could be affected by different factors, additional tools like SPECT and SPECT/CT should be considered.

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*Corresponding Author*

*Nermina Beslic,  
Clinic for Nuclear medicine and Endocrinology,  
Clinical center University of Sarajevo,  
Sarajevo,  
Bosnia and Hercegovina,  
E-mail: nerminabeslic@gmail.com*

# Hemodialysis catheter-related infections: Single-center and prospective study

Kubra Kaynar<sup>1</sup>, Ifthahar Koksali<sup>2</sup>, Beyhan Guvercin<sup>1</sup>, Muammer Cansiz<sup>1</sup>, Sukru Ulusoy<sup>1</sup>, Gamze Can<sup>3</sup>

<sup>1</sup> Karadeniz Technical University, Faculty of Medicine, Department of Nephrology, Trabzon, Turkiye,

<sup>2</sup> Karadeniz Technical University, Faculty of Medicine, Department of Infectious Disease, Trabzon, Turkiye,

<sup>3</sup> Karadeniz Technical University, Faculty of Medicine, Department of Public Health, Trabzon, Turkiye.

## Abstract

**Introduction:** We aim to investigate Central venous catheters (CVC)-related blood stream infection (CVCR-BSI) rate for CVCR-BSI in dialysis patients with acute or chronic kidney disease at our unit.

**Method:** A total of 67 inpatients with kidney failure who underwent CVC insertion between May 2019 and May 2020 participated in this prospective, single-center, observational study. Patients were divided into two groups. Patients without CVCR-BSI were recruited into group 1, and those with CVCR-BSI were recruited into group 2. The demographics, clinical and laboratory variables, duration of hospital stay, causative pathogen, type and duration of treatment, and outcome of the infection of the groups were recorded and compared.

**Results:** CVCR-BSI was not diagnosed in 52 patients (group 1) and 15 patients were diagnosed with CVCR-BSI (group 2). The groups were similar. The major isolated microorganisms were *Staphylococcus aureus* and *epidermidis*. The average time of CVCR-BSI development was  $10.2 \pm 8.2$  days after insertion of CVC. The mean time to detection of microorganism in the blood culture was  $12.3 \pm 7.4$  hours, while the time to positivity of blood culture drawn through the CVC hub was  $16.5 \pm 6$  hours. C-reactive protein levels of group 2 were significantly higher at the time of infection compared to baseline levels ( $p < 0.05$ ).

**Conclusion:** We found that CVCR-BSI developed approximately 10 days after CVC insertion. Time to culture positivity was documented for nearly 12 hours. Elevation in CRP levels was found to be a significant marker for suspicion of CVCR-BSI.

**Keywords:** Renal dialysis; catheters; infections.

## Introduction

Establishing vascular access is the major step to initiate dialysis in patients with acute or chronic kidney insufficiency whose survival is adversely affected by sepsis [1-3]. Central venous catheters (CVC) constitute both the main method to gain access for dialysis and the main cause of bloodstream infections in dialysis patients [4]. The placement of arteriovenous fistulas (AVF) is recommended six to nine months before the predicted time for initiation of hemodialysis [5]. However, vascular access placement might be delayed due to refusal of the patients or unawareness and/or disregarding of the physicians. Even in the United States, 80% of patients initiated hemodialysis via CVC in 2018 [6].

As most patients initiate hemodialysis with a temporary CVC, we aim to investigate CVC-related blood stream infection (CVCR-BSI) rate and risk factors for CVCR-BSI in dialysis inpatients with acute or chronic kidney disease at our unit.

## Materials and Methods

### Study design and patient characteristics

A total of 67 inpatients with kidney failure who received CVC insertion between May 2019 and May 2020 participated in this prospective, single-center, observational study. Patients who were less than 18 years of age and involuntary to participate in the study and patients with solid organ transplantation, cancer, any use of immunosuppressive medications and chemotherapeutics were discarded. Patients with temporary CVC who agreed to participate in this study were included. Comorbidities, demographic characteristics, clinical and laboratory data were recorded. All patients provided written informed consent after reading the study protocol.



### ***Ethics Committee approval***

The research protocol was approved by and conducted according to the guidelines of the local Ethics Committee (decision no: 2019/86, date: 12/04/2019).

### ***Standard procedure for CVC insertion***

After handwashing, sterile gloves, drapes, and gowns with surgical face masks were worn before the CVC insertion under strict aseptic conditions by wiping the skin with povidone-iodine. Untreated (without antibiotics), uncuffed, non-tunneled, short-term, dual-lumen CVC (length, 15-20 cm) inserted percutaneously into large veins (preferably right or left internal jugular veins) using a modified Seldinger guidewire technique was routinely used for vascular access of patients with acute or chronic kidney failure needed dialysis and without permanent vascular access after obtaining the informed consents [7]. Heparinized saline lock solution was used for maintaining catheter patency. Before accessing CVC, exit-sites were carefully inspected for any erythema, induration (thickening and hardening of skin around the exit site), tenderness, purulent drainage, and swelling after appropriate hand hygiene. Chlorhexidine or povidone-iodine and sterile saline solutions were used for exit-site cleaning via wiping from the center to the peripheral by circular movements before the dressings were changed [8]. Caps of the CVC were kept wrapped with sterile gauze and taped during the dialysis procedure in order to protect them from air contact.

### ***Data collection***

Patients demographics, clinical, and laboratory variables such as age, gender, occupation, place of residence, smoking habits, underlying disease, presence of diabetes mellitus (DM), cause and type of kidney disease, bacteria causing infection, white blood cell, hemoglobin, C-reactive protein (CRP), albumin levels at admission, during infective episode and at discharge, length of CVC inserted at the time of bacteremia, duration of hospital stay, type and duration of treatment, and outcome of the infection were carefully recorded.

### ***Definitions***

The presence of one or more positive blood cultures from the CVC with or without a positive

blood culture, in the presence of systemic symptoms of infection like fever, chills, malaise, and hemodynamic instability without other sources of bacteremia was defined as CVC related infection according to the Centers for Disease Control and Prevention [9]. The blood culture bottles were obtained from the hospital microbiology laboratory as a routine procedure.

### ***Removal criteria of CVC***

Whenever persistent bacteremia and fever 48 to 72 hours after initiation of appropriate antibiotics, clinical instability, infections due to *Staphylococcus aureus*, *Pseudomonas aeruginosa*, and fungi were present, CVC was removed and a new CVC was inserted after a period of 24 to 48 hours if dialysis was still required [10].

### ***Statistical analysis***

Descriptive data were presented as mean ( $\pm$  SD) for continuous variables and percentages for categorical variables. Data were analyzed using SPSS Inc software (SPSS 13.0, Chicago, IL, USA). Variables were examined using the Kolmogorov-Smirnov analytic method to determine whether or not they were normally distributed. Where appropriate, the chi-square tests were conducted to compare these parameters. Statistical significance was set at  $p < 0.05$ .

## **Results**

This single-center cohort study included 67 inpatients (27 of them was male (M); mean age:  $61 \pm 22$  years) treated between 2019-2020 in our clinic. The study participants were divided into the following groups based on the presence of CVC infection: without CVCR-BSI (group 1, n: 52) and with CVCR-BSI (group 2, n: 15). The groups were similar with respect to age, gender, smoking habits, educational status, presence of DM, and residential area (Table 1).

Even though no statistical significance was found, in the group without CVCR-BSI, 14% of the patients did not have any comorbidities except kidney disease. The groups were not different with respect to the central vein in which CVC was inserted (Table 2).

Table 1. Features of the groups

Variables	Group 1 (n: 52)	Group 2 (n: 15)	p value
Age (years)	62 ± 20	60 ± 27	>0.05
Female Gender n (%)	34 (65)	6 (40)	
Former and/or current smoker n (%)	12 (23)	4 (27)	
Unemployed n (%)	32 (62)	5 (33)	
Uneducated n (%)	21 (49)	7 (47)	
Urban living n (%)	27 (52)	10 (67)	
Presence of diabetes mellitus n (%)	20 (39)	7 (47)	
Chronic kidney failure n (%)	29 (56)	11 (73)	
Body mass index (kg/m <sup>2</sup> ) mean ± SD	29.6 ± 8.8	24.3 ± 5.4	

Table 2. The veins in which central venous catheters were inserted

The vein	Group 1 n (%) n: 52	Group 2 n (%) n: 15
Right jugular vein	23 (44)	8 (53)
Left jugular vein	27 (52)	6 (40)
Right subclavian vein	0	1 (7)
Left subclavian vein	1 (2)	0
Right femoral vein	1 (2)	0

No infection other than CVC-related infection was found in group 2, whereas, 1 patient had pneumonia and 1 patient had urinary tract infection in group 1. The main microorganisms isolated from blood cultures of patients with CVCR-BSI were *Staphylococcus aureus* and *epidermidis* (Table 3). Table 3. The microorganisms isolated from blood cultures of patients with infected central venous catheters

Microorganism isolated	n (%)
<i>Staphylococcus aureus</i>	5 (33)
<i>Staphylococcus epidermidis</i>	3 (20)
<i>Bacillus cereus</i>	2 (13)
<i>Staphylococcus haemolyticus</i>	1 (7)
<i>Candida albicans</i>	1 (7)
<i>Acinetobacter baumannii</i>	1 (7)
<i>Stenotrophomonas maltophilia</i>	1 (7)
<i>Pantoea septica</i>	1 (7)

The mean time of CVCR-BSI development was 10.2 ± 8.2 days after insertion of CVC. The mean time to detection of microorganism in the blood culture drawn from a peripheral venous site was 12.3 ± 7.4 hours, while the time to positivity of the blood culture drawn via the CVC hub was 16.5 ± 6 hours. The mean life of temporary CVC was 11.6 ± 7.8 days for group 1 and 11.7 ± 6.2 days for group 2. Durations of hospitalization were 26 ± 16 days and 23 ± 7 days for groups 1 and 2, respectively (Table 4).

Although no statistical significance was found, the patients who developed CVCR-BSI were more anemic than those who did not have CVCR-BSI (Table 5). During CVCR-BSI, even though the change was statistically insignificant, leukocytosis and subclinical fever were noted. The C-reactive protein was found to significantly increase whenever CVCR-BSI was detected (Table 5).

Table 4. The average duration of CVC life and hospitalization

Findings	Group 1 (mean ± SD)	Group 2 (mean ± SD)
Time to the identification of microorganisms in cultures from peripheral blood (hours)		12.3 ± 7.4
Time to positivity of blood cultures taken from CVC (hours)		16.5 ± 6
Life of CVC (days)	11.6 ± 7.8	11.7 ± 6.2
Duration of hospitalization (days)	26 ± 16	23 ± 7

CVC, central venous catheters

Table 5. The findings of the groups at the time of admission, infection and discharge.

Findings	Group 1 (mean ± SD)	Group 2 (mean ± SD)
Fever (°C)		
Admission	36.6 ± 0.5	36.4 ± 0.5
Infection	-	37.6 ± 1
Discharge	36.2 ± 1.5	36.5 ± 0.8
Hemoglobin (g/dL)		
Admission	9.7 ± 1.8	9.1 ± 1.5
Infection	-	9.2 ± 1.6
Discharge	9.9 ± 1.3	9.5 ± 1
White blood cells (/μL)		
Admission	8643 ± 3479	8217 ± 2572
Infection	-	13597 ± 5168
Discharge	9215 ± 3772	8717 ± 3530
Serum albumin level (g/L)		
Admission	2.95 ± 0.65	3.1 ± 0.6
Infection	-	2.87 ± 0.69
Discharge	3.0 ± 0.55	3.28 ± 0.6
C-reactive protein (mg/dL)		
Admission	4.4 ± 5.6	1.2 ± 1.9
Infection	-	14.2 ± 9.4*
Discharge	3.4 ± 5.7	5.0 ± 8.7

\*,  $p < 0.05$ .

Table 6. The renal and patient outcome of the groups

Outcome	Group 1 n (%)	Group 2 n (%)
Complete renal recovery	5 (10)	2 (14)
Chronic kidney disease (no need of dialysis)	10 (19)	1 (7)
Exitus	2 (4)	0
Chronic kidney disease (dialysis-dependent)		
Discharge with CVC after AVF creation	30 (58)	8 (53)
Chronic kidney disease (dialysis dependent via peritoneal dialysis)	1 (3)	0
Chronic kidney disease (dialysis dependent via permanent CVC)	4 (8)	3 (20)
Transfer to intensive care	0	1 (7)

CVC, Central venous catheter; AVF, arteriovenous fistula

The outcomes of the groups were not statistically different (Table 6).

## Discussion

Temporary CVC is used for short-term hemodialysis or as a bridge to permanent vascular access in end-stage kidney disease [11]. The main worldwide complication of temporary CVC needed for dialysis-dependent patients with acute and/or chronic kidney failure without permanent vascular access is blood-stream infections leading

to additional morbidity and mortality. In the present study, 22% (15 patients) of patients with temporary CVC for hemodialysis developed CVCR-BSI. Nabi et al. found CVCR-BSI in 19.3% of patients in their study [12]. Schwanke et al. reported an incidence of 9.1% [13].

The predisposing factors for CVCR-BSI are known as host factors (malnutrition, immune suppression, chronic illness, previous infections, extreme age) and catheter factors (duration of catheterization, conditions of insertion, care of catheter exit-site, type of catheter used) [14]. In our

study, all of the catheters were the same material, conditions of catheter insertion and catheter care were not different among the patients, which is in accordance with the standard recommendations for the CVC care. The groups [those with CVCR-BSI (group 2) and those without CVCR-BSI (group 1)] were not different with respect to age, gender, urban residence, body mass index, educational status, smoking habits, presence of diabetes mellitus and other chronic comorbidities (Table 1,2). The percentage of male gender and urban living was higher in group 2 than group 1, but these findings were not statistically significant. It is known that CVC inserted in femoral veins carry more infectious risk compared to those inserted in jugular veins [13,15]. In our study, the CVC inserted veins were mostly jugular veins which were similar in both groups. Length of hospital stay has been reported as a risk factor for CVCR-BSI [13]. We found that the duration of hospitalization did not differ in both groups whether CVCR-BSI occurred or not. Although nutritional status was not statistically different between the groups, still serum albumin levels were lower in patients with CVCR-BSI (Table 6). As the main route for entering micro-organisms has been known as through the external surface of CVC, the risk factor for CVCR-BSI for these patients in our study might be inappropriate personal hygiene habits [16]. Although it is a rule to take a shower at least twice a week for all patients in our clinic, it is not always possible to control hand hygiene.

The one and only significant marker for CVCR-BSI was found as CRP elevation in this study. Non-significant leukocytosis, a mild degree of fever, and decreased albumin levels were also detected during CVCR-BSI. The etiologic pathogens mainly found in the former studies searching CVCR-BSI were *Staphylococcus aureus* and other species from *Staphylococcus* family [17]. *Staphylococcus aureus* and *epidermidis* were the most common pathogens in our study too. A citrate lock containing antimicrobial solutions has been recommended for CVC patency in order to decrease infection and bleeding episodes. Recently a meta-analysis demonstrated that citrate lock containing antimicrobial solutions decreased CVCR-BSI and exit site infections. However, *Staphylococcus aureus*-related infections were found to be closely associated with citrate containing lock solutions rather than heparin lock

[18]. We had used heparin lock solutions in both of the groups due to economic reasons. No bleeding complications were detected.

Previously, it has been reported the median time for temporary CVC colonization was 18,5 days [19]. In our study, the time to the emergence of CVCR-BSI after CVC insertion was  $10.2 \pm 8.2$  days and the time to positivity of blood cultures taken from peripheral veins and CVC was  $12.3 \pm 7.4$  and  $16.5 \pm 6$  hours, respectively. Quittnat Pelletier F et al. reported the time to positive blood cultures as 14 hours and 15 minutes [20]. Even though CVCR-BSI with early diagnosis and appropriate antibiotic treatment of two weeks did not result in increased duration of hospitalization and mortality in our study, the best strategy for reducing bloodstream infection episodes should be the CVC avoidance by planning the permanent vascular access in the right time because the use of arteriovenous fistula leads to eight times less vascular Access-related BSI infection risk than use of CVC [6].

### Conclusion

We found that CVCR-BSI developed approximately 10 days after CVC insertion. Time to culture positivity was documented for nearly 12 hours. Elevation in CRP levels was found to be a significant clinical marker for suspicion of CVCR-BSI. *Staphylococcus* family were the most encountered CVCR-BSI causing pathogens. Personal hygiene conditions might have been a risk factor for CVCR-BSI which we did not explore.

### Limitations of the study

A small sample size might interfere with the meaningful results. Nasal colonizations for *Staphylococcus Aureus* were not searched. Measures for personal hygiene habits were not searched.

### List of abbreviations

CVC: Central venous catheters  
 CVCR-BSI: Central venous catheters-related blood stream infection  
 CRP: C-reactive protein  
 AVF: arteriovenous fistulas  
 DM: diabetes mellitus

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Corresponding Author:

Kubra Kaynar,  
Karadeniz Technical University,  
Faculty of Medicine,  
Department of Nephrology,  
Trabzon,  
Turkiye,  
E-mailkkaynar@yahoo.com

# Health problems caused by inadequate use of internet content and disorders caused by the same in children's behavior

Amela Hasanovic, Mensura Kudumovic

University of Sarajevo, Faculty of Educational Science, Sarajevo, Bosnia and Herzegovina.

## Abstract

Children nowadays have at their fingertips, or rather at the click of a button, almost all the information they need and want to know. Children who are exposed to violence, show antisocial and aggressive behaviors more and more often and because of this, they themselves demand more and more violence in the game. As the purpose of this work is to show the potentially dangerous aspects of the use of modern technologies, this survey was conducted with elementary school students. The subject of the research is *the influence of the Internet on the appearance of aggressive behavior among children in lower grades of elementary schools* and the correlation between the Internet and educational process.

The goals of this research are the analysis of methods that are important for suppressing and reducing harmful content that propagates aggressive behavior, violence and other negative elements of child upbringing and ways to prevent its negative reflection. The goal of the research is also that parents/educators use its results for the purpose of familiarization and possible action in resolving the problem of "bombardment" with various contents that could induce students to aggression or violence. In this research, a questionnaire was used as a research instrument. Based on the obtained results, we conclude that almost every student, in this case the respondent, has their own device through which they can access the Internet. Through the results of the research, we can see that most of the surveyed students answered that their parents are aware of which websites and content they visit. It is interesting that through the obtained results we can conclude that parents approve of children watching such content that can produce very negative effects in children. This paper discusses, first of all, the role of parents, teachers and social

workers in the prevention of the appearance of aggressive behavior in children, as a result of being exposed to inappropriate and violent content on the Internet or some other medium. Any aggressive behavior and inappropriate media or Internet content should be reported in time, in order to react and prevent the further spread and propagation of it. Parents need to be aware of the websites their children visit. If parents start controlling access to these contents, this problem should be reduced to a large extent. Also, if parents suspect that their child is showing signs of aggressive behavior caused by the Internet content (videos, cartoons or games), they need to talk to their children and provide them with appropriate medical help.

**Key words:** *Internet, children, parents, disorder, behavior, aggressiveness, help.*

## Zdravstveni problemi izazvani neadekvatnim korištenjem internet sadržaja i poremećaji koje isti izazivaju u ponašanju djece

Amela Hasanovic

University of Sarajevo, Faculty of Educational Science, Sarajevo, Bosnia and Herzegovina.

## Sažetak

Djeci su danas na dohvat ruke, ili bolje rečeno klikom na dugme, dostupne gotovo sve informacije koje žele saznati. Asocijalna i agresivna ponašanja sve češće pokazuju djeca koja su izložena nasilju, pa zbog toga i sama zahtjevaju sve više nasilja u igri. Kako je svrha ovog rada ukazati na potencijalno opasne strane upotrebe modernih tehnologija, sprovedena je anketa sa učenicima osnovnih škola. Predmet istraživanja jeste sam uticaj interneta na pojavu agresivnog ponašanja

kod djece u nižim razredima osnovnih škola, odnosno odnos interneta i odgojnih procesa, te njihov međusobni uticaj.

Ciljevi ovog istraživanja su analize metoda koje bi bile od značaja za suzbijanje ili umanjivanje štetnih sadržaja kroz koje se propagira agresivno ponašanje, nasilje i drugi negativni elementi za odgoj djeteta te spriječavanje njegovog negativnog odražavanja. Cilj istraživanja se također temelji na tome da dobivene rezultate istraživanja roditelji/odgajatelji koriste radi upoznavanja i djelovanja na rješavanju problema „bombardiranja“ raznim sadržajima koji mogu podstaknuti učenika na agresiju ili nasilje. U ovom istraživanju je korišten anketni list kao instrument istraživanja. Na osnovu dobivenih rezultata zaključujemo da skoro svaki učenik, u ovom slučaju ispitanik, ima svoj vlastiti uređaj preko kojeg može pristupiti internetu. Kroz rezultate istraživanja uočavamo da je najviše anketiranih učenika odgovorilo da su roditelji upoznati sa tim koje web stranice i sadržaje posjećuju. Zanimljivo je da kroz dobivene rezultate možemo zaključiti da roditelji odobravaju djeci gledanje takvih sadržaja koji mogu kod djece proizvesti vrlo negativne učinke. U ovom radu se govori, prije svega, o ulozi roditelja, učitelja te socijalnih radnika u prevenciji pojavljivanja agresivnog ponašanja kod djece, uslijed gledanja neprilagođenih i sadržaja ispunjenih nasiljem na internetu ili nekom drugom mediju. Svako agresivno ponašanje i neprilagođene sadržaje treba prijaviti na vrijeme, kako bi se reagiralo i spriječilo dalje širenje i propagiranje tih sadržaja. Ono o čemu roditelji treba da vode računa jesu web stranice koje njihova djeca posjećuju. Ukoliko pristup tim sadržajima roditelji počnu kontrolirati, ovaj bi se problem trebao smanjiti u velikoj mjeri. Također, u slučaju da roditelji sumnjaju da im dijete ispoljava znakove agresivnog ponašanja uzrokovano internet sadržajima (videozapisi, crtani filmovi ili igrice), potrebno je da razgovaraju sa svojom djecom i da im omoguće odgovarajuću zdravstvenu pomoć.

**Ključne riječi:** *internet, djeca, roditelji, poremećaj, ponašanje, agresivnost, pomoć.*

## Uvod

Informatička pismenost (eng. *computer literacy*) definiše se kao sposobnost korištenja računala i računalnih programa. Prema Saranto

i Hovenga (2004), informatička pismenosti već dugi niz godina postoji u literaturi a sadržaj njenog koncepta je fokusiran na osnovno znanje i vještine kada je riječ o korištenju računara. S druge strane, pismenost u oblasti informacionih tehnologija generalno, odnosi se na set sposobnosti, znanja i vještina neophodnih za korištenje informacionih tehnologija na odgovarajućem nivou uloge na poslu, u specifičnom radnom okruženju i mogućnosti nastavka razvoja seta tih vještina u budućnosti.

Informatička pismenost je u oblasti obrazovanja je izuzetno važna, jer za efikasno korištenje tehnologije, te pravilnu brigu o učenicima, učitelji i roditelji moraju imati niz razvijenih kompjuterskih znanja i vještina, kao i informisanost o Internetu i medijima općenito. (1)

Zloupotreba interneta i medija općenito u BiH predstavlja veliki društveni problem. Bosna i Hercegovina kao država u tranziciji suočava se sa dramatičnim socijalnim promjenama, koje su u direktnoj vezi sa upotrebom medija i porastom problema koji se vežu uz njih, poput krivičnih djela, socijalne isključenosti, samoubistva.

Raznolikost internetskog sadržaja omogućava djeci da otvaraju različite, često neprilagođene, sadržaje iz kojih ne mogu naučiti puno, a obilje nasilja koji se prikazuju u velikoj mjeri utiče na njihovu psihu. Neosporna je činjenica da su mediji, na ovaj ili onaj način, prisutni u svim aspektima života ljudi, od privrede i ekonomije do one privatne sfere života. Uporedo sa širenjem internetskih sadržaja javljaju se i rasprave o njihovoj važnosti te potencijalnom uticaju na korisnike.

Internet utiče na stavove i ponašanje mladih, posebno ako su opredijeljeni za traženje i gledanje takvih sadržaja te ako društveno okruženje propagira i podržava iste vrijednosti i obrasce ponašanja s kojima se susreću na internetu. U savremenom društvu uticaj masovnih medija je vrlo moćan, a njihov način izražavanja igra glavnu ulogu ne samo u odbacivanju nekih karakteristika tradicionalne kulture, već i u stvaranju nove uloge audiovizuelne kulture.

Djeca se danas počinju koristiti medijima vrlo rano, ali pitanje je, koje značenje mediji zapravo imaju u njihovim životima. Mediji danas formiraju i oblikuju mišljenja ljudi u društvu i zapravo su veoma važni. Prva je prednost medija što nam mogu približiti događaje i brzo nas informisati.

Kako djeca rastu i razvijaju se i na njih djeluju različiti uticaji iz okoline. Intenzitet učinaka varira sa dobi. Roditelji i porodica igraju najveću ulogu u životu djeteta. Slijede prijatelji, a to su obično djeca s ulice, iz vrtića ili škole. (2)

Djeca su neiskusna, lakovjerna, sa stalnim promjenama ponašanja ali su prije svega neiskvarena. Puni su života i sfera njihovog interesovanja je velika, te su na taj način vrlo podložni uticaju različitih, često neprimjerenih sadržaja koji im se nude na internetu i takvi sadržaji vrlo lahko zaokupe njihovu pažnju. Oni ne razvijaju kritički stav prema svijetu, zbog čega "upijaju" puno informacija koje pokušavaju oponašati. Uče oponašanjem jer je to način učenja o svijetu u njihovoj dobi. Ako su konstantno izloženi nasilju, ubistvima, maltretiranju, pogrđnim i neprimjerenim riječima, smatrat će da je to dobro i da to trebaju zapravo prakticirati u svakodnevnom životu. Gledajući takve sadržaje, dijete stvara jednu negativnu sliku svijeta, te takve misli potpuno zaokupiraju njegovu pažnju i utiču na njegove osjećaje. Postaju vrlo asocijalni, te stvaraju svoj mikrosvijet u kojem su vrlo zatvoreni. Kada dijete postane svjesno situacije u kojoj se našlo, to se prvo počinje uočavati na njegovom ponašanju koje postaje moralno neprihvatljivo.

Bogatstvo informacionih tehnologija koje se nude djeci nisu nužno negativne po njih. Djeca koristeći kompjutere stiču različite vještine i znanja pri tome koristeći svoja čula i svoje tijelo. Također, pravilno i kontrolirano korištenje kompjuterskih igrica ima pozitivan uticaj na finu motoriku i koordinaciju. Međutim, svako prekomjerno i nekontrolirano konzumiranje savremenih informacionih uređaja kod djece mogu izazvati brojne posljedice. Neke od njih su gojaznost, agresivno ponašanje, konzumiranje narkotika, alkohola i cigareta, te stvaranje raznih predrasuda i stereotipa. Često djeca prepuštena sama sebi "upijaju" medijski prikaz nasilnika u herojskom svjetlu. Želeći biti poput takvih junaka, djeca izvršavaju različita delikventna i kaznena djela.

Djeci su danas na dohvata ruke ili, bolje rečeno klikom na dugme, dostupne gotovo sve informacije koje žele saznati. Čak i one koje su odrasli od njih krili godinama. Više ne postoje „tabu teme“, a ponekad je čak i opasno ne poticati djecu na razgovor o temama koje se prije svega nekoliko godina bile nezamislive u komunikaciji između odraslih i djece.

Michael Kunczik i Astrid Zipfel (2006) su dugi niz godina proučavali uticaj medijski prikazanog nasilja na ponašanje korisnika medijskih sadržaja. Oni se protive teorijama da primatelji medijskih poruka, među kojima su važna skupina djeca, uvijek mogu steći želju za oponašanjem nasilničkog ponašanja u stvarnom životu.

Do sličnih su zaključaka došli i kad je riječ o oponašanju samoubistava, koja su medijski detaljno prikazana. Dokazano je da vrlo mali dio populacije medijski prikaz samoubistva može potaknuti na oponašanje.

Buljan Flander (2010) navodi niz istraživanja te ističe kratkotrajne i dugoročne posljedice kod djece, koje se ovisno o dobi, porodičnom okruženju, socijalnim odnosima i društvenom okruženju reflektuju na različite načine. Kod neke se djece primjećuje da postaju manje osjetljiva na bol i patnje drugih. Gubi se osjećaj empatije, a povećava želja za agresivnošću. U današnje vrijeme količina nasilja u svim medijima je u značajnom porastu. (3,4,5)

Djeca kada vide nasilje, postaju manje osjetljiva od onih koji su žrtve nasilja, razvijaju lažne stavove o nasilju i gube empatiju prema žrtvama.

Isto tako, djeca su tolerantnija i manje ih muči agresivno ponašanje, svijet počinju doživljavati kao nasilan i zlonamjerman te se boje da će i sami postati žrtve. (6,7,8,9)

Djeca izložena nasilju sve više pokazuju asocijalna i agresivna ponašanja, pa zbog toga i sama zahtijevaju sve više nasilja u igri. Na taj način odnos nasilja i agresije postaje uzajaman, pa djeca konfliktne situacije pokušavaju riješiti prihvatljivim i poželjnim nasiljem. Budući da žive u virtuelnom svijetu, ne razvijaju optimalno emocionalnu inteligenciju ni samopouzdanje.

Zločin počinjen u Beogradu, prilikom kojeg je ubijeno 9 učenika osnovne škole te njihov čuvar, a koji je izvršio maloljetni K.K., najbolji je primjer prevelikih očekivanja i uticaja internetskih i medijskih sadržaja na dječiji mozak. Kroz ovaj slučaj može se primjetiti i propust roditelja koji nisu uočili kakve se to psihičke promjene dešavaju kod njihovog djeteta ali i da jednom trinaestogodišnjaku nisu ograničavali pristup niti kontrolisali web sadržaje koje on posjećuje. Djeca su u tom periodu posebno osjetljiva jer prolaze tranziciju između puberteta i adolescentnog



perioda, tačnije perioda velikih promjena, te se na diskretan način oni moraju konstantno nadzirati. Roditelji trebaju pratiti šta se dešava u životu njihove djece, kako i na koji način razmišljaju te u kojem pravcu djeluju. Postaju vrlo zatvoreni a ujedno ako se nađu u situaciji gdje imaju problem, vrlo slabo govore o tome što u nekom trenutku može biti okidač za različite tragedije.

Obrazovni sektor je danas jedan od najintenzivnijih korisnika svih vrsta informacionih tehnologija i interneta. Informaciono komunikacione tehnologije i internet kao novi segment organizovanja obrazovnih sistema pruža velike, različite i skoro neograničene mogućnosti za rad u ovoj oblasti na svim nivoima, kao i transparentan, personaliziran pristup obrazovnim podacima i informacijama učenika i nastavnika. (10,11,12,13)

### Ciljevi

Ciljevi ovog istraživanja su ispitati i analizirati metode koje bi bile od značaja za suzbijanje ili umanjivanje štetnih sadržaja kroz koje se propagira agresivno ponašanje, nasilje i drugi negativni elementi za odgoj djeteta te spriječavanje njegovog negativnog odražavanja. Cilj je, također, doći do saznanja o uzročno posljedičnim odnosima vezanim za negativno odražavanje interneta na odgoj djece. Dosadašnja skromna istraživanja ove pojave pokazala su se korisnim, jer društvo svaki dan usavršava metode sprečavanja nastanka istih. Značajno je, a i cilj je također uočiti i opisati poslove koje obavljaju roditelji, učitelji te socijalni radnici s ciljem prevencije agresivnog ponašanja kod djece u osnovnim školama, podstaknuto internetskim sadržajem.

Društveni cilj istraživanja se također temelji na tome da dobiveni rezultati istraživanja roditelji/odgajatelji koriste radi upoznavanja i djelovanja na rješavanju problema prikazivanja raznih sadržaja koji mogu podstaknuti učenika na agresiju ili nasilje. Internetski sadržaji su ispunjeni programima i sadržajnim porukama koje potiču rizično ponašanje djece.

### Metodologija

Kako je svrha ovog rada ukazati na potencijalno opasne strane upotrebe modernih tehnologija,

sprovedena je anketa sa učenicima osnovnih škola. Predmet istraživanja jeste sam uticaj interneta na pojavu agresivnog ponašanja kod djece u nižim razredima osnovnih škola, odnosno odnos interneta i odgojnih procesa, te njihov međusobni uticaj. Ovo istraživanje je teorijsko-empirijskog karaktera.

Svaki doprinos u objašnjenju ovog veoma važnog aspekta današnjice je koristan, posebno kada govorimo o djeci, njihovom razvoju i tek očekivanim posljedicama intenzivne upotrebe modernih tehnologija, bilo da su pretežno pozitivne ili negativne. Istraživanje je provedeno u 2 osnovne škole na području Kantona Sarajevo i ispitivanjem su obuhvaćena 303 učenika III, IV i V razreda. Prostorno određenje predmeta istraživanja prvenstveno se odnosi na područje Kantona Sarajevo, ali treba naglasiti da je ovaj problem veoma zastupljen u cijelom svijetu, te je uticaj interneta sveprisutan.

Djeca i adolescenti su vrlo osjetljiva skupina u društvu koja je u procesu razvoja stavova te usvajanja i kontinuiranog prilagođavanja socijalizacijskih okvira i normi ponašanja. Internet igra ključnu ulogu u posredovanju društveno poželjnih životnih obrazaca koji oblikuju znanje mladih o svijetu i njihovom društvenom okruženju. Zbog toga medijske studije promatramo u ambivalentnosti teorije direktnih učinaka, odnosno proučavanja odnosa između internetskog sadržaja i ponašanja primatelja, s fokusom na prožimajuće negativne učinke.

Svako istraživačko pitanje ima svoje uzročne veze, koje se utvrđuju kroz naučno objašnjenje. Neka djeca imaju potrebu biti agresivna jer ne vide ništa loše u takvom ponašanju. Oni samo oponašaju ono što vide ili čuju. Neka djeca ne znaju bolji način komunikacije s okolinom (tj. s vršnjacima). Događa se da ih ohrabruju i prijatelji, a takvo ponašanje im se predstavlja kao "in", odnosno ponašanje u trendu. Neka djeca prolaze teška životna razdoblja koja manifestuju kroz agresivno ponašanje, pa je za njih nasilje simptom problema. Istraživanja pokazuju da agresivna djeca često dolaze iz domova bez brige za djecu, prepuštena su sama sebi, smiju raditi i vidjeti što žele, pa se djeca služe fizičkim nasiljem i agresijom kao načinom rješavanja problema.

U skladu sa svim navedenim, na kraju ćemo pokušati odgovoriti na određena istraživačka pitanja koja se nameću ako posmatramo ovu ak-

tuelnu problematiku. Sve to će pomoći u razumijevanju kakav je uticaj interneta na djecu, ali i zasigurno otvoriti neka nova pitanja jer je ovo tema koja zahtjeva uključivanje i mnogih drugih faktora kako bi se umanjili negativni efekti, a internet i njegove dobre strane optimalno koristile.

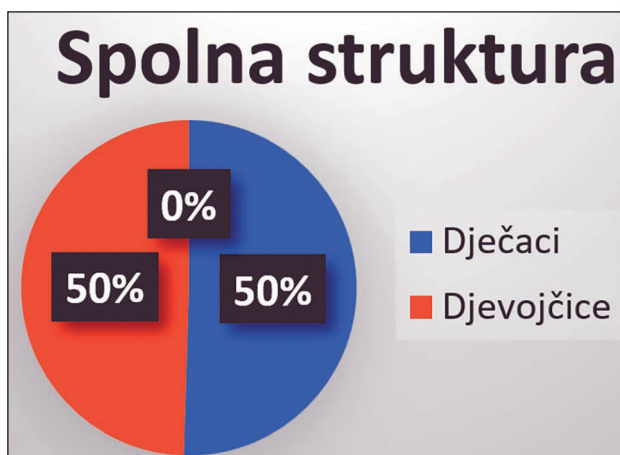
Kao ilustraciju stanja u praksi, nakon anketiranja učenika i provedene radionice odgovorićemo na sljedeća pitanja:

1. Da li djeca posjeduju vlastiti kompjuter/laptop/mobilni uređaj/tablet sa dostupnim internetom ?
2. Koliko vremena dnevno provedu koristeći taj uređaj?
  - a) 0-30 minuta
  - b) 35-50 minuta
  - c) 1h-2h
  - d) 3h i više
3. Da li su roditelji upoznati sa sadržajem web stranica i igrice koje učenici posjećuju i igraju koristeći internet?
4. Da li roditelji ograničavaju vrijeme provedeno na internetu?
5. Koje su stranice koje djeca najčešće posjećuju (koji sadržaji preovladavaju na tim stranicama)?

U ovom istraživanju je korišten anketni list kao instrumenti istraživanja.

### Rezultati istraživanja

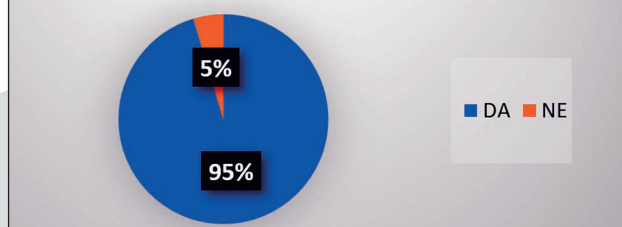
Nakon anketiranja ispitanika, prikupljeni podaci su statistički obrađeni i dobiveni su sljedeći rezultati:



Grafikon 1. Spolna struktura

Tokom istraživanja, anketirana su ukupno 303 učenika, od toga 153 dječaka i 150 djevojčica.

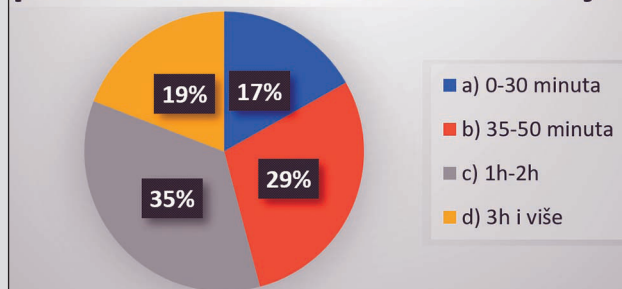
### Da li posjedujete vlastiti laptop, kompjuter, tablet ili mobitel?



Grafikon 2. Posjedovanje vlastitog uređaja

Na osnovu rezultata koje smo dobili anketirajući učenike primjećujemo da 289 ispitanika, odnosno njih 95%, posjeduje vlastiti uređaj sa pristupom internetu. 5% ispitanika (njih 14) je odgovorilo da ne posjeduje vlastiti uređaj.

### Koliko vremena dnevno provedete koristeći vaš uređaj?



Grafikon 3. Vremenski period korištenja uređaja

Na osnovu rezultata koje smo dobili anketirajući učenike primjećujemo da njih 51 dnevno provede do 30 minuta koristeći svoj uređaj (17% ispitanika), 88 ispitanika koristi uređaj od 35 minuta do 50 minuta (29%), 106 ispitanika provede dnevno 1 sat do 2 sata (35%), dok 58 ispitanika provede 3 sata i više dnevno za uređajem (19%).

Na osnovu rezultata vidimo da su roditelji 268 učenika upoznati sa tim koje web stranice i igrice njihova djeca posjećuju i igraju, odnosno njih 88%, dok je 35 ispitanika odgovorilo da njihovi roditelji nisu upoznati sa tim (12%).



Grafikon 4. Informiranost roditelja o internet sadržajima koje dijete posjećuje

Međutim, tokom razgovora sa učenicima koje to web stranice posjećuju i igrice igraju došli smo do saznanja da učenici posjećuju web stranice različitih sadržaja.

Često su neprilagođene njihovim godinama, te igraju igrice koje u sebi sadrže elemente agresivnog i nasilničkog ponašanja, te je time ovaj podatak da 88% roditelja zna (odobrava) sadržaje i igrice koje igraju njihova djeca poražavajući i zabrinjavajući.



Grafikon 5. Vremensko ograničenje

63% ispitanika, odnosno njih 191, odgovorili su da im njihovi roditelji ograničavaju vrijeme provedeno koristeći internet, dok je 37% ispitanika (njih 112) odgovorilo da nemaju kontrolu niti ograničeno vrijeme.

## Diskusija

Na osnovu dobivenih rezultata zaključujemo da skoro svaki učenik, u ovom slučaju ispitanik, ima svoj vlastiti uređaj preko kojeg može pristupiti internetu. Dnevno, ispitanici najviše provedu do 2h koristeći se web sadržajem i igrajući igrice. Međutim, 268 ispitanika odgovorilo je da su njihovi roditelji upoznati sa sadržajem koji oni posjećuju a navodili su da posjećuju jako puno web stranica koje nisu prilagođene njihovom uzrastu, kao i da igraju igrice sa elementima nasilja i agresije. Također, većina ispitanika je navela Tik tok i You tube kao najposjećeniji internet sadržaj. Zanimljivo je da kroz dobivene rezultate možemo zaključiti da roditelji odobravaju djeci gledanje takvih sadržaja koji mogu kod djece proizvesti vrlo negativne učinke.

Kroz razgovor sa učenicima došlo se do saznanja da učenike u ovom uzrastu interesuje jako puno stvari. Izjavili su da po forumima namijenjenim za razmjenu iskustava i informacija u vezi neke igrice, jako često prisustvuju svađama, prijetnjama i psovka. Na sportskim forumima čitaju razne prijetnje koje navijači međusobno razmjenjuju. Većina njih je, kroz razgovor, odgovorila da su upoznati sa tim da svoje lične podatke ne trebaju otkrivati nepoznatim osobama. Također smo razgovarali o Tik toku i rekli su da su vrlo često svjedoci komentara i klipova koji su ispunjeni nacionalističkim sadržajem i vrijeđanjima.

Igrice koje djeca igraju su uglavnom one u kojima se vodi rat, gdje jedni druge "ubijaju", sa puno krvi, oružja, tenkova i slično. Jako malo njih je izjavilo da posjećuju stranice prilagođene njihovom uzrastu, stranice na kojima su prave dječije igre (kako bi odgovorni odrasli to okarakterisali), veseli dječiji crtani filmovi, edukativni sadržaji i sl. Učenici IV razreda su u velikoj mjeri odgovorili da im njihovi roditelji ne kontrolišu web stranice koje posjećuju i igrice koje igraju.

Sve ovo upućuje na to da je internet, koji je svakako "otvorena mreža" dostupan, otvoren svima, da se stranice ne kontrolišu i da svako može objaviti, bez ikakvih filtriranja, procjene, ono što mu je volja, tačnije bilo kakav sadržaj. Ove, iako već poznate činjenice o internetu, ponovo ukazuju na potrebu za većim uključivanjem roditelja, nastavnika i ostalih u dječijem okruženju kako bi se umanjile negativne posljedice na njih.

## Zaključci

Rezultati ovog istraživanja pokazuju da djeca dnevno najviše vremena provedu koristeći se web sadržajem i igrajući igrice. Međutim, značajan broj njih odgovorilo je da su njihovi roditelji upoznati sa sadržajem koji oni posjećuju a navodili su da posjećuju jako puno web stranica koje nisu prilagođene njihovom uzrastu, kao i da igraju igrice sa elementima nasilja i agresije. Također, većina ispitanika je navela Tik tok i You tube kao najposjećeniji internet sadržaj. Zanimljivo je da kroz dobivene rezultate možemo zaključiti da roditelji odobravaju djeci gledanje takvih sadržaja koji mogu kod djece proizvesti vrlo negativne učinke.

Analiza rezultata pokazuje, prije svega, bitnost uloge roditelja, učitelja te socijalnih radnika u prevenciji pojavljivanja agresivnog ponašanja kod djece, uslijed gledanja neprilagođenih i sadržaja punih nasilja na internetu ili nekom drugom mediju. Svakako da ova pojava nije novost kako u ostalim zemljama, pa tako ni u Bosni i Hercegovini. Međutim, ovoj pojavi se vrlo malo prostora daje u našoj pedagoškoj i psihološkoj literaturi, te se vrlo malo o njoj govori u okviru studija na nastavničkim fakultetima, kao i stručnim usavršavanjima prosvjetnih radnika. Uloga stručnih pedagoško-psiholoških službi u školama svakako je osmisliti Program prevencije za suzbijanje agresivnih oblika ponašanja, koji treba imati za cilj podsticanje, prije svega roditelja i nastavnika, ali na koncu i same djece da postanu svjesni ovog problema i posljedica koje on izaziva. Potrebno je ponuditi rješenja i mehanizme koji će dovesti do smanjenja pojave agresivnog ponašanja uzrokovanog neprimjerenim sadržajima na internetu. Zbog toga ovaj problem može inhibirati provedbu odgovarajućih mjera, te pravovremena identifikacija problema predstavlja osnovni uslov za planiranje mjera intervencije. Svakako agresivno ponašanje i neprilagođene sadržaje treba prijaviti na vrijeme, kako bi se reagovalo i spriječilo dalje širenje i propagiranje tih sadržaja. Ono o čemu roditelji treba da vode računa jesu web stranice koje njihova djeca posjećuju. Ukoliko se ti sadržaji počnu više kontrolisati od strane roditelja, ovaj bi se problem trebao smanjiti u velikoj mjeri. Svakako da je jako bitno da djeca postanu svjesna da ukoliko imaju neki problem, nisu sama. Potrebno je stalno naglašavati da suočavanje sa proble-

mom ne trebaju prolaziti sami već da pomoć uvijek trebaju potražiti od starijih osoba u koje imaju povjerenje. Ukoliko roditelji imaju sumnju da im dijete pokazuje znakove agresivnog ponašanja uslijed videozapisa, crtanih ili igrica koje igraju na internetu, potrebno je da razgovaraju sa svojom djecom i pruže im pomoć. Vrlo često roditelji ne mogu samostalno pronaći rješenje za ovaj problem, pa je potrebno u takvim slučajevima bez bojazni potražiti pomoć stručnih osoba a sve sa ciljem pomoći njihovom djetetu. (13,14,15)

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*Corresponding Author*  
*Amela Hasanović,*  
*University of Sarajevo,*  
*Faculty of Educational Science,*  
*Sarajevo,*  
*Bosnia and Herzegovina*  
*E-mail: [amelaa.hasanovic@hotmail.com](mailto:amelaa.hasanovic@hotmail.com)*

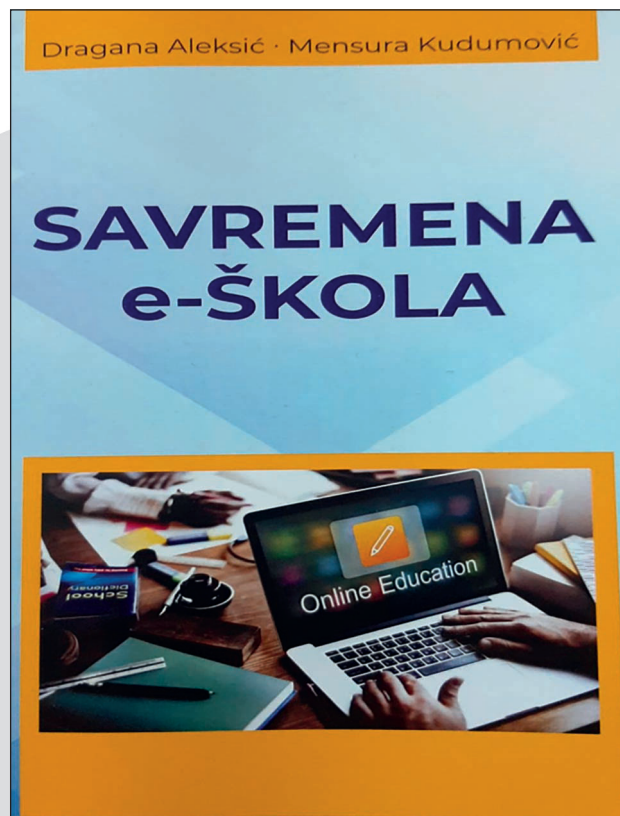


## Book review (PRIKAZ KNJIGE)

*Doc.dr Dragana Aleksić, prof.dr Mensura Kudumović, Pedagoški fakultet Sarajevo, 171 str.*

Knjiga „Savremena e-škola“ je nastala kao izraz želje i volje za nastajanjem nečeg novog, drugačijeg načina učenja i sticanja novih znanja. Novi sistemi učenja predstavljaju put saznanja novih sistema učenja putem inovativnih modela rada o kojima se do sada nije mnogo govorilo. U knjizi je sažeto više oblasti koje su neophodne za današnje napredovanje svakakg pojedinca, kako prosvjetnog radnika, tako i studenta koji želi da se priprema za cjeloživotno učenje i obrazovanje, kako smo i uslovljeni ovim naglim porastom i razvojem tehnike i tehnologije. Podijeljena je u 19 poglavlja. Svaki dio detaljno objašnjava ono što je navedeno, od uvodnog dijela, do ključnih pojmova, pregleda stare i nove škole, historijskog razvoja informacionih tehnologija, novih sistema učenja, e-učenja, Emilinog modela, savremena porodica i uticaj na vaspitanje, slobodno vrijeme vaspitanika, reinženjering nastavnih procesa i sl.

Naime, materija ove knjige je veoma razumljiva iz razloga što su dati prijedlozi koji su primjenjivi u praksi, što nam i jeste bio cilj da prikazemo, jer se ranije dosta pričalo o inovacijama, ali nismo nailazili na neke konkretne prijedloge koji se mogu primjenjivati u praksi. Posebno bi istakli novi model učenja pod nazivom EMILIN-model učenja, (elektronski model inovativno-logičkog izučavanja nastave), jer on daje dosta smjernica i načina za drugačije vidove učenja i napredovanja učenika/studenata, a koji je primjenjiv u školama/univerzitetima. Knjiga „Savremena e-škola“ predstavlja sveukupnost novi sistema, modela učenja, koji sigurno mogu otvoriti nova pitanja rada i istraživanja, a sve u cilju što većeg napredovanja u našem sistemu obrazovanja.



# Instructions for the authors

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### Abstract

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**Key words:** Camera ready paper, Journal.

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Times New Roman 12 points font should be used for normal text. Manuscript have to be prepared in a two column separated by 5 mm. The margins for A4 (210×297 mm<sup>2</sup>) paper are given in Table 1.

Table 1. Page layout description

Paper size	A4
Top margin	20 mm
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Right margin	18 mm
Column Spacing	5 mm

Regular paper may be divided in a number of sections. Section titles (including references and acknowledgement) should be typed using 12 pt fonts with **bold** option. For numbering use Times New Roman number. Sections can be split in subsection, which should be typed 12 pt *Italic* option. Figures

should be one column wide. If it is impossible to place figure in one column, two column wide figures is allowed. Each figure must have a caption under the figure. Figures must be a resolution of 300 DPI, saved in TIFF format, width 10 cm min. For the figure captions 12 pt *Italic* font should be used. (1)

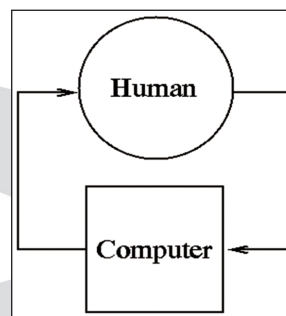


Figure 1. Text here

### Conclusion

Be brief and give most important conclusion from your paper. Do not use equations and figures here.

### Acknowledgements (If any)

These and the Reference headings are in bold but have no numbers.

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*Corresponding Author*  
Name Surname,  
Institution,  
City,  
Country,  
E-mail: