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Edukacijske potrebe i motivacijski čimbenici kod studenata sestrinstva: kvalitativna studija među slovenskim i hrvatskim nastavnicima prediplomske nastave sestrinstva

/ Educational Needs and Motivational Factors in Gerontic Nursing Students: A Qualitative Study Among Slovenian and Croatian Undergraduate Nursing Educators

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Ciljevi: Istražiti gledišta nastavnika na prediplomskim studijima sestrinstva, koji su povezani s edukacijskim potrebama i motivacijskim čimbenicima kod studenata sestrinstva. **Pozadina:** Populacija koja ubrzano stari je značajan socioekonomski teret i zahtijeva, između ostalog, ulaganje ljudskih resursa, između ostalog. Povrat ovih ulaganja, u smislu kvalitete pružene skrbi, dokazano je povezan s edukativnim sadržajem i motivacijskim čimbenicima kod studenata sestrinstva. Međutim, potrebno je istražiti gledišta nastavnika sestrinstva s obzirom na kurikularne potrebe i motivacijske faktore studenata. **Dizajn:** Kvalitativna studija analize sadržaja polustrukturiranih intervjuja. **Metode:** Pet nastavnika gerontologije (tri iz Slovenije, dva iz Hrvatske), predstojnici katedri, iz pet visokoškolskih institucija, intervjuirani su za vrijeme školske godine 2017./2018. i intervjuji su transkribirani. **Rezultati:** Intervjuima je identificirano pet tema: i) prijedlozi za kurikularnu promjenu; ii) prijedlozi za radno iskustvo sa starijim osobama; iii) prijedlozi intervencija kako bi se ojačala motivacija za rad sa starijim osobama; iv) učinci stavova studenata na starenje i starije osobe; v) emocionalni odgovor studenata na starenje. U svakoj od tema identificirano je nekoliko (4-6) glavnih kategorija. **Zaključak:** Gledišta nastavnika na svih pet institucija nisu se značajno razlikovala: prepoznaju moguće emocionalne odgovore studenata prema starenju kao načelno negativan stav, ravnodušnost i strah, ali ne nude rješenja za promjenu emocionalne reakcije. Čini se da nastavnici negiraju povezanost između edukacije, stavova i ponašanja. **Važnost za kliničku praksu:** Kako nastavnici sestrinstva imaju ključnu ulogu u usmjeravanju stavova i znanja budućih profesionalaca gerontološke skrbi prema starenju i starijoj dobi, rezultati ovog ispitivanja su važni za kliničku praksu, jer se svijet suočava s dramatičnom demografskom promjenom.

Aims and objectives: To explore perceptions of educators at undergraduate nursing courses related to educational needs and motivational factors among nursing students. **Background:** The ever-aging population poses a significant socioeconomic burden and demands investment of human and other resources. Return on these investments, in terms of quality of care delivered, has been shown to be associated with educational contents and motivational factors in nursing students. However, further research is needed on perspectives among nursing educators, in relation to perceived curricular needs and student motivational factors. **Design:** A qualitative study using content analysis of semi-structured interviews.

Methods: Five gerontic nursing educators (three from Slovenia, two from Croatia), heads of their respective departments, from five higher-education institutions were interviewed during the 2017/2018 school year, and the interviews were transcribed verbatim. **Results:** Five areas were covered by the interviews: i) proposals on curricular improvements; ii)

proposals on work experience with the elderly; iii) proposals on interventions to strengthen motivation to work with the elderly; iv) effects of attitudes of students on ageing and the elderly; v) emotional responses of students towards ageing. In each of the themes, several (4-6) main categories were identified. Conclusion: Perceptions of educators across the five educational institutions do not differ significantly: they recognize the possible emotional responses of students towards ageing as a generally negative attitude, indifference, and fear, yet they fail to offer solutions to change the emotional reaction. The educators seem to deny the connection between education, attitudes, and behavior. Relevance to clinical practice: Nursing educators play a critical role in directing attitudes and knowledge of future gerontic nursing professionals towards ageing and old age; insight into their opinions is important as the world faces a dramatic demographic change.

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UVOD

Globalno društvo suočava se sa seizmičkom demografskom promjenom, tj. promjenom zbog ubrzanog starenja populacije i stopom rasta starije populacije koja nadmašuje stopu rasta svake druge starosne skupine. Unutar nekoliko desetljeća, po prvi puta u povijesti, broj starijih nadmašit će adolescente i mlade; u apsolutnim brojevima to će iznositi 2,1 milijardu ljudi starijih od 60 godina do 2050. g., kada se očekuje da će broj ljudi u starosnoj skupini 10-24 godine biti 2 milijarde (1). Starenje populacije je globalni fenomen, međutim njegova dinamika nije ujednačena u različitim regijama. Proces starenja populacije je značajni ekonomski teret za društvo i identificiran je kao ključni pokretač rasta troškova javnog zdravstva u Sjedinjenim Američkim Državama (2). Iako stope invaliditeta u starijoj populaciji opadaju, porast u apsolutnom broju i pomak izdavanja prema kraju života (umjesto prema razdoblju

INTRODUCTION

The global society is facing a seismic demographic shift, namely a rapidly aging population and a growth rate in the elderly population outpacing the growth rate of every other age group. Within a few decades, the elderly will outnumber the adolescents and the young for the first time ever; in absolute figures this will amount to 2.1 billion people older than 60 years by the year 2050, when the number of people in the 10-24 age group is expected to be 2 billion (1). Population aging is a global phenomenon, yet the dynamics of it are not homogenous across different regions. The process of population ageing poses a significant economic burden on society and has been identified as a key driver behind rising public healthcare expenditures in the United States (2). Although the rates of disability are declining in the elderly, the rise in their absolute numbers and shift in expenditure towards



starenja) uzrokuju rast troškova skrbi u ovoj skupini (2, 3).

Razumijevanja stavova, znanja, motivacije i emocionalnih potreba profesionalaca geronto-loške skrbi (i njihovih nastavnika) važno je s obzirom da su svi ovi čimbenici izravno povezani s kvalitetom pružene skrbi (4). Prethodna istraživanja pokazala su neadekvatne razine znanja o problemima povezanimi s geronto-loškom skrbi među gerontološkim profesionalcima, ali stavove i znanja može se modificirati primjerenum edukacijskim intervencijama. Ranije smo objavili kvantitativne podatke istraživanja o stavovima i znanju o starijoj dobi i starenju među studentima gerontološkog sestrinstva u Hrvatskoj i Sloveniji i pokazali da, načelno, studenti sestrinstva imaju blago pozitivne stavove koji su pod utjecajem kurikulskog sadržaja (5,6). Mišljenja smo da stavovi nastavnika, koji nisu procijenjeni u kvantitativnom dijelu studije, imaju značajnu ulogu u motivaciji studenata, njihovim stavovima i znanju i tako izravno utječu na kvalitetu buduće pružene skrbi.

Cilj ovog istraživanja bio je istražiti gledišta nastavnika na preddiplomskim studijima sestrinstva. Kako bi ih procijenili, pitanja su usmjereni prema mišljenju nastavnika o tome koje korake smatraju potrebnima za poboljšanje motivacije studenata, kako studenti reagiraju emocionalno kada su suočeni s problemima starije dobi i starenja i kakva je povezanost između stavova studenata i pružene geronto-loške skrbi.

METODE

Dizajn studije

Ovo je bila kvalitativna studija dizajnirana kako bi istražila gledišta nastavnika na preddiplomskim studijima sestrinstva povezana s edukacijskim potrebama i motivacijskim faktorima među studentima sestrinstva. Studija

end of life (rather than the ageing period) cause ever increasing costs in care in this group (2, 3).

Understanding attitudes, knowledge, motivation, and emotional needs of nursing professionals (and their educators) catering to the needs of the elderly is important, as all of these factors are directly associated with the quality of care provided (4). Previous research has shown inadequate levels of knowledge on gerontic care-related problems among gerontic nursing professionals, yet attitudes and knowledge can be modified through proper educational interventions. Previously, we have published quantitative data from research into attitudes and knowledge towards old age and aging of gerontic nursing students in Croatia and Slovenia and shown that, in general, nursing students have mildly positive attitudes which are affected by curricular contents (5,6). We believe that attitudes of educators, which were not assessed in the quantitative arm of the study, play a significant role in student motivation, attitudes, and knowledge, and thus directly impact the quality of care provided in the future.

The aim of this study was to investigate perceptions of educators at undergraduate nursing courses. To assess them, questions were formed to direct the inquiry towards assessing what the educators perceive should be the steps taken to improve student motivation, how the students react emotionally when faced with problems of old age and aging, and how student attitudes and care provided by the students are associated with one another.

METHODS

Study design

This was a qualitative study designed to explore perceptions of educators at undergraduate nursing courses related to educational needs and motivational factors among nursing students. The study was nested within a quantitative study on the attitudes and knowledge

je provedena unutar kvantitativne studije o stavovima i znanju preddiplomskih studenata sestrinstva prema starijoj dobi i starenju i dio je doktorske disertacije prvog autora (JV) (5). Ovo je izvješće sastavljeno u skladu sa Smjernicama o izvještavanju COREQ (*Consolidated Criteria for REporting Qualitative research*) (7).

Sudionici i uvjeti

U studiju je uključeno pet gerontoloških profesionalaca, nastavnika iz gerontološkog sestrinstva na visokoškolskim institucijama. Tri institucije bile su iz Slovenije (Sveučilište u Ljubljani, Sveučilište Novo Mesto, Sveučilište Maribor), dvije institucije bile su iz Hrvatske (Sveučilište Sjever, Sveučilišni centar Varaždin i Zdravstveno veleručilište Zagreb). Svi ispitanici, po jedan iz svake institucije, bili su voditelji kolegija na preddiplomskom studiju gerontološkog sestrinstva.

Prikupljanje podataka

Svi intervjuvi provedeni su u svibnju 2018. g., nakon što je završeno prikupljanje podataka za kvantitativnu studiju. Intervjuvi su bili polustrukturirani i izvedeni licem u lice, snimljeni digitalno i zatim transkribirani. Prije intervjuja ispitanici su ukratko upoznati sa studijom i informirani o njezinom cilju. Svaki od intervjuja proveden je u uredu nastavnika u njezinoj/njegovoj instituciji. Intervjuvi su trajali između 45 i 60 minuta.

Analiza podataka

Nakon analize transkribiranih intervjuja i ekstrakcije podataka identificirane su teme. U analizi sadržaja primijenjen je induktivni pristup u nekoliko koraka (8). Najprije je tekst podijeljen u manje jedinice, prema unaprijed definiranim temama. Nakon prvog čitanja teksta određene su *in vivo* kategorije (primjerice, ako se isti sadržaj pojavljuje u dva ili više intervjuja,

of undergraduate nursing students towards old age and ageing and is a part of the PhD thesis of the first author (JV) (5). The report was structured in accordance with the COREQ (Consolidated Criteria for REporting Qualitative research) reporting guidelines (7).

Participants and setting

Five gerontic care professionals who are educators in gerontic nursing at higher educational institutions were included in the study. Three of the institutions were from Slovenia, namely Ljubljana University, Novo Mesto Health Faculty, and Maribor University; two institutions were from Croatia, namely University North, University Center Varaždin and Health University Zagreb. All interviewees, one from each of the institutions, were course supervisors in undergraduate gerontic nursing.

Data collection

All interviews were conducted in May 2018, after all data were gathered for the quantitative study. The interviews were semistructured and performed face-to-face, recorded digitally and then transcribed verbatim. Before the interview, the participants were shortly introduced to the study and informed of its aim. Each of the interviews was performed in the office of the educator at their respective institution. The interviews lasted between 45-60 minutes.

Data analysis

After analyzing the transcribed interviews and extracting data, themes were identified. The inductive approach was used for analysis, carried over several steps (8). The text was first divided into smaller units, according to pre-specified themes. After the first reading, *in vivo* categories were defined (for example, if certain content appeared in two or more interviews, it was considered theme-defining). After the first round of defining themes, the text was re-read and categories were assigned. Areas not covered

time je definirana kategorija). Nakon prvog definiranja kategorija, tekst je ponovno čitan uz dodjeljivanje kategorija. Identificirana su područja koja nisu pokrivena kategorijama kao i područja preklapanja (redundancija). U ovom koraku dodane su nove kategorije ili uklonjene suvišne. Tekst je ponovno pročitan uz primjenu kategorija iz prethodnog koraka. Čitanje i revizija kategorija ponavljano je do čitanja u kojem nije bilo potrebe za revizijom kategorija.

Etička razmatranja

Etičko odobrenje za provođenje ovog istraživanja izdano je od etičkih povjerenstava Sveučilišta Sjever, Zdravstvenog veleručilišta Zagreb, Sveučilišta u Ljubljani, Sveučilišta Maribor, i Sveučilišta Novo Mesto.

REZULTATI

Analiza sadržaja identificirala je pet glavnih tema: i) prijedlozi za povećanje znanja o starenju i starijim osobama; ii) prijedlozi o intervencijama na iskustvo studenata u radu sa starijim osobama; iii) prijedlozi intervencija sa svrhom jačanja interesa za rad sa starim osobama – motivacija; iv) učinak stavova studenata sestrinstva prema starim osobama i starenju; v) emocionalni odgovor studenata na starenje.

Prijedlozi za povećanje znanja o starenju i starijim osobama

Identificirano je pet kategorija odgovora (tablica 1), koji ukazuju na naglašenost teorijskog znanja u edukaciji. U tom se smislu posebno ističu dvije kategorije: „Promjena kurikuluma“ i „Inovativniji didaktički pristupi“. Kategorije se odnose na formalno obrazovanje provedivo učenjem uživo i učenjem na daljinu. Sudionici ističu potrebu povećanja količine edukativnog sadržaja o starenju u svim kolegijima, ne samo onima koji se eksplicitno bave gerontologijom.

by the categories, as well as overlapping areas (redundancies) were defined. During this step, new categories were added and redundant categories were removed. The text was re-read, and categories from the previous step were applied. Reading and revision of the categories was repeated until an iteration was reached without the need for further revision of categories.

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Ethical considerations

Ethical approval for conducting this research was granted by Institutional Review Board of the University North, University Centre Varaždin, University of Applied Health Sciences, Zagreb, Ljubljana University Medical Faculty, Maribor University, Medical Faculty, and Novo Mesto Health Faculty.

RESULTS

Content analysis identified five main themes: i) suggestions to increase knowledge on ageing and old age; ii) suggestions on intervening in experience of students in working with the elderly; iii) suggestions of interventions to strengthen willingness to work with the elderly – motivation; iv) effects of nursing student attitudes towards old age and ageing; v) emotional responses of students towards ageing.

Suggestions to increase knowledge on ageing and old age

Five categories of answers were identified (Table 1), which point to an emphasis of theoretical knowledge and education. In particular, two categories stand out in this respect, namely “change in curriculum” and “more innovative didactic approaches”. The categories relate to formal education implementable through live and remote learning. The interviewees emphasized the need to increase the amount of educational content on ageing across all courses, not only the ones explicitly dealing with gerontology.

TABLICA 1. Analiza sadržaja odgovora unutar teme "Prijedlozi za povećanje znanja o starenju i starijim osobama"
TABLE 1. Content analysis of answers under the theme "Suggestions to increase knowledge on ageing and old age"

Kategorija / Category	Kod / Code	Reprezentativna izjava / Representative statement
Prijenos teorije u praksi / Translating theory into practice	Povezanost teorije i prakse / Connection between theory and practice Teorije zdravstvene njegе / Health care theories Primjena teorije u kliničku praksi / Applying theory into clinical practice Primjena vještina u svakodnevnom životu / Applying skills in everyday life Prijenos znanja između institucija i domova korisnika / Transfer of knowledge between institutions and user homes	„Teoretsko znanje treba primjenjivati u okruženju doma korisnika.“ / “Theoretical knowledge should be applied in the home surrounding of the user.” „Učenje se treba odvijati u domovima za starije.“ / “Learning should take place in elderly nursing facilities.”
Promjena kurikula / Curricular change	Povećanje sadržaja o starenju u svim predmetima / Increasing content on ageing across all course subjects Povećanje informacija o procesu starenja na studiju / Increasing information on the ageing process during study course Promjena edukativnih pristupa / Change of educative approaches Promjena sadržaja predmeta / Change in subject contents Multidisciplinarnost / Multidisciplinarity	„O starenju treba podučavati na svim kolegijima.“ / “Contents on ageing should be taught across all courses.” „O starenju moramo učiti studente kroz više perspektiva.“ / “Students should be taught on ageing from different perspectives.”
Inovativniji didaktički pristupi / More innovative didactic approaches	Prilagodba metoda poučavanja / Adjustment of teaching methods Nove metode poučavanja / New teaching methods Uvođenje aplikacija za e-učenje / Introducing e-learning methods Prilagodba učenja novim metodama poučavanja / Adjustment to learning via new teaching methods Case-management / Case-management Neposredna primjena znanja u praksi, poučavanje uz korisnika skrb / Direct application of knowledge into practice, bedside teaching Poštivanje karakteristika generacija / Respecting generational features Igre uloga / Role-playing	„Potrebno je prilagoditi sadržaje i metode učenja novim generacijama.“ / “We should adapt content and teaching methods to newer generations.” „Studenti bi trebali učiti uz pacijenta.“ / “Students should engage in bedside learning.”
Promjene nisu potrebne / Change is unnecessary	Zadovoljavajuće znanje studenata o gerontološkoj problematiki, nisu potrebne dodatne intervencije / Sufficient knowledge of students on gerontic issues, additional interventions are unnecessary	„Studenti ionako previše uče teoriju.“ / “Students learn too much theory anyway.” „Nastavnih tema je dovoljno.“ / “Curricular contents is satisfactory.”
Učenje socijalizacijom / Learning through socialization	Uključivanje starih osoba / Inclusion of the elderly Uključivanje obitelji starih osoba / Inclusion of families of the elderly Interakcija sa starijim osobama / Interacting with the elderly	„O starijim ljudima treba učiti u njihovom okruženju – u obitelji.“ / “One should learn about the elderly in their surroundings – family.” „Stari ljudi žive u zajednicama u koje treba ući za vrijeme procesa učenja.“ / “The elderly live in communities where one should spend time while learning about them.”

Prijedlozi o intervencijama na iskustvo studenata u radu sa starijim osobama

Identificirano je pet kategorija odgovora (tablica 2). Ispitanici su predložili neposredno uključivanje u skrb i njegu starijih osoba. Također predlažu formalne oblike stjecanja iskustva (praktična nastava, klinička praksa, vježbaonice). Primjer toga su tri kategorije: „Uključenost u skrb za stare osobe“; „Interdisciplinarni pristup“; „Mentoriranje studenata“. Kategorija „Promjena kurikula“ naglašava ključnu ulogu praktične edukacije za vrijeme

Suggestions on intervening in experience of students in working with the elderly

Five categories of answers were identified (Table 2). The interviewees suggested immediate engagement in care and nursing for the elderly. They also suggested formal means of gaining experience (practical classes, clinical practice, and institutional practice-rooms). Three categories are exemplary: “Engagement in care for the elderly”; “Interdisciplinary approach”; and “Mentoring students”. The category “Curricular change” emphasizes the pivotal role of practical

TABLICA 2. Analiza sadržaja odgovora unutar teme "Prijedlozi o intervencijama na iskustvo studenata u radu sa starijim osobama"
TABLE 2. Content analysis of answers under the theme "Suggestions on intervening in the experience of students in working with the elderly"

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Kategorija / Category	Kod / Code	Reprezentativna izjava / Representative statement
Uključenost u skrb za stare osobe / Engagement into care for the elderly	Holistički pristup / Holistic approach Uključivanje suradnje sa starijim osobama / Inclusion of cooperation with the elderly	„Važno je učiti o ulozi drugih struka u gerijatriji.“ / “It is important to teach about the roles of other professions within geriatrics.”
Interdisciplinarni pristup / Interdisciplinary approach	Interdisciplinarnost / Interdisciplinarity Socijalni aspekt / Social aspect Fizioterapijski aspekt / Physical-therapeutic aspect Radno-terapijski aspekt / Work-therapeutic aspect	„Studenti trebaju uočiti važnost fizičke terapije, socijalnog rada, itd.“ / “Students should see the importance of physical therapy, social services, etc.” „Pristup podučavanju treba biti interdisciplinarni.“ / “Approach to teaching should be interdisciplinary.”
Razvijanje volontiranja / Developing volunteering	Poticaj za volontiranje / Incentive for volunteering Volontiranje u društvu / Volunteering in a community Suradnja sa starijim osobama / Cooperation with the elderly Neposrednost u radu sa starijim osobama / Immediacy in working with the elderly	„Treba stimulirati i poticati volontiranje.“ / “Volunteering should be stimulated and encouraged.” „Učenje o starosti treba biti neposredno.“ / “Learning about old age should be immediate.”
Promjena kurikuluma / Curricular change	Vježbe u ustanovama za stare osobe / Practical classes in geriatric nursing institutions Povećanje satnica vježbi o skrbi za stare osobe / Increase in geriatric nursing class hours Vježbowna nastava od prve godine studija / Practical courses starting at junior years Povećanje satnice vježbi na bolničkim gerijatrijskim odjelima / Increase in class hours at hospital geriatric wards Povećanje kliničkog osposobljavanja / Increase in clinical training	„Potreban je veći broj sati vježbi na gerijatrijskim odjelima i ustanovama za skrb o starijim osobama.“ / “More practice hours at geriatric wards and facilities are needed.” „Praktičnu nastavu treba uvesti od prve godine studija.“ / “Practical classes should be introduced at the first study year.”
Mentoriranje studenata / Student mentoring	Potrebe za mentorstvom / Need for mentoring Provredba vježbi pod stručnim mentorstvom / Implementing practical education under professional mentoring Povećanje mentoriranja u institucijama / Increase in mentoring in institutions	„Pet tjedana studentskog kliničkog osposobljavanja trebalo bi biti pod nadzorom mentora“ / “The five weeks of student clinical practice should be supervised by a mentor.” „Potrebna je klinička praksa uz mentora.“ / “Mentored clinical practice is needed.”

trajanja studija, kao metodu stjecanja iskustva i znanja.

Prijedlozi intervencija sa svrhom jačanja interesa za rad sa starijim osobama – motivacija

Unutar teme identificirano je šest kategorija (tablica 3). Sadržaj odgovora upućuje na potrebu jačanja interesa studenata za rad sa starijim osobama izgrađivanjem pozitivnog odnosa putem neposrednog iskustva i različitih oblika edukacije (formalna, neformalna, praktična nastava) i putem različitih modela vrednovanja. Ove značajke ističu se unutar kategorija „Modeli nagrađivanja rada“ i „Cjeloživotno obrazovanje“.

education during study courses as a means of gaining experience and knowledge.

Suggestions of interventions to strengthen willingness to work with the elderly – motivation

Six categories were identified (Table 3) under this theme. The contents of the answers point to a need to strengthen the interest of students in working with the elderly by building a positive relationship by means of immediate experience and different forms of education (formal, informal, practical courses) and by means of different models of acknowledgement. These notions are reflected in the “models of acknowledgement” and “continuing education” categories.

TABLICA 3. Analiza sadržaja odgovora unutar teme "Prijedlozi intervencija sa svrhom jačanja interesa za rad sa starim osobama – motivacija"**TABLE 3.** Content analysis of answers under the theme "Suggestions of interventions to strengthen willingness to work with the elderly – motivation"

Kategorija / Category	Kod / Code	Reprezentativna izjava / Representative statement
Razvijanje pozitivnog stava studenata prema stariim osobama / Positive attitude of students towards the elderly	Razvijanje pozitivnog stava prema stariim osobama / Nurturing a positive attitude towards the elderly Razvijanje osjećaja za potrebe starih / Fostering a feeling for the needs of the elderly Poticanje empatije / Nurturing empathy Altruizam / Altruism	„Treba naglašavati važnost pozitivnog stava za uspješan rad sa starijima“ / "We should emphasize the importance of positive attitude for successful work with the elderly." „Studenti trebaju znati koliko je važna empatičnost“ / "Students should know the importance of empathy."
Razvijanje volontiranja / Developing volunteering	Nagradivanje volonterskog rada / Acknowledging volunteering Volontiranje u društву / Volunteering in community Volontiranje u ustanovama za skrb o stariim osobama / Volunteering in gerontic nursing facilities Sudjelovanje studenata u društву / Engagement of students in communities	„Treba motivirati volontiranje u ustanovama za skrb o stariim osobama“ / "Volunteering in gerontic nursing facilities should be encouraged." „Bilo bi dobro da studenti dobivaju nekakvu nagradu, primjerice bodove ili druge beneficije, za volonterski rad“ / "It would be good to reward volunteering through credits or other benefits."
Cjeloživotno obrazovanje / Continuing education	Sudjelovanje na stručnim i znanstvenim skupovima / Participation at professional and scientific congresses Formalna profesionalna edukacija / Formal professional education Neformalna profesionalna edukacija / Informal professional education Subspecjalizacije / Additional specialization	„Treba omogućiti dodatnu specijalizaciju“ / "Additional specialization should be available." „Za studente je važno nastaviti edukaciju i nakon diplome“ / "It is important for students to continue education after graduation."
Modeli nagrađivanja rada / Models of acknowledgement	Gubitak interesa / Loss of interest Loši materijalni uvjeti / Poor material conditions Bolja finansijska nagrada / Better financial rewarding	„Mladi profesionalci slabo su motivirani“ / "Young professionals are poorly motivated." „Plaće su premalene“ / "Salary is insufficient."
Moralnost i etičnost / Morality and ethicalness	Profesionalnost / Professionality Moralna i etička načela / Moral and ethical principles Odgovornost / Responsibility Profesionalna etika sestrinstva / Professional nursing ethics Poznavanje zakonodavstva / Legislative knowledge Prepoznavanje etičkih dilema rada sa starijima / Knowledge of ethical dilemmas in working with the elderly Kodeks etike / Code of ethics Aplikacija etičkih načela / Applying ethical principles Prepoznavanje potreba starijih / Recognizing needs of the elderly Empatija / Empathy	„Studente treba više upoznati sa profesionalnom etikom“ / "Students should be introduced to professional ethics." „Moramo podučavati o zakonima koji se tiču struke“ / "We should teach about profession-related legislature."
Uključenost u skrb za stare osobe / Engagement into gerontic nursing	Neposredan kontakt sa stariim osobama studiranjem / Immediate contact with the elderly through studying Sudjelovanje studenata u društvu umirovljenika / Participation of students in retiree communities Sudjelovanje studenata u grupama samopomoći / Participation of students in self-help groups Povećanje kontaktata sa stariim osobama / Increasing contacts with the elderly	„Starije osobe mogle bi se uključiti u proces studiranja“ / "Older people should be included into the studying process." „Studenti bi trebali sudjelovati u radu umirovljeničkih društava“ / "Students should engage in the work of the retiree societies."

Učinak stavova studenata sestrinstva prema stariim osobama i starenju

Identificirane su četiri glavne kategorije (tablica 4), koje pokazuju mišljenje ispitanika da negativni stavovi o starijim osobama doprinoсе jačanju predrasuda, što zauzvrat ima (može imati) neadekvatnu zdravstvenu skrb, izbjega-

Effects of nursing student attitudes towards old age and ageing

Four main categories were identified (Table 4), which show that the interviewees hold the opinion that poor attitudes towards the elderly add to strengthening of bias, which in turn can (or could) result in inadequate health care,

TABLICA 4. Analiza sadržaja odgovora unutar teme "Učinak stavova studenata sestrinstva prema starim osobama i starenju"
TABLE 4. Content analysis of answers under the theme "Effects of nursing student attitudes towards old age and ageing"

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Kategorija / Category	Kod / Code	Reprezentativna izjava / Representative statement
Iskustvo rada sa starim osobama / Experience of working with the elderly	Studentski servis / Student service Volonterstvo / Volunteering Kliničke vježbe / Clinical practice Sajmovi zdravlja / Health fairs Hospitiranje u udrugama starih / Nursing in gerontic communities Neformalni kontakti / Informal contacts	„O starijim osobama puno se može naučiti kroz volontiranje ili rad putem student servisa.“ / “A lot can be learned about the elderly by volunteering or working via student service.” „Iskustvo rada sa starijima moguće je dobiti kroz volontiranje i hospitiranje u udrugama starijih.“ / “Experience in working with the elderly can be gained through volunteering and nursing in gerontic facilities.”
Povećanje edukacije na studiju / Increasing education while studying	Obavezne kliničke vježbe / Mandatory clinical practice Edukacija od prve godine studija / Education starting at junior years	„Kliničke vježbe treba uvesti što ranije.“ / “Clinical practice should be introduced as early as possible.”
Ograničenja u radu sa starim osobama / Limitations in working with the elderly	Izbjegavanje rada sa starim osobama / Avoiding working with the elderly Negativni stavovi prema starim osobama / Negative attitude towards the elderly Predrasude / Bias Zanemarivanje starih osoba / Neglecting the elderly Neadekvatna količina skrbri / Inadequate amount of care	„Studenti izbjegavaju rad sa starim osobama.“ / “Students avoid working with the elderly.” „Studenti pristupaju starijim osobama opterećeni predrasudama.“ / “Students approach the elderly burdened with prejudice.” „Negativan stav može rezultirati zanemarivanjem.“ / “Negative attitude can result in neglect.”
Pozitivan učinak / Positive effect	Pozitivan učinak / Positive effect Izostanak prijedloga / Lack of suggestions	„Pozitivan stav znači i učinkoviti pristup i njegu.“ / “Positive attitude implies an efficient approach and care.”

vanje i zanemarivanje. Ovi su stavovi posebice očiti u kategoriji „Ograničenja u radu sa starim osobama“.

Emocionalni odgovor studenata na starenje

Identificirane su četiri kategorije odgovora (tablica 5), koje pokazuju da se unutar ove domene nastavnici uglavnom usredotočuju na stavove i iskustvo studenata u kombinaciji s njihovim emocijama, kao što su strah i ravnodušnost. Strah je percipiran kao osjećaj bespomoćnosti zbog bolesti, ili strah od nepoznatog koji je u ovom slučaju starenje. Ravnodušnost se očituje u edukaciji, gdje je prisutna nezainteresiranost ili je interes usmjeren na druga područja.

avoidance, and neglect. These notions are particularly reflected in the category “Limitations in working with the elderly”.

Emotional response of students towards ageing

Four categories of answers were identified (Table 5), which show that in this domain the educators mostly focused on student attitudes and experience in combination with their emotions, such as fear and indifference. Fear is perceived as a feeling of helplessness due to disease, or fear of the unknown, which, in this example, is growing old. Indifference is identified in student education, where a lack of interest is perceived or interest is focused on other areas.

TABLICA 5. Analiza sadržaja odgovora unutar teme "Emocionalni odgovor studenata na starenje"
TABLE 5. Content analysis of answers under the theme "Emotional responses of students towards ageing"

Kategorija / Category	Kod / Code	Reprezentativna izjava / Representative statement
Negativan stav o starim osobama / Negative attitude towards the elderly	Netrpeljivost prema starim osobama / Intolerance towards the elderly Zlostavljanje / Abuse Zanemarivanje / Neglect	„Studenti su ponekad netrpeljivi.“ / “Students are intolerant at times.” „Netrpeljivost se može pretočiti u zanemarivanje.“ / “Intolerance can manifest as neglect.”
Doživljaj starih osoba / Perception of the elderly	Izbjegavanje razmišljanja o starenju / Avoiding thinking about growing old Mijenjanje stavova / Changing attitudes Pozitivna identifikacija sa starim osobama / Positive identification with the elderly Uloga iskustva sa starijima u vlastitoj obitelji / The role of experience with the elderly in own family	„Studenti ne razmišljaju o starenju.“ / “Students do not think about ageing.” „Stare ljudi identificiraju sa vlastitim bakama i djedovima i starim ljudima iz tramvaja.“ / “The elderly are identified with the students' grandparents and the elderly from public transport.”
Ravnodušnost / Indifference	Ravnodušnost / Indifference Nepokazivanje interesa / Not showing interest Interes na drugim područjima / Interest in another field Karakteristike mlađih generacija / Characteristics of younger generations Previše slobodnog vremena / Too much free time	„Nije ih briga jer su mladi.“ / “They don't care because they are young.”
Strah / Fear	Osjećaj nemoći zbog bolesti / Feeling of helplessness due to disease Bojan od nepoznatog / Fear of the unknown	„Boje se starosti jer je povezuju s bolesti.“ / “They fear old age because they associate it with illness.”

RASPRAVA

Analiza odgovora ispitanika pokazuje ujednačenost mišljenja na svih pet edukacijskih ustanova. Zainteresiranost studenata za rad u gerontološkoj skrbi načelno je od njihovih nastavnika ocijenjena niskom (primjerice vidljivo u reprezentativnim izjavama iz kategorija: Modeli nagrađivanja rada, Ograničenja u radu sa starim osobama, Doživljaj starih osoba, Ravnodušnost), što je u nerazmjeru sa stavovima studenata koji su ispitani u kvantitativnoj studiji (5). Naime, u toj su studiji studenti ocijenili vlastite stavove prema starenju i staroj dobi kao umjerenog dobitka, što pokazuje da studenti pokazuju tendenciju davanja prihvatljivih odgovora (5). Dok se znanje studenata može procijeniti objektivno koristeći uobičajene metode ocjenjivanja, stavove je teže objektivizirati. Razlozi mogu ležati u neadekvatnoj interakciji između studenata i nastavnika, manjku pozitivnog osnaživanja i manjkave uloge uzora, nedostatku kontinuiteta nastavnog kurikula i pristranosti (isključivosti) nastavnika s obzirom na njegovo/njezino područje stručnosti.

DISCUSSION

The analysis of interviewee answers showed uniformity across the five nursing education institutions. The interest of students for working in gerontic nursing was in general assessed by their educators as being poor (as seen from representative statements in categories: Models of acknowledgement, Limitations in working with the elderly, Perception of the elderly, Indifference), which is not in line with attitudes of students based on the quantitative study (5). Namely, in that study the students assessed own attitudes towards ageing and old age as moderately positive, which shows that students show a tendency to provide acceptable answers (5). While student knowledge can be assessed objectively using usual grading methods, attitudes are harder to objectivize. The reasons for this discrepancy may lie in an inadequate interaction between students and educators, lack of positive reinforcement and role-modelling, lack of continuity in educational curricula, and educator bias (subjectivity) in their respective field. A discussion is therefore merited on whether

Navedeno nalaže raspravu jesu li trenutne participacijske norme i osviještenost nastavnika o ključnim područjima i problemima u edukaciji dovoljni za željenu promjenu u ponašanju studenata od kojih se očekuje veći gerontološki angažman. Ova kvalitativna analiza pokazuje da rezultati studenata proizlaze iz međuodnosa organizacije gerontološkog kurikuluma i učinaka nastavnika u području. Rezultati studenata u kvantitativnom dijelu istraživanja ilustracija su mišljenja njihovih nastavnika, stoga bi bilo zanimljivo ispitati motivaciju nastavnika gerontologije (5).

Nastavnici gerontologije naglašavaju važnost teorijskog znanja i formalne edukacije kao i uključivanje sadržaja o starenju u sve nastavne kolegije. Raspravljaju o mogućnosti uključivanja novih metoda (*online*) učenja i ističu važnost neposrednog kontakta sa starijim osobama, kao oblik praktičnog učenja. Bez obzira na navedeno, odnos između teorijskog i praktičnog učenja ostaje tradicionalan, što je također očito u tradicionalnom stilu podučavanja koji koriste nastavnici. Ovaj rezultat ukazuje na neodgodivu nužnost kurikulske reforme – kako u strukturi, tako i sadržaju. Name, podučavanje i učenje u digitalnom okruženju, uključujući virtualnu stvarnost i *online* nastavu, predstavljeni su prije više desetljeća i od tada su se pokazali učinkovitim u optimiziranju medicinske, uključujući gerontološku, edukacije (9-11). Klasični i pasivni oblici učenja ostaju temelj podučavanja, ali neprestano mijenjajuće profesionalne okolnosti nalažu potrebu implementacije novih modaliteta (12). Istovremeno, aktivni oblici učenja interakcijom sa starijim osobama prepoznaju se kao nužnost u gerontološkoj edukaciji. Ono što nedostaje je temeljita analiza optimalnog odnosa između aktivnog i pasivnog učenja i specifični prijedlozi aktivnih modaliteta učenja (13). Nastavnici pokazuju tradicionalno razumijevanje procesa podučavanja i učenja u kojem se osjećaju najsigurnije. Stoga se javlja potreba za uvodenjem

current educator participatory norms and their awareness on critical issues or areas of education are sufficient for the desired change in student behavior, from whom more gerontic engagement is expected. This qualitative analysis shows that student results arise from a synergy of gerontic curricular organization and effects of educators in the field. Student results in the quantitative arm of this research are an illustration of the opinion of their educators; therefore, it would be interesting to assess the motivation of gerontic educators (5).

Gerontic educators emphasized the importance of theoretical knowledge and formal education as well as including contents on ageing into all course subjects. They discussed the possibility of including new means (*online*) of teaching and stressed the importance of immediate contact with the elderly as a form of practical learning. Nevertheless, the relationship between theoretical and practical learning remains traditional, which is also evident in the traditional teaching style employed by the educators. This finding points to an urgent need for curricular reform – both in structure and content. Namely, teaching and learning in digital environments, including virtual reality and online courses, have been introduced decades ago, and have since been shown to be effective in optimizing medical education, including gerontic education (9-11). Classical and passive forms of learning remain the mainstay of teaching, yet the ever-changing professional landscape dictates the need to implement novel modalities (12). At the same time, active learning forms, through interactive work with the elderly, are being recognized as necessary in gerontic education. What is lacking is a thorough analysis on the optimal relationship between active and passive learning and specific proposals for active learning modalities (13). Educators showed a traditional understanding of the teaching and learning process, in which they feel the safest. A need has therefore arisen to introduce the learning modalities not only to students but to their teachers as

novih modaliteta učenja, ne samo studentima, već i njihovim nastavnicima. Kultiviranje implementacije suvremenih modaliteta prijenosa znanja moglo bi biti pokretač promjena u ovom području.

Nastavnici percipiraju u kurikulskoj promjeni kao važnima intervencije poput poboljšanja praktične nastave i pridruženog sustava mentoriranja te studentsko volontiranje u gerontološkim ustanovama (zdravstvenim i socijalnim). Ne specificiraju promjene, nego daju površne i očekivane odgovore, kao što su povećanje broja nastavnih sati, promjena kura-kula, interdisciplinarnost, itd. S druge strane, ne prepoznaju potrebu za manjim brojem studenata u studentskim grupama, što omogućuje kvalitetniju izloženost aktivnom učenju, ili specifičnije oblike praktičnog učenja, ili snažniju povezanost s teorijskim sadržajima (14). U ovoj studiji nastavnici nisu ponudili rješenja usmjerena poboljšanju metoda učenja, ili njihove učinkovitosti. Ne prepoznaju važnost vlastitih intervencija prema studentima (dje-lovanje kao uzor pojašnjavanjem vlastite motivacije, raspravljanje mana i prednosti profesionalnog izbora, dilema i kontroverzi, dobrih i loših primjera profesionalnog okruženja). U tom smislu nastavnici percipiraju sebe (i bivaju percipirani) kao da su odvojeni (alienirani) od edukativnog polja. Uloga nastavnika kao uzora (modela) veoma je važna i zapravo ključna u podučavanju studenata sestrinstva, ali i drugih studenata medicine (15,16). S obzirom da rezultati ove studije pokazuju da nastavnici nemaju uvid u važnost uloge uzora u mentoriranju studenata, buduće strategije unaprjeđivanja nastave trebale bi biti usmjerene podizanju svijesti o ovom problemu među nastavnicima u sestrinstvu.

Raspravljujući o motivaciji studenata, ispitanici u ovoj studiji prepoznali su važnima tradicionalne intervencije, kao što je poticanje pozitivnih odnosa tradicionalnom edukacijom. Tradicionalna edukacija prepostavlja naglasak

well. Cultivating the implementation of contemporary modalities of knowledge transmission might be a driving force for change in the field.

Educators considered the most important interventions in curricular changes to be the improvement of practical courses and the associated mentoring system and student volunteering in gerontic institutions (health and social). They did not specify the changes needed, but rather gave vague and expected answers such as increase in class-hours, curricular change, interdisciplinarity, etc. On the other hand, they failed to recognize the need for lower numbers of students in individual study groups, which enables better exposure to active learning, or more specific forms of practical learning, or a stronger interconnection with theoretical contents. Practical contents are considered a basic learning concept within the traditional model (14). In our study, the educators failed to provide solutions aimed at improving the teaching methods, or their efficacy. They did not recognize the importance of their own interventions towards students (acting as a role model by explaining own motivation and discussing the pros and cons of their own professional choices, dilemmas and controversies, and good and bad examples from the professional environment). In this sense, the educators present themselves, and are being perceived, as being alienated from the field of education. The importance of role-modelling cannot be overly emphasized, as it plays a pivotal role in mentoring nursing (and other medical) students (15,16). Given that the results of the current study show that educators lack insight into the importance of role-modelling in student mentoring, future strategies for improving education should focus on raising awareness of the issue among nursing educators.

When discussing student motivation, the interviewees in this study recognized the expected traditional interventions, such as fostering a positive relationship by means of traditional education. The traditional education presup-

na akumulaciji znanja i, u manjoj mjeri, iskustava i nije usmjerena na stavove i motivaciju studenata. Međutim, u područjima kao što je gerontološka skrb, puka akumulacija činjenica i iskustava nije dovoljna za privlačenje i mobilizaciju zdravstvenih profesionalaca (17). Umjesto poticanja motivacije studenata, ona je uglavnom prepuštena osobnom angažmanu. Iako su intrinzični faktori primarni, važan utjecaj na profesionalnu motivaciju imaju i ekstrinzični faktori, većim dijelom oni koji su izvanjski sustavu edukacije, kao što su tržište rada (ponuda i potražnja) i uvjeti rada (npr. plaća, raspored rada, napredovanje, beneficije) (18). Nasuprot tome, motivacija studenata ne promišlja se u smislu cilja edukacije i slaba je povezanost između kategorija znanja, iskustva i motivacije. Manjak interesa za gerontologiju ukazuje na načelnu nedostatnost ovakvog pristupa.

Ispitanici u ovoj studiji prepoznali su učinak negativnog stava na stariju dob i starenje s obzirom na poteškoće u organiziranju gerontološke skrbi, posebice na izbjegavanje, zanemarivanje ili čak zlostavljanje korisnika. Jednako kao i u drugim ispitivanim domenama, očekivanja su nastavnika tradicionalna, što se očituje kategorijama „Iskustvo rada sa starim osobama“ i „Povećanje edukacije na studiju“. Ono što nedostaje je prepoznavanje potrebe za premošćivanjem jaza između strogog pružanja akademskog sadržaja i osobnih izbora.

Emocionalni odgovori studenata prema starenju percipiraju se od njihovih nastavnika kao negativni stavovi, ravnodušnost i strah, a istovremeno se ne nude rješenja koja bi bila odgovor na emocionalne reakcije. Usپoredivo s drugim domenama, nastavnici niječu vezu između znanja, stavova i ponašanja.

Ograničenja ove studije u prvom redu proizlaze iz dizajna, potom iz veličine uzorka. Naime, interpretacija rezultata kvalitativne studije su-

poses a focus on accumulation of knowledge, and, to a lesser extent, experience, and is not aimed at student attitudes and motivation. However, in areas such as gerontic nursing, mere accumulation of facts and experience is insufficient in attracting and mobilizing health professionals (17). Rather than nurturing student motivation, it is mostly left to personal engagement. Although intrinsic factors play a predominant role, an important influence on professional motivation comes from extrinsic factors, largely from those external to the educational system, such as the work market (supply and demand) and work conditions (pay, schedule of work, promotion, benefits, etc.) (18). By contrast, student motivation is not thought of as being an educational aim, and there is a poor connection between category knowledge, experience, and motivation. Lack of interest for gerontology points to a general inefficiency of such an approach.

The interviewees in our study recognized the effects that negative attitudes have on old age and ageing with regard to difficulties in organizing gerontic care, in particular avoidance, neglect, or even abuse of users. Comparable to other fields, educator expectations were traditional, as is evident from the “Working experience with the elderly” and “Increasing education during study” categories. What is missing is recognizing the need to bridge the gap between a strict display of academic content and personal choices, simultaneously neglecting the fact that integration of knowledge and experience is tightly associated with personal cognitive, emotional, and social categories.

Emotional responses of students towards ageing are perceived by their educators as a negative attitude, indifference, and fear, but they offer no solutions to address the emotional reactions. As in other domains, the educators neglect the link between knowledge, attitudes, and behavior.

Study limitations stem primarily from study design and sample size. Namely, interpreting

bjektivna je i ovisna o znanju i iskustvu istraživača. Kvalitativnu studiju teško je reproducirati, tj. verificirati njezine rezultate. Konačno, upitna je reprezentativnost uzorka s obzirom na malen broj ispitanika.

results of a qualitative study is subjective and dependent on the knowledge and experience of the researcher. A qualitative study is hard to reproduce, i.e. its results are not easily verifiable. Finally, sample representability is questionable due to the small sample size.

ZAKLJUČAK

Ova kvalitativna analiza pokazuje da nastavnici sestrinstva imaju manjkav uvid u važnost i kognitivne i emocionalne komponente procesa učenja. Tradicionalni proces edukacije, koji se temelji isključivo na komponentama kognitivnog pristupa (pamćenje sadržaja), ne rezultira željenim odgovorom studenata, koji bi podrazumijevao integraciju znanja, iskustva i motivacije za provođenjem profesionalnih aktivnosti. Prepoznavanje važnosti motivacije u poboljšanju profesionalnog rasta studenata sestrinstva među najvažnijim je zadatcima suvremenih nastavnika u sestrinstvu. Bez obzira na ograničenja, ovi rezultati su indikativni i nalaže potrebu provođenja kvantitativne studije koja bi istražila motivacijske čimbenike među studentima gerontološkog sestrinstva. Također, rezultati govore o potrebi promjene edukacijskog modela.

CONCLUSION

This qualitative analysis shows that nursing educators lack insight into the importance of both the cognitive and emotional component of the learning process. The traditional educative approach, based exclusively on components of the cognitive approach (memorizing content), does not result in the desired response in the trainee, namely integration of knowledge, experience, and motivation to perform professional activities. Recognizing the importance of motivation in improving professional growth of nursing students is among the most important task for modern nursing educators. Despite the study limitations, these results are indicative and merit a quantitative study which would investigate motivational factors among gerontic nursing students. Additionally, the results indicate a need for changes in the educational model.

LITERATURA / REFERENCES

- United Nations, Department of Economic and Social Affairs, Population Division. World Population Ageing 2015. Pristupljeno 28. listopada, 2020 na: http://www.un.org/en/development/desa/population/publications/pdf/ageing/WPA2015_Report.pdf
- Rich P, Adams S. Health Care. Surg Clin North Am 2015; 95(1): 11-21.
- Rice D, Fineman N. Economic Implications of Increased Longevity in the United States. Annu Rev Public Health 2004; 25(1): 457-73.
- Rodgers V, Gilmour J. Shaping nurses' attitudes towards older people through learning and experience. Nurs Prax N Z 2011; 27: 13-20.
- Veronek J, Bajs Janović M, Janović Š, Barić H, Zurc J, Gvozdanović Z. Attitudes towards older people in Croatian and Slovenian nursing students. Psychiat Danub 2020; 32(Suppl 4): 484-90.
- Coffey A, Whitehead N. Healthcare assistants' attitudes towards older people and their knowledge about ageing. Nurs Older People 2015; 27: 24-30.
- Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Health Care Qual Assur Inc Leadersh Health Serv 2007; 19(6): 349-57.
- Thomas DR. A General Inductive Approach for Analyzing Qualitative Evaluation Data. Am J Eval 2006; 27(2): 237-46.
- Hoffman H, Irwin A, Ligon R, Murray M, Tohsaku C. Virtual reality-multimedia synthesis: next-generation learning environments for medical education. J Biocommun 199; 22(3): 2-7.
- Gainor S, Goins R, Miller L. Using Online Modules in a Multi-Modality Teaching System: A High-Touch, High-Tech Approach to Geriatric Education. Gerontol Geriatr Educ 2004; 24(4): 45-59.

11. McGee JB, Neill J, Goldman L, Casey E. Using multimedia virtual patients to enhance the clinical curriculum for medical students. *Stud Health Technol Inform* 1998; 52 Pt 2: 732-5.
12. Tan Z, Mulhausen P, Smith S, Ruiz J. Virtual Patients in Geriatric Education. *Gerontol Geriatr Educ* 2010; 31(2): 163-73.
13. Revell A, Ayotte B. Novel Approaches to Teaching Aging and Disability: Active Learning Through Design and Exploration. *Int J Aging Hum Dev* 2020; 91(4): 373-80.
14. Lee J, Lee Y, Gong S, Bae J, Choi M. A meta-analysis of the effects of non-traditional teaching methods on the critical thinking abilities of nursing students. *BMC Med Educ* 2016; 16(1): 240.
15. Clark P. Why gerontology and geriatrics can teach us a lot about mentoring. *Gerontol Geriatr Educ* 2018; 39(4): 397-407.
16. White D, Cartwright J, Lottes J. Long-Term Care Nurse Role Models in Clinical Nursing Education: The ECLEPs Experience. *J Gerontol Nurs* 2011; 38(1): 43-51.
17. Jukema J, Veerman M, Van Alphen J, Visser G, Smits C, Kingma T. Nurturing gerontology students' intrinsic motivation to cocreate: The design of a powerful learning environment. *Gerontol Geriatr Educ* 2017; 40(4): 432-41.
18. Zampieron A, Buja A, Dorigo M, Bonso O, Corso M. A comparison of student motivation in selecting bachelors of nursing or paediatric nursing at an Italian university. *Int Nurs Rev* 2012; 59(4): 525-31.

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Kognitivni razvoj i inteligencija, duševno zdravlje i duševni poremećaji – imaju li antenatalno podrijetlo?

/ Cognitive Development and Intelligence, Mental Health and Mental Disorders – Do They Have an Antenatal Origin?

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Ljudski je mozak nevjerljiv i fascinantan organ u svakom pogledu. Prirodi je trebalo nekoliko milijardi godina da evolucijom konstruira i usavrši tako sofisticiranu arhitekturu s beskonačnim spektrom savršeno koordiniranih funkcija i nevjerljivom mogućnosti promjene i prilagodbe. Danas nam razvoj tehnologije omogućuje da potraga za razumijevanjem ljudskih kognitivnih sposobnosti i prilagodbe na složeni okoliš obuhvati i ono ključno razdoblje u kojem se odvija razvoj najsloženije strukture u ljudskom tijelu – prenatalno razdoblje. Uvidom u fetalne procese razvoja mozga i živčanog sustava pomalo se potvrđuje teorija kako većina moždanih funkcija koje proučavamo već godinama svoj začetak imaju upravo u prenatalnom razdoblju. Isto tako, međuigra između genoma, epigenoma i okoline oblikuje fenotip ljudskog zdravlja ili bolesti, čak i prije rođenja. Čini se da je došlo pravo vrijeme za promociju nove specijalnosti prenatalne i perinatalne psihijatrije.

I The human brain is an incredible and fascinating organ in every respect. It took nature several billion years of evolution to construct and perfect such a sophisticated neural architecture with an infinite spectrum of perfectly coordinated functions and amazing capability for change and adaptation. Today, the advancement of technology has enabled us to strive to understand human cognitive capabilities and adaptation to an elaborate environment, which includes that crucial period in which the most complex structure in the human body develops – the prenatal period. Insights into the processes of fetal brain and central nervous system development are gradually confirming the theory that most brain functions we have been studying for years have their origin in the prenatal period. Similarly, the interplay between the genome, epigenome, and environment shapes a phenotype of human health or illness even before birth. It seems that the time has come for a recognized specialty in Prenatal and Perinatal Psychiatry.

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ANATOMIJA OŠTROUMNOSTI

Ništa nije složenije i tajanstvenije od svijeta živčanih stanica koje oblikuju naš mozak. Taj nam organ omogućava spoznaju stvarnosti, kao čarolijom stvara boje, mirise i osjećaje te na zagonetan način proizvodi naše inteligentno ja koje shvaća veze i rješava probleme. Kako se bude, kako funkcioniraju dimenzije naše intelektualne snage?

Zaista naš je mozak misterij: kako tom organu uspijeva prepoznati veze, rješavati problem, pamtiti činjenice i planirati budućnost? I zašto nekim ljudima omogućava da misle brže od drugih? Neuroznanstvenici već dugo pokušavaju dokučiti biologiju inteligencije (1-9).

Od rođenja se 100 milijardi neurona u našoj glavi svake sekunde neprestano mijenja. Svaki dojam, svaka misao, svako sjećanje ostavljaju tragove u mozgu i omogućavaju mu sazrijevanje.

Potpuno razvijen humani mozak sadržava oko 100 milijardi neurona i uglavnom nema stvaranja novih neurona nakon rođenja. Fascinantan je podatak da se neuroni stvaraju u razvijajućem mozgu prosječnom brzinom koja je veća od 250.000 u minuti (10).

ANTENATALNI RAZVOJ MOZGA

Središnji živčani sustav razvija se iz embrionalnog ektoderma. Stanice koje će postati neuroni i glijalne stanice potječu iz neuralne ploče koja

ANATOMY OF INTELLIGENCE

Nothing is more complex or mysterious than the world of neurons shaping our brain. This is the organ that enables us to perceive reality, conjuring, as if by magic, colors, scents, and emotions as well as mysteriously forming our intelligent self, capable of making connections and solving problems. Just how are the dimensions of our intellectual power awoken and how do they function?

Our brain is a true mystery: how is that organ capable of making connections, solving problems, remembering facts and planning the future? Moreover, why are some people capable of thinking faster than others? Neuroscientists have been trying to grasp the biology of intelligence for a long time (1-9).

From the moment we are born and every second thereafter, 100 billion neurons in our head are constantly changing. Every impression, every thought, every memory leaves traces in our brain and enables it to mature.

A completely developed human brain contains around 100 billion neurons, most of which are created before birth. It is fascinating to note that in a developing brain, neurons are created at an average speed greater than 250 000 per minute (10).

ANTENATAL BRAIN DEVELOPMENT

The central nervous system develops from the embryonal ectoderm. Cells which will become neurons and glial cells derive from the neural

se nalazi unutar ektoderma, a sadržava oko 125.000 stanica (11). Neuralna je ploča formirana početkom trećega tjedna trudnoće.

Zahvaljujući primjeni novih metoda i tehnologija u prenatalnim istraživanjima, poput četverodimenzionalnog (4D) ultrazvuka, sve je više spoznaja o funkcionalnom razvoju središnjega živčanog sustava (SŽS) i fetalnim obrascima ponašanja. **Ponašanje fetusa** definira se kao bilo koja aktivnost opažena ili snimljena najčešće ultrazvučnom metodom (nešto rjeđe koristi se i funkcionalna MR), a odraz je razvojnih i maturacijskih procesa SŽS. Razumijevanje odnosa između fetalnih obrazaca ponašanja i tih procesa omogućuje razlikovanje normalnog od poremećenog razvoja mozga, te ranu dijagnozu različitih strukturnih i funkcionalnih poremećaja (12).

Budući da je razvoj ljudskog mozga jedinstven i kontinuirani proces koji traje tijekom trudnoće i dugo nakon rođenja, za očekivati je postojanje kontinuiteta u fetalnim i neonatalnim pokretima, kao i u ponašanju fetusa i novorođenčeta. Našim istraživanjima dokazano je da su svi pokreti nađeni u fetalnom životu bili prisutni i u novorođenčadi. Potvrđeno je postojanje kontinuiteta iz prenatalnog u neonatalno razdoblje čak i finim pokretima, kao što je mimika lica (slika 1) (13,14).

plate located within the ectoderm, containing about 125 000 cells (11). The neural plate forms at the beginning of the third week of gestation.

By applying new methods and technology in prenatal research, such as four-dimensional (4D) ultrasound, we have discovered an increasing number of insights into the functional development of the central nervous system (CNS) and the fetal behavior patterns. **Fetal behavior** is defined as any activity detected or recorded by the use of ultrasound, and it is an expression of developmental and maturation processes of the CNS. Understanding the relationship between fetal behavior patterns and these processes enables us to differentiate between normal and abnormal brain development, as well as establish an early diagnosis of different structural and functional disorders (12).

Since human brain development is a unique and continuous process lasting the whole gestation period as well as long after birth, it is reasonable to expect the existence of a continuity in fetal and neonatal movement, along with fetal and infant behavior. The continuity from the prenatal to the neonatal period has been confirmed even in fine motoric movements such as facial expressions (Figure 1) (13,14).



SLIKA 1. Sekvence slika 4D HDlive ultrazvučne snimke površinskog prikaza fetalnog lica u 35. tijednu gestacije. Na prvoj slici vidimo fetus s otvorenim očima, nakon toga grimase lica nalik plakanju djeteta nakon rođenja.

FIGURE 1. Sequences from 4D HDlive surface ultrasound imaging of the fetal face at 35 weeks of gestation. We see a fetus with open eyes, followed by a facial grimacing resembling a baby crying after birth.

Osim pokreta i tjelesne aktivnosti, važnu ulogu u životu fetusa ima i **poticajni matriks taktilnih, zvučnih, okusnih i drugih osjeća**. Njegov neurosenzorički razvoj započinje vrlo rano. Taktilni osjeti, poput dodira i boli, među prvima se počinju razvijati oko 7. tjedna trudnoće. Odavno se već među stručnjacima različitim područja znanosti vode polemike o tome osjeća li fetus bol (11). Da bi se bolni podražaj mogao svjesno doživjeti, moraju postojati neuralne veze između perifernih živčanih završetaka, koji ga zamjećuju i moždane kore (slika 2) (15). Talamokortikalni put formira se između 22. i 26. tjedna, te je nakon tog razdoblja fetus najvjerojatnije sposoban svjesno zamijetiti bolni podražaj. Somatosenzorički evocirani potencijali, koji ukazuju na procesiranje osjeta boli u somatosenzoričkom korteksu, mogu se zabilježiti od 29. tjedna trudnoće. Nadalje, lučenje kortizola i katekolamina, kao odgovora na bolni podražaj, primjerice ubod



SLIKA 2. Sekvence slika 4D ultrazvučne snimke površinskog prikaza fetalnog lica u 29. tijednu gestacije. Na slici uočavamo fetus s dva puta omotanom pupkovinom oko vrata. Pokušava ju maknuti rukom, ali ne uspijeva. Uočite bolan izraz lica na dvije donje slike.

FIGURE 2. Sequences of 4D ultrasound images, surface view; fetal face at 29 weeks of gestation. In the picture we see a fetus with a double-wrapped umbilical cord around its neck. The baby tries to remove it with his hand, but fails. Note a painful-like facial expression in the following two pictures (below).

In addition to movement and physical activity, the **stimulating matrix of tactile, auditory, gustatory, and other senses** plays a crucial role in the life of the fetus. Its **neurosensory** development begins very early. Tactile sensations, such as touch and pain, are among the first to develop, around the 7th week of gestation. Specialists from different areas have long debated whether the fetus feels pain (11). In order for a painful stimulus to be consciously perceived, neural connections have to exist between the peripheral nerve endings perceiving it and the cerebral cortex (Figure 2) (15). Thalamocortical pathways are developed between 22 and 26 weeks, after which the fetus is most likely capable of consciously perceiving a painful stimulus. Somatosensory evoked potential, pointing to the processing of pain sensation in the somatosensory cortex, can be recorded from the 29th week of gestation. Furthermore, the production of cortisol and catecholamine in response to painful stimuli, such as a needle prick during blood transfusions, can be observed as early as the 18th week of gestation. Despite great interest in conscious experience and remembering of pain, it is precisely the unconscious reactions, primarily the production of harmful hormones and their long-term harmful effects, which are more dangerous to the development of the human fetus than any potential scary memories (12,16).

It is important to note that hormonal, metabolic, and autonomous responses of the fetus to painful stimuli are successfully repressed by the use of analgesics, and from a clinical perspective it is very significant that both the reaction to stress and its consequences can be prevented by the appropriate pain treatment (17).

The fetus lives in a stimulating environment where **hearing development** is concerned. According to electrophysiological examinations of evoked potentials in prematurely delivered healthy infants, cochlear function develops between 22 and 25 weeks of gestation, and its

iglom pri transfuziji krvi opaža se u fetusa već u 18. tjednu trudnoće. Unatoč velikom zanimanju za svjesno doživljavanje i pamćenje boli, upravo nesvesne reakcije, pogotovo lučenje stresnih hormona i njihov dalekosežni štetni učinak, vjerojatno su za razvoj ljudskog ploda opasniji od eventualnih zastrašujućih spomena (12,16). Važno je naglasiti da se hormonski, metabolički i autonomni odgovori fetusa na bolne podražaje potiskuju analgeticima, a iz kliničke perspektive su od velikog značenja nalazi da se reakcija na stres i njegove posljedice mogu spriječiti odgovarajućim tretmanom boli (17).

Fetus živi i u poticajnom okolišu **vezanom uz razvoj sluha**. Funkcija pužnice uspostavlja se, prema rezultatima elektrofizioloških ispitivanja prijevremeno rođene djece, između 22. i 25. tjedna trudnoće, dok njezino sazrijevanje traje prvih 6 mjeseci nakon rođenja (18-20). Majčini otkucaji srca i pokreti probavnog sustava stvaraju u maternici buku od 60-90 decibela, što odgovara buci najprometnije ulice (21). Tijekom zadnjih tjedana trudnoće, od 36. gestacijskog tjedna nadalje, fetus reagira na majčin glas i druge poznate glasove, refleksnim pokretima tijela, okretanjem glave, te povećanom frekvencijom srca. Dakle, fetus raspozna, razlikuje zvukove, a još je fascinantnija spoznaja da pokazuje sklonost prema majčinom ili nekom drugom bliskom glasu. Ovo zapažanje se objašnjava tonotopskom organizacijom kohlearnih jezgara i sazrijevanjem moždanog debla tijekom zadnjih tjedana trudnoće (22). Moždano deblo ima sposobnost pamćenja sličnom kognitivnoj aktivnosti. Nadalje, primijećeno je da razvoj slušnog sustava može biti poremećen pod utjecajem štetnih čimbenika (konzumiranje cigareta) te u nekim patološkim stanjima tijekom trudnoće (intrauterini zastoj rasta, hipertenzija majke) (23-25). Utvrđena je i povezanost između razvoja slušnog sustava te kasnijeg učenja govora i usvajanja jezika (12).

maturation continues during the first 6 months after delivery (18-20). Maternal heartbeats and motility of the gastrointestinal tract during digestion appear to generate 60-90 decibels of sound in utero, corresponding to the noise level of heavy street traffic (21). During the last weeks of pregnancy (from the 36th week onward), the fetus responds to external noises, even to the sound of the mother's voice, with reflexive body movements, head-turning, and heart-rate acceleration. The fetus therefore recognizes different noises and displays selective preference for the mother's voice or other familiar voices. These findings can be explained by the tonotopic organization of the cochlear nuclei and by the maturation of the brain stem during the last weeks of pregnancy (22). The brain stem has a learning capability similar to cognitive activity. Furthermore, it has been observed that the development of the auditory system can be disrupted by the influence of harmful factors (cigarette use) as well as by some pathological conditions (intrauterine growth restriction, hypertension in the mother) (23-25). A connection between the development of the auditory system and later language acquisition and learning has also been established (12).

Experiments have indicated that the intrauterine environment is not completely deprived of light. Furthermore, according to experimental results and comparative physiology, the development of **visual and auditory organs** would not be possible without any light or auditory stimulation (26,27). As in other fetal organs, the development of the structure and the function is simultaneous. In the primary visual cortical area, synaptogenesis persists between 24 weeks of gestation and 8 months after delivery (26), while myelination of the optical tract begins at 32 weeks of gestation (27). It has been established that flash stimuli over the maternal abdomen after the 28th week can cause evoked brain activity in the fetal primary visual cortex, recorded by magnetoencephalography (28).

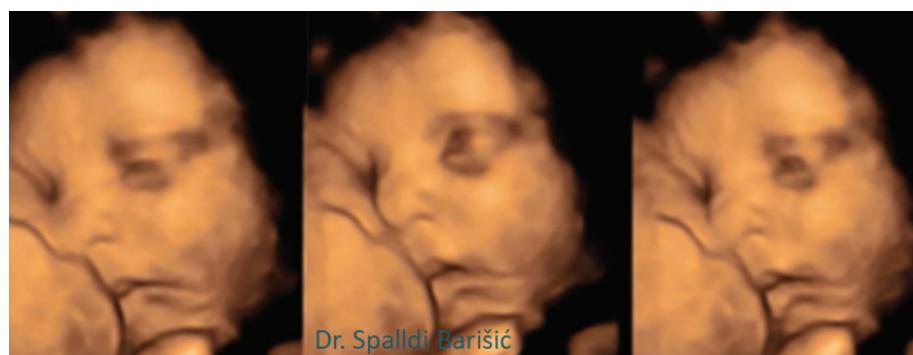
Istraživanja pokazuju da u maternici ne vlada potpuna tama. Na temelju eksperimentalnog rada i usporedne fiziologije zaključeno je da se **vidni i slušni sustav** ne bi ni mogli pravilno razvijati u uvjetima potpunog mraka i tištine (26,27). Kao i u drugim fetalnim organizma, i ovdje se razvoj strukture i funkcije odvija usporedno (slika 3). Sinaptogeneza u primarnom vidnom korteksu razvije se od 24. tjedna trudnoće do 8 mjeseci nakon rođenja (26), mijelinizacija optičkog trakta započinje oko 32. tjedna trudnoće (27). Utvrđeno je da svjetlosni podražaj iznad majčina abdomena izaziva od 28. tjedna fetalnu moždanu aktivnost u primarnom vidnom korteksu, zabilježenu magnetoencefalografijom (28). Sazrijevanje vidnog korteksa započinje između 36. i 40. tjedna trudnoće, te se nastavlja nakon rođenja (29).

Kemijski osjeti, poput osjeta okusa, također se razvijaju tijekom intrauterinog života. Fetus doživjava prve okuse hrane u maternici gutajući amnijsku tekućinu. Okusni se pupoljci pojavljuju već u 7. tjednu trudnoće. Izlučivanje glavnih regulatora uzimanja hrane, neuropeptida Y (NPY) i leptina započinje između 16. i 18. tjedna. NPY je hipotalamična tvar koja snažno potiče apetit, a leptin je faktor sitosti. Eksperimentalni podatci upućuju na zaključak da leptin značajno potiče gutanje fetusa. Neki istraživači vjeruju da je izostanak inhibicijskog

Maturation of the visual cortex occurs between the 36th and 40th weeks of gestation and continues after birth (29).

Chemical senses, such as the sense of taste, are also developed during the intrauterine period. The fetus experiences the first food tastes in the uterus by swallowing the amniotic fluid. Taste buds develop as early as the 7th week of gestation. The production of primary food intake regulators, neuropeptide Y (NPY) and leptin, starts between 16 and 18 weeks. NPY is a hypothalamic substance that powerfully increases appetite, while leptin is the satiety inducer. Experimental data has led to the conclusion that leptin significantly prompts the fetus to swallow. Some scientists believe that the lack of leptin's inhibitory effect is responsible for increased food intake and increased body weight of infants, despite a high percentage of fat in the total body mass. It has also been discovered that fetal swallowing depends on the sensation of thirst as well as the taste of the amniotic fluid. Swallowing is greatly reduced with the presence of sour or bitter taste and increased with the presence of sweet taste. It is important to note that the prenatal period influences the regulation of appetite and body mass in childhood and adulthood (30,31). Unfavorable intrauterine circumstances, interfering with the development of hypothalamic nuclei and the satiety and food intake centers in the brain, can

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SLIKA 3. Sekvence slika 4D ultrazvučnog prikaza fetalnog lica u 33. tjednu gestacije. Fetus je budan i promatra naokolo. Uočite različiti smjer pogleda i istraživanja okoline i strukture na kojem je lice prislonjeno (posteljica).

FIGURE 3. Sequences of 4D ultrasound images of the fetal face at 33 weeks of gestation. The fetus is awake and looking around. Note the different direction of watching and investigating the environment and the structure on which the face rests (placenta).

učinka leptina odgovoran za poticanje unosa hrane i povećanje tjelesne mase u novorođenčadi, unatoč visokom udjelu masti u ukupnoj tjelesnoj masi. Također je utvrđeno da fetalno gutanje ovisi o osjetu žedi, ali i o okusu plodove vode. Ono se značajno smanjuje pri gorkom ili kiselim, a povećava pri slatkom okusu. Važan je podatak da prenatalna zbivanja utječu na regulaciju apetita i tjelesne mase u djetinjstvu i odrasloj dobi (30,31). Nepovoljan intrauterini okoliš, interferirajući s razvojem hipotalamičkih jezgara i centara za sitost i hranjenje, može rezultirati poremećenim ponašanjem vezanim uz uzimanje hrane, hiperfagijom i pretilošću u djetinjstvu i/ili odrasloj dobi.

U prehrani mozga tijekom embrionalnog i fetalnog razdoblja života važnu ulogu ima koroidni pleksus, difuzno, veoma prokrvljeno tkivo koje zajedno s arahnoidnom membranom čini barijeru između krvi i cerebrospinalne tekućine. Ova struktura nalazi se unutar moždanih komora, a sudjeluje u održavanju kemijske stabilnosti cerebrospinalne tekućine te u ranom razvoju mozga. Njegova funkcija može se usporediti s funkcijom bubrega u životu nakon rođenja. Tijekom fetalnog života kroz koroidni se pleksus prenose u cerebrospinalnu tekućinu ne samo esencijalni ioni, vitamini, folati, nego i makromolekule, glukoza i niz drugih važnih tvari. Fetalni koroidni splet mnogo je veći od onog u odrasloj dobi i ispunjava mnogo više prostora u moždanim komorama. Naši rezultati pokazuju da se protok krvi u koroidnom pleksusu može prikazati već u desetom tjednu trudnoće (32). Ispitivanje vaskularizacije ove strukture potvrđuje postojanje specifičnih hemodinamičkih značajki koje slijede njegove morfološke promjene.

Učenje i pamćenje, kao i mnoge druge aktivnosti, imaju svoje temelje u prenatalnom životu. Psihobiološka su istraživanja potaknula razvoj hipoteze da intrauterini okoliš, izložen akustičnim i drugim podražajima, potiče razvoj učenja (slike 3 i 4) (33). Intrauterino po-

result in a food intake disorder, hyperphagia, and obesity in childhood and/or adult age.

During the embryonal and fetal period, a key element in brain nutrition is the choroid plexus, a diffuse, strongly perfused tissue, which, along with the arachnoid membrane, forms the barrier between blood and the cerebrospinal fluid. This structure is located within the cranial cavity and maintains the chemical stability of the cerebrospinal fluid as well as participating in early brain development. Its function can be compared to the function of the kidneys in life after birth. During the fetal period, the choroid plexus transports not just essential ions, folates, and vitamins into the cerebrospinal fluid but also macromolecules, glucose, and a series of other important elements. The fetal choroid network is much larger than the one in adults and it takes much more space in the cranial cavity. Results from a study we have performed previously show that the blood flow through the choroid plexus can be observed as early as the 10th week of gestation (32). Investigation of the vascularization of this structure confirms the existence of specific hemodynamic features which follow its morphological changes.

Learning and memory, as well as many other activities, have their origin in prenatal life. Psychobiological research has inspired the development of a hypothesis that the intrauterine environment, which includes exposure to acoustic and other stimuli, prompts the development of learning (Figure 3 and Figure 4) (33). The intrauterine origin of simple forms of memory and learning has been investigated using habituation methods, classical conditioning, and exposure learning. It has been confirmed that the fetus is capable of remembering tastes it was exposed to during the intrauterine period. Namely, the first experiences of different flavors and scents depend on the mother's diet. It has been proven that the propensity for certain foods is also acquired during intrauterine

drijetlo jednostavnih oblika pamćenja i učenja proučavano je primjenom metoda habituacije, klasičnog kondicioniranja te učenja izlaganjem određenom podražaju. Utvrđeno je da fetus ima sposobnost pamćenja okusa kojima je bio izložen za vrijeme intrauterinog razdoblja. Naime, prva iskustva različitih okusa te mirisa ovise o majčinoj prehrani. Dokazano je i da se sklonost određenoj hrani stječe za vrijeme intrauterinog razvoja (34). Veća je vjerojatnost da će nam se svidjeti okus one hrane koju je naša majka konzumirala za vrijeme trudnoće. **Fetus pamti i različite mirise, a posebno zvučne informacije.** Rudimentarni kapacitet za zadržavanje informacija postoji već od 30. tjedna trudnoće, a najnovija istraživanja pokazuju da osim kratkotrajnog pamćenja, fetus posjeduje i dugotrajno pamćenje (35).

Nakon rođenja uglavnom se ne stvaraju novi neuroni i ne postoji migracija neurona, ali su procesi sinaptogeneze i neuralne diferencijacije vrlo intenzivni. U donošena ploda sve primarne motoričke, somatosenzoričke, vidne i slušne kortikalne regije mogu biti prikazane karakterističnim slojevima specifičnih stanica. Visok stupanj zrelosti pokazuje moždano deblo, a u malom mozgu postoje svi oblici histogenetskih procesa. Dakle, **novorođenče dolazi na**

development (34). There is a greater probability that we will like the taste of food our mother consumed during pregnancy. **The fetus also remembers different smells, and especially acoustic information.** The rudimentary capacity for retaining information exists as early as the 30th week of gestation, and most recent research shows that the fetus also possesses long-term memory in addition to short-term memory (35).

After birth, there are mostly no neurons being created and there is no migration of neurons, but the processes of synaptogenesis and neural differentiation greatly intensify. In full-term infants, all primary motoric, somatosensory, visual, and auditory cortical areas can be displayed in characteristic layers of specific cells. The brain stem displays a high level of maturity and the cerebellum has all the forms of histogenesis. Therefore, **the infant is born with completely formed areas of subcortical structures and the simplest primary zones of the cortex** (36). The development of associative areas of the cortex, which play an important role in realizing the most complex forms of psychic activity, happens after birth. Recent research conducted with the use of NMR has shown that infants have well-devel-



SLIKA 4. Sekvence slika (A-D) 4D ultrazvučne snimke površinskog prikaza fetalnog lica u 36. tjednu gestacije. Na slici A uočava se fetus sa zatvorenim očima i miran, spokojan izraz lica, opušteno muskulaturu lica. Na slici B vidi se mrštenje, oči su pritom zatvorene; potom na slici C otvara oči. Na slici D vidimo otvorene oči i tužan izraz lica.

FIGURE 4. Sequences of (A-D) 4D ultrasound images, surface view of the fetal face at 36 weeks of gestation. In Figure A we notice a calm fetus with closed eyes, serene facial expression, and relaxed facial muscles. In Figure B we see a frown with the eyes closed, and then in Figure C the fetus opens his eyes. In Figure D we see open eyes and a sad-looking facial expression.

svijet s potpuno formiranim područjima supkortikalnih struktura i najjednostavnijim, primarnim zonama kore (36). Razvoj asocijacijskih područja moždane kore, koja imaju važnu ulogu u ostvarivanju najsloženijih oblika psihičke djelatnosti, događa se nakon rođenja. Novija istraživanja provedena NMR-om pokazala su da novorođenče ima dobro razvijene supkortikalne strukture, veliku aktivnost primarnih kortikalnih područja (somatosenzoričkog, motoričkog, slušnog i vidnog korteksa), ali i malu aktivnost u asocijacijskim područjima (37).

Znanost i dalje nema odgovor na zagonetno pitanje: koji su uvjeti morali biti ispunjeni u razvoju mozga da bi nastao **čovječji duh?**

Zaista, tijekom svog razvoja fetus obavlja sve više funkcija, postaje sve samostalnije biće. Osim srčane akcije, plod u majčinoj utrobi izvodi pokrete poput disanja, reagira na bolne podražaje i majčine emocije, ima razvijena osjetila okusa. On odgovara na zvukove, svjetlo, dodir, slabije ili jače izraženim pokretima. Za njegov rast, razvoj organa i organskih sustava ključna je tjelesna aktivnost te izvođenje pojedinih pokreta. Fetus također ima utjecaj na tijek i trajanje trudnoće. U tih 9 mjeseci isprepliću se veliki, burni događaji, trenutci važni kao ni u jednoj godini, ni u jednom razdoblju nakon rođenja. Srce, pluća, bubrezi, središnji živčani sustav, endokrini sustav već tada funkcioniraju zadivljujuće. Za postizanje savršena sklada svih funkcija potrebno je vrijeme. Dijete dolazi na svijet spremno započeti i održavati samostalan život. Stoga ne čudi preciznost kojom su regulirani i usklađeni razvoj i sazrijevanje organa i organskih sustava.

Već tijekom intrauterina života postoje kompenzacijski mehanizmi koji štite život fetusa za vrijeme patoloških stanja. Određivanjem granice u kojoj prestaju fiziološki, a započinju patofiziološki mehanizmi otvaraju se nove mogućnosti sprječavanja fetalnih oštećenja različitih organskih sustava, osobito mozga. Primjena

oped subcortical structures and high levels of activity in the primary cortical areas (somatosensory, motoric, auditory, and visual cortex), but that there are also low levels of activity in the associative areas (37).

Science is left with one mysterious unsolved question: which prerequisites have to be fulfilled in the development of the brain for the **human spirit** to be created?

The fetus preforms an increasing number of functions during its development, effectively becoming an increasingly independent being. In addition to its heartbeat, the offspring in the mother's womb preforms actions like breathing, reacting to painful stimuli and the emotions of its mother, and using its developed sense of taste. It responds to sounds, light, and touch by stronger or weaker movement. Physical activity and certain motions are crucial for its growth and the development of certain organs and organ systems. The fetus also has an influence on the course and length of the pregnancy. Those 9 months are a series of intertwined events of huge significance, moments more important than any year or period of life after birth. The heart, lungs, kidneys, central nervous system, and endocrine system already function impressively well in that period. It takes time to achieve a perfect balance of all those functions. The infant is born ready to begin and maintain an independent existence. With that in mind, the precise regulation of the development and maturation of organs and organ systems is not such a surprise.

During the intrauterine period, compensation mechanisms are already in place to protect the life of the fetus in case pathological conditions arise. By determining the line where normal physiological mechanisms stop and pathophysiological ones start, we open new possibilities of preventing fetal damage to different organ systems, and especially the brain. The application of new ultrasound methods, such as the four-dimensional ultrasound, has greatly improved our

novih ultrazvučnih dijagnostičkih metoda, poput četverodimenzionalnog ultrazvuka, znatno je poboljšala naše razumijevanje prenatalnih neurofizioloških procesa te pružila dodatne informacije o stanju i funkciji fetalnog središnjeg živčanog sustava. *Kurjak Antenatal Neurodevelopmental Test* (KANET) test omogućio je po prvi puta procjenu neurološkog statusa fetusa te razlikovanje normalnih, graničnih te abnormalnih fetalnih obrazaca ponašanja. Otvorene su nove mogućnosti dijagnostike, prevencije i intervencije u slučaju moždanih te drugih oštećenja i poremećaja.

Vrijedna je i zanimljiva spoznaja da su temelji za većinu našeg života u odrasloj dobi postavljeni upravo tijekom intrauterinog razdoblja. Uredan fiziološki razvoj fetusa, te fiziološki intrauterini okoliš neophodni su preduvjeti dobrog zdravlja u djetinjstvu i u odrasloj dobi.

O ovome je nedavno i u opsežnom preglednom radu pisala Aida Salihagić-Kadić. Prenosimo značajni dio njenog rukopisa uz dozvolu autrice, izdavača i urednika (38).

JE LI NAŠ MOZAK RAČUNALO?

U opsežnoj raspravi o funkciji fetalnog mozga Robert Epstein nedavno je detaljno i precizno opisao mnoge dvojbe oko funkcije mozga u antenatalnom razdoblju (39). U uvodu on ističe da naš mozak nije računalo, ali nije ni prazan. No, on ne sadržava većinu stvari koje ljudi vjeruju da sadrži – čak ni jednostavne stvari kao što su „sjećanja“.

Naši pogrešni dojmovi o mozgu imaju duboke povijesne korijene započete izumom računala 1940-tih godina. Danas nam već preko pedeset godina psiholozi, lingvisti, neuroznanstvenici i ostali stručnjaci za ljudsko ponašanje tvrde kako ljudski mozak djeluje **poput naprednog računala**.

Osjetila, refleksi i mehanizmi učenja – s time svi počinjemo, a kad malo razmislimo to je za-

understanding of prenatal neurophysiological processes and given us additional information on the state and function of the fetal central nervous system. The KANET test has made it possible, for the first time ever, to evaluate the neurological state of the fetus and to differentiate normal, borderline, and abnormal fetal behavior patterns. This has created new diagnostic, preventative, and intervention options in cases of brain damage and other disorders.

Knowing that the foundation of most our lives as adults is set precisely during the intrauterine period is very valuable and interesting. Regular physiological development of the fetus and an appropriate physiological intrauterine environment are necessary prerequisites for good health in childhood and adulthood.

Recently, this has been the topic of a comprehensive paper by Aida Salihagić-Kadić. With the permission of the author, editor and publisher, we present a significant portion of her manuscript herein (38).

IS OUR BRAIN A COMPUTER?

In a comprehensive discussion on the fetal brain function, Robert Epstein recently provided a detailed description of numerous uncertainties about brain function in the antenatal period (39). In the introduction, he pointed that our brain is not a computer but that it is also not completely empty. However, it does not contain most of the things people think it does – not even simple things such as “memories”.

In this interesting essay, Epstein wrote that “our shoddy thinking about the brain has deep historical roots, but the invention of computers in the 1940s got us especially confused. For more than half a century now, psychologists, linguists, neuroscientists and other experts on human behavior have been asserting that the human brain works **like a computer**.” He also mentioned that “Senses, reflexes and learning

pravo mnogo. Kad bismo se rađali bez ijedne od ovih sposobnosti, šanse za preživljavanje bi nam bile mnogo lošije.

Ali popis onoga bez čega se rađamo je mnogo duži: informacije, podatci, pravila, *software*, znanje, leksikoni, reprezentacije, algoritmi, programi, modeli, uspomene, prizori, procesori, potprogrami, uređaji za kodiranje i dekodiranje, simboli ili međuspremniči – svi elementi dizajna digitalnih računala koji im omogućuju donekle inteligentno ponašanje. Ne samo da se mi rađamo bez njih, već ih ni ne razvijemo – ikada (39).

Ključan događaj koji je pokrenuo ono što se danas široko naziva „kognitivna znanost“ je objavljivanje knjige „Jezik i komunikacija“ psihologa Georgea Millera 1951. godine. Miller je iznio ideju da se misaoni svijet može rigorozno proučavati koristeći koncepte iz informatičke teorije, računarstva i lingvistike.

mechanisms – this is what we start with, and it is quite a lot, when you think about it. If we lacked any of these capabilities at birth, we would probably have trouble surviving” (39).

Epstein concluded that there are some things that we are *not* born with, like “*information, data, rules, software, knowledge, lexicons, representations, algorithms, programs, models, memories, images, processors, subroutines, encoders, decoders, symbols, or buffers*, which are design elements that allow digital computers to behave somewhat intelligently. Not only are we *not born* with such things, we also don’t *develop* them – ever” (39).

The landmark event that launched what is now broadly called “cognitive science” was the publication of *Language and Communication* (1951) by the psychologist George Miller. Miller proposed that the mental world could be studied rigorously using concepts from information theory, computation, and linguistics.

EMOCIONALNI RAZVOJ FETUSA

Jedan od ključnih vanjskih pokazatelja emocija su izrazi lica. U drugom i trećem tromjesečju trudnoće, korištenjem 4D ultrazvuka, potvrđeno je postojanje punog raspona izraza lica kod fetusa, uključujući mrgodenje, smještanje i plakanje, baš kao i kod odraslih pojedinaca. Kako se fetus razvija, njegovi izrazi lica postaju sve složeniji, uz pojavljivanje cjelovite mimike lica koje se smije ili lica koje plače u trećem tromjesečju. Ova saznanja bi mogla doprinijeti komunikaciji između majke i fetusa, povezivanju poslije poroda, kao i regulaciji roditeljske brige za dijete. Izrazi lica povezani s bolima ili uznemirjenosti također postaju složeniji i kompletniji sa sazrijevanjem fetusa, što se može smatrati prilagodbenim procesom od kojeg fetus ima koristi poslije rođenja.

Moguće je da pokreti lica pokazuju fiziološke refleksne uzorke endogenog porijekla. Zaista, reakciju smještanja, plakanja ili vrištanja mo-

EMOTIONAL DEVELOPMENT OF THE FETUS

One of the important external signs of emotion is facial expressions. The existence of a full range of facial expressions, including grimacing, smiling, and crying, similar to emotional expressions in adults, has been observed by 4D sonography in the 2nd and 3rd trimesters of pregnancy. As the fetus matures, the complexity of facial expressions increases, with the appearance of the “cry-face gestalt” or “laughter-face gestalt” in the third trimester. This may be beneficial for fetal and maternal communication and bonding in postnatal life, as well as for the regulation of parental care. Facial expressions of pain or distress also become more complete as gestational age increases, and this may be considered an adaptive process which is useful to the fetus postnatally.

It is possible that facial movements demonstrate endogenously generated physiolog-

guće je izazvati stimulacijom moždanog debla čak i u slučajevima kada je veliki mozak u potpunosti uništen. Ipak, sudeći prema opažanjima uz pomoć 4D ultrazvuka, izrazi lica i ponašanje koje nalikuje izražavanju emocija možda ipak predstavljaju svojevrsnu fetalnu osjećajnost i svjesnost. Štoviše, noviji podaci ukazuju da ovi fetalni pokreti ne služe samo izražavanju različitog usmjerenja, već iskazivanju emotivnog stanja i pokazivanju namjere (slika 5) (11). Emocije se radaju tijekom fetalnog razvoja. Kao što smo već spomenuli, fetus je također sposoban izražavati uživanje ili neodobravanje kad su u pitanju okusi ili mirisi.

Primjerice danas 73-godišnja Marilyn vos Savant kao djevojka je imala najviši ikad izmjereni kvocijent inteligencije: 228 bodova. Znanstvenici međutim sumnjaju da su vrijednosti iznad 150 uopće smislene. Drugi prigovaraju da testovi prije mjere prilagodbu suvremenom svijetu nego inteligenciju. Ipak, kvocijent inteligencije spada među najvažnija pomoćna sredstva psihologije: može predvidjeti akademsko-poslovna dostignuća do 25 posto.

Limbički sustav prednjeg dijela mozga odgovoran je za izražavanje i doživljaj emocija. Druga ključna struktura u mozgu, amigdala, upravlja emotivnom memorijom, pažnjom, uzbudnjem, iskustvom ljubavi, straha, užitka i veselja. Ona sadrži neurone zadužene za prepoznavanje izraza lica kojima se raspoznaje emotivno značenje pojedinih izraza lica. Procjena lica kao dio uspostavljanja društvenih veza područje je spoznaje specifično za amigdalu. Razvoj amigdale počinje u ranoj fazi embrionalnog razvoja i doseže uznapredovali stupanj zrelosti tijekom prve godine života djeteta (6).

Osjećaji su se dugo smatrali izvorom pogrešaka razuma. Danas su znanstvenici složni: samo onaj tko razumije vlastite emocije, donosi pametne odluke - pa i one vezane za način ponašanja prema okolini. Popularni koncept „emotivne inteligencije“ većina istraživača mozga

ic reflex patterns. In fact, smiling as well as screaming and crying can be induced by brain-stem stimulation even with complete forebrain transection or destruction. However, according to observations obtained by 4D ultrasound, the facial expressions and emotion-like behaviors may represent some kind of fetal emotion and awareness. Moreover, recent data indicate that fetal movements serve not only to express different orientations, but also emotional states and manifestations of intentions (Figure 5) (11). Emotions are being born during fetal life. As we have already mentioned, the fetus is also able to express pleasure or disapproval regarding tastes and smells.

When Marilyn vos Savant, now 73 years old, was a young girl, she had the highest IQ ever recorded: 228 points. However, scientists believe that values above 150 are pointless. Others object that the tests measure our adaptation to the contemporary world more than our intelligence. Nevertheless, IQ remains one of the most important auxiliary tools of psychology: it can predict academic-business achievements with an accuracy of 25 percent.

The limbic forebrain is responsible for the expression and experience of emotions. One of the very important structures, the amygdala, mediates emotional memory, attention, arousal, and the experience of love, fear, pleasure, and joy. It contains facial recognition neurons which discern the emotional significance of different facial expressions. The evaluation of faces in social processing is an area of cognition specific to the amygdala. The development of the amygdala begins in early embryonic life and reaches an advanced stage of maturity during the first postnatal year (6).

Feelings were long considered to be the source of rational mistakes. Today, scientists are in agreement: only someone who understands their own emotions can make smart decisions – even those about their behavior towards their surroundings. The popular concept of

smatra beskorisnim: previše rasteže pojam inteligencije. Usto ga je teško izmjeriti, pa se ne može kvalitetno znanstveno istraživati.

“emotional intelligence” is considered useless by most researchers: it stretches the concept of intelligence too far. Additionally, it is almost impossible to measure and thus cannot be scientifically studied.

UČENJE I PAMĆENJE TIJEKOM FETALNOG ŽIVOTA

Razne visoko specijalizirane biokemijske tvari (hormoni, neurotransmitteri i druge polipeptidne strukture) potrebne su u izravnoj vezi sa stimulansom za transformaciju i pohranu senzornih i mentalnih informacija. Ključne za oblikovanje primarnog centralnog živčanog sustava na razini hipotalamus-a-hipofize-adrenalne žlijezde, neke od ovih funkcija moguće je opaziti na samom početku razvoja ljudskog bića. Stoga fetus postepeno razvija visoku osjetljivost i sposobnost za potencijalne vještine percepcije i učenja (42).

Unutarmaternično iskustvo je ujedno i proces učenja za dijete. Ovo učenje je ključni preduvjet za preživljavanje budući da omogućuje organizmu prilagodavanje na nove okolnosti. Bez prilagodbe nema preživljavanja, a prilagodba nije moguća bez prijašnjih iskustava na kojima se može zasnivati. Takav proces nužno traži pamćenje, bilo da je riječ o svjesno zadružnom pamćenju ili podsvjesno utisnutim dojmovima. Procesuiranje informacija koje dolaze do djeteta od samog početka njegovog razvoja biti će primljeno putem različitih biokemijskih puteva i potom preoblikovano i spremljeno kao tragovi sjećanja (ovo može vremenom biti korisno za teorijsko razumijevanje određenih psihoterapijskih postupaka, kao što su hipnoza, analiza snova, prenatalno pamćenje itd). Embrij već pokazuje naznake odgovaranja na i zadržavanja utisnutih senzornih iskustava u biokemijskom jeziku koji ostaju kao potencijalni izvor učenja. Ovi prenatalni memorijski utisci mogu, s vremenom, biti prizvani kao izvori informacija (bilo negativnog, pozitivnog ili ambivalentnog karaktera) tijekom kasnijeg života (39).

LEARNING AND MEMORY IN FETAL LIFE

Numerous highly specialized biochemical functions (hormones, neurotransmitters, and other polypeptide structures) are necessary, along with a direct link to a stimulus, in order to transform and store sensory and mental information. Being crucial for the formation of the primary central nervous system on the level of hypothalamus-pituitary-adrenal gland, some of these functions are observable at the very beginning of human development. Thus, the fetus gradually develops high sensitivity and the capability of potential perception and learning skills (42).

The intrauterine experience is also a process of learning for the child. This learning is a key presumption of survival because it enables the organism to adapt to new circumstances. Without adaptation there is no survival, and adaptation is impossible without prior experiences as a base. This process inevitably requires memory, whether it is consciously retained memory or subconscious impressions. Information reaching the fetus from the very beginning of its development will be received via different biochemical pathways and then reshaped and stored as memory fragments (this can in time be useful for the theoretical understanding of certain psychotherapeutic procedures, such as hypnosis, dream analysis, prenatal memory, etc.) The embryo already displays indications of responding to and retaining imprinted sensory experiences in a biochemical language which remain as potential learning sources. These prenatal memory imprints can, in time, be recalled as information sources (negative, positive or ambivalent in character) during later life (39).

Učenje i pamćenje fetusa je opsežno proučavano, korištenjem metoda habituacije, klasičnog kondicioniranja i učenja izlaganjem.

Habituacija, tj. smanjenje reakcije opetovanom prezentacijom istog stimulansa, uspješno je demonstrirana od 22. tjedna razvoja nadalje. Neki istraživači su zabilježili razvojni trend habituacije na vibracijsko-akustični stimulans, gdje je potrebno češće izlaganje stimulansu mlađih fetusa nego starijih. Treba napomenuti kako neka majčina stanja poput depresije ili stresa mogu negativno utjecati na habituaciju fetusa ukazujući na kašnjenje u razvoju. Mogu biti povezana i sa smanjenom funkcijom cerebralnog kortexa kod fetusa. Prefrontalno područje mozga i hipokampus sudjeluju u rapidnom automatskom opažanju i habituaciji na neočekivane okolišne poticaje, te su ključni elementi orijentacijskog refleksa kod ljudi.

Klasično kondicioniranje je metoda koja uključuje spoj dvaju različitih stimulansa: uvjetovani stimulans (koji samostalno ne izaziva nikakvu reakciju) i neuvjetovani stimulans (koji samostalno izaziva reakciju fetusa). Nakon opetovanog izlaganja spoju ovih dvaju stimulansa, uvjetovani stimulans počinje izazivati reakciju fetusa nazvanu „uvjetovana reakcija“. Koristeći čisti ton kao uvjetovani stimulans, a vibracijsko-akustični stimulans kao neuvjetovani, Hepper je otkrio uvjetovanu reakciju kod fetusa od 32 tjedna do 39 tjedana. Međutim, istu je reakciju moguće izazvati kod fetusa s anencefalijom. Štoviše, pokazano je da se primjenom klasičnog uvjetovanja, fetus čimpanze može naučiti informaciju i zadržati ju barem dva mjeseca nakon rođenja.

Treća metoda je učenje izlaganjem u kojoj se fetus ponovno izlaže stimulansu kojem je već izlagan niz puta te se njegova reakcija uspoređuje ili s reakcijom na 'nepoznat' stimulans ili na reakciju fetusa koji prvi put biva izložen tom istom stimulansu. U 37. tjednu zabilježene su različite reakcije fetusa na poznate i nepoznate zvukove, dok fetusi u 30. tjednu

Fetal learning and memory have been investigated extensively, employing habituation methods, classical conditioning, and exposure learning.

Habituation, i.e., response decrement following repeated presentation of the same stimulus, was demonstrated from 22 weeks of gestation onwards. Some investigators have registered developmental trends in habituation to vibroacoustic stimuli, with younger fetuses requiring more presentations of the stimulus than older fetuses. It should be pointed out that maternal conditions, such as depression and stress, affect fetal habituation in a negative way, indicating developmental delays. They may be linked to impaired function of the fetal cerebral cortex. Prefrontal and hippocampal regions are involved in rapid automatic detection and habituation to unexpected environmental events and are key elements of the orienting response in humans.

Classical conditioning is the method which involves the pairing of two stimuli: a conditioned stimulus (which elicits no response when presented alone) and an unconditioned stimulus (which elicits a fetal response when presented alone). Following repeated paired exposure to these two stimuli, the conditioned stimulus also elicits a response termed a "conditioned response". Using a pure tone as the conditioned stimulus and a vibroacoustic stimulus as the unconditioned one, Hepper found a conditioned response in fetuses ranging from 32 to 39 weeks of gestation. However, the same response could be demonstrated in fetuses with anencephaly. Furthermore, it has been shown that, with classical conditioning, a chimpanzee fetus can learn and retain obtained information for at least two months after birth.

The third method is exposure learning, where the fetus is re-exposed to a stimulus after a number of exposures, and this response is then compared either to the response to the "unfamiliar" stimulus or to the response of an unexposed fetus to the same stimulus. Different

jednako reagiraju i na poznate i na nepoznate zvukove. Ova je metoda također dovela do otkrića da fetus preferira zvuk glasa svoje majke od nepoznatih glasova. Kad je uspoređena reakcija na majčin glas nakon poroda i majčin glas kako je zvučao u maternici (koji zvuči drugačije zbog prigušivanja u maternici), novorođenčad su pokazala kako preferiraju zvuk majčinog glasa kako je zvučao prije rođenja. Ovime je potvrđeno da fetusi mogu čuti i naučiti prepoznavati zvuk glasa svoje majke prije rođenja. Novi podatci pokazuju, u fetusa od 34 tjedna, selektivno fetalno kortikalno procesuiranje majčinog glasa u usporedbi s nepoznatim glasovima. Štoviše, novorođenčad čije su se majke neprestano odmarale pred određenim televizijskim programom tijekom trudnoće, kad bi nakon poroda čula glazbenu temu programa postala bi oprezna, smanjio bi im se puls i prestala bi se micati. Rezultati ovog zanimljivog istraživanja pokazuju da je fetus sposoban naučiti i zapamtiti poznati auditorni stimulans te zadržati te informacije poslije poroda. Dokazano je kako rudimentarni kapacitet za zadržavanje informacija postoji već u 30. tjednu trudnoće i da se prenatalno stecene auditorne informacije mogu zadržati čak šest tjedana (6).

Prvorodena djeca u prosjeku pokazuju kvocijent inteligencije viši za 2,3 boda od mlađe braće i sestara: to je pokazalo istraživanje za koje su znanstvenici obradili testove inteligencije gotovo 250.000 mladih Norvežana. Znanstvenici su fenomen objasnili time da starija djeca pomažu mlađoj braći i sestrama u svladavanju brojnih vještina.

Istraživanje je obuhvatilo i druge aspekte fetalnog pamćenja. Prenatalno olfaktorno učenje je dokazano kod svih vrsta kralježaka, uključujući sisavce. Fetus može naučiti razlikovati okuse i steći preferenciju za neke okuse. Kao što smo već spomenuli, fetus može razlikovati pojedine zvukove govora u maternici. Prenatalno iskustvo govora može biti početak usvajanja

responses of fetuses at 37 weeks of gestation to familiar and unfamiliar sounds have been detected, whereas fetuses at 30 weeks of gestation did not react differently to familiar and unfamiliar sounds. This method also led to the finding that an infant prefers its mother's voice over an unfamiliar voice. When the mother's voice as it sounded after birth was compared with the mother's voice as it sounded in utero (different due to the sound attenuation in the uterus), newborn infants showed a preference for their mother's voice as it sounded before birth. These findings confirmed that fetuses are able to hear and learn their mother's voice before birth. Recent data reported on selective fetal cortical processing for the mother's vs. an unfamiliar voice at 34 weeks of gestation. Furthermore, babies whose mothers consistently rested in front of a popular television program during pregnancy became alert, showed slowing of their heart rate and stopped moving a few days after birth when the theme tune of the program was played. The results of this interesting study indicate that the fetus is able to learn and remember familiar auditory stimuli and retain this information over the birth period. It has been shown that the rudimentary capacity for retention of information may be expressed as early as 30 weeks of gestation and that prenatally acquired auditory memory can last as long as six weeks (6).

On average, firstborn children have an IQ several points higher than their younger siblings, as shown by the research involving IQ tests of almost 250 000 Norwegian youths. Scientists explain the phenomenon by the fact that older children help their younger siblings in overcoming numerous situations.

Other aspects of fetal memory have also been investigated. Prenatal olfactory learning has been reported in all vertebrate species, including mammals. The fetus can learn tastes and acquires a preference for these tastes through such learning. As we have already mentioned, the fetus is able to discriminate between differ-

jezika. Naposlijetku, moguće je da prenatalno učenje i pamćenje ima važnu ulogu u razvoju prepoznavanja majke, razvijanja bliskosti, hraničenja i društvenog prepoznavanja. Dugoročno auditorno pamćenje možda ima važnu ulogu u razvojnoj psihobiologiji pažnje i percepције, uključujući i ranu percepцију govora.

Sanjarenje može uposlit mozak jednako snažno kao i svjesno rješavanje problema. Iza čela i iznad sljepoočnica znanstvenici su identificirali „mrežu praznog hoda”, osobito aktivnu kod besciljnog razmišljanja. Pretpostavljaju da mozak tamo povezuje informacije sa sjećanjima i osjećajima, raspoređuje, slaže i umrežuje dojmove - otvarajući put novim mislima i idejama.

Slike četverogodišnje Marle Olmstead izgledaju poput radova iskusnih umjetnika. Kreativnost i inteligencija često dolaze u paru, no ne uvjetuju se: natprosječno inteligentni ljudi većinom razmišljaju „konvergentno”, probleme rješavaju analitički, prema provjerenum obrascima. Kreativnost međutim zahtijeva „divergentno” razmišljanje pri čemu mozak radi asocijativno te uključuje emocije i neobične ideje.

DUŠEVNO ZDRAVLJE I DUŠEVNI POREMEĆAJI : IMAJU LI ANTENATALNE TEMELJE?

Međuigra između genoma, epigenoma i okoline oblikuje fenotip ljudskog zdravlja ili bolesti, čak i prije rođenja. Prenatalno ili fetalno programiranje rizika za mentalne poremećaje u odrasloj dobi vrlo je važna i intrigantna tema istraživanja (43). Dobro je poznata činjenica da novorođenčad dolazi na svijet s nekom vrstom protoselfa, osjećaja znanja da tijelo postoji (44,45) i različitim tipovima temperamenta; neki su mirni i „laki“ s dobrim samo-umirujućim sposobnostima, a drugi vrlo senzitivni i reaktivni na okolinu sa slabim samo-umirujućim sposobnostima i koje je teško umiriti.

ent speech sounds in the womb. The prenatal experience of speech may begin the process of language acquisition. Finally, it has been suggested that prenatal learning and memory play an important role in the development of maternal recognition, attachment, feeding behavior and social recognition, etc. Long-term auditory memory may be important for the developmental psychobiology of attention and perception, including early speech perception.

Daydreaming can activate the brain just as strongly as conscious problem-solving. Behind our forehead and above our temples, scientists have identified a “resting state network” which is especially active in aimless thought. They assume that this is how the brain connects information to memory and feelings and allocates, orders, and networks impressions – forging a path to new thoughts and ideas.

The paintings of the four-year old Marla Olmstead appear like the work of seasoned artists. Creativity and intelligence often come in pairs, but they are not mutually conditioned: exceedingly intelligent people mostly think convergently and solve problems analytically, using tested patterns. Creativity, however, demands divergent thinking, where the brain functions in an associative manner and includes emotions and unusual ideas.

MENTAL HEALTH AND MENTAL DISORDERS – DO THEY HAVE AN ANTENATAL ORIGIN?

The interplay between the genome, epigenome, and environment shapes a phenotype of human health or illness even before birth. Prenatal or fetal programming of risk for adult mental disorders has become an important and intriguing research topic (43). It is well-known that babies enter the world with some kind of protoself, some kind of the feeling of the knowing that the body exists (44,45), and different tempera-

Uterus može osiguravati idealne ili štetne uvjete za razvoj fetalnog mozga (46). Iz perspektive reproduktivne i preventivne psihijatrije istraživanja fetalnih temelja temperamenta, mentalnog zdravlja i mentalnih poremećaja je veliki i težak izazov. Prema tzv. hipotezi o tri udarca („*three-hit hypothesis*“) o vulnerabilnosti za i rezilijenciji na bolesti genetska predispozicija predstavlja prvi udarac („hit 1“), prenatalna okolina drugi udarac („hit 2“) koji oštećuje gensku ekspresiju i dovodi do fenotipa različite prijemčivosti za različite bolesti zbog različitog reagiranja na životne stresove i nevolje („hit 3“). Prenatalno programiranje koje dovođi do povećane rezilijencije i antifragilnosti u sučeljavanju s životnim stresovima, nedaćama i traumama je iznimno važno iz perspektive promocije duševnog zdravlja. Razumijevanje rizičnih čimbenika u ranim fazama razvoja kao što su prenatalni stres, socijalna podrška, anksioznost, depresija i drugi duševni poremećaji majke, temperament novorođenčeta/djeteta, rane traume, itd. je iznimno važno za prevenciju i zbrinjavanje kasnijih, odnosno budućih duševnih poremećaja (47). Međutim, prenatalnu primarnu prevenciju duševnih poremećaja tek treba uvesti u kliničku praksu (48). Čini se da je došlo pravo vrijeme za promociju nove specijalnosti prenatalne i perinatalne psihijatrije (49).

ments; some babies are easy-to-handle and calm with good self-calming ability, while others are more sensitive and reactive to environment, with poor self-calming ability and difficult to soothe. The maternal in-utero milieu can provide the ideal or deleterious conditions for fetal brain development (46). From the perspective of reproductive, pre-emptive, and preventive psychiatry, research on the fetal origins of temperament and mental health as well as mental disorders is a formidable challenge (46). According to the “three-hit hypothesis of disease vulnerability and resilience”, genetic predisposition represents “hit 1”, the prenatal environment is “hit 2”, altering gene expression and leading to phenotypes with differing susceptibility to later life experiences and exposures (“hit 3”). Prenatal programming that may lead to increased resilience and antifragility in the face of later life adversities is very important from the perspective of mental health promotion. Understanding of early life risk factors such as prenatal stress, social support, maternal anxiety, depression and other mental disorders, baby and childhood temperament, early life trauma, etc. is crucial for the prevention and management of future psychiatric disorders (47). But prenatal primary prevention of mental illness has yet to be established for clinical use (48). It seems that the time has come for a recognized specialty in Prenatal and Perinatal Psychiatry (49).

ZAKLJUČAK

Fetus živi u simulirajućem okruženju pokreta kao i taktilno, kemijsko i auditorno osjetilnih informacija. Štoviše, fetus svakodnevno doživljava stotine jedinstvenih i ponavljajućih stimulansa. Ti stimulansi oblikuju strukturu i funkciju fetalnog mozga. Rezultati nedavnih istraživanja pokazali su kako o iskustvu ovisi plastičnost primarnog auditornog korteksa prije nego mozak dosegne potpunu zrelost. Izrazito prerano rođena nedonoščad izložena zvukovima svoje majke su imala značajno veći

CONCLUSION

The fetus lives in a stimulating matrix of motion as well as a wealth of tactile, chemical, and auditory sensory information. Moreover, the fetus is exposed to hundreds of specific and patterned stimuli each day. The structure and function of the brain are shaped by these stimuli. The results of recent investigation have shown experience-dependent plasticity in the primary auditory cortex before the brain has reached full-term maturation. Extremely pre-

auditorni korteks od kontrolne skupine koja je dobivala standardnu njegu. Također je bitno naglasiti da fetus može opažati, reagirati na, i relativno dugoročno zapamtiti stimulans doživljen u prenatalnom razdoblju. Osjetna percepција višeg reda započinje tijekom fetalnog života. Funkcionalne talamokortikalne veze su esencijalne za fetalnu svijest o škodljivom stimulansu. Iako je dokaz o svjesnoj percepцији boli tijekom materničnog života neizravan, ne-pobitno je dokazana podsvjesna inkorporacija fetalne boli u neurološki razvoj i plastičnost.

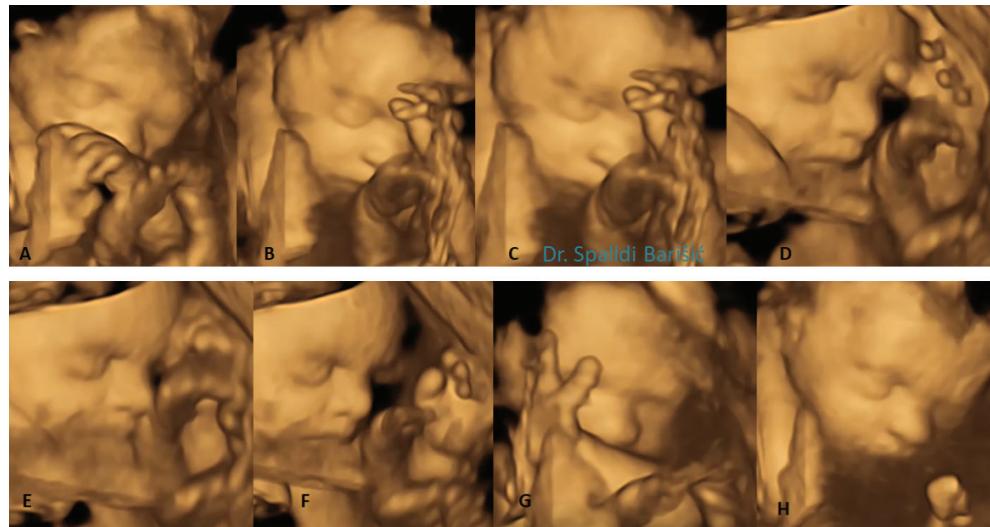
Početak razvoja sposobnosti planiranja djelovanja i fetalnog učenja motoričkih vještina su fascinantni. Ono što je najvažnije, fetalni pokreti mozgu pružaju senzorne podražaje koji potiču njegov razvoj. Napredak bihevioralne složenosti počinje spontanim fetalnim pokretima i dosiže vrhunac s pretpostavljenom preferencijom za zvuk majčinog glasa, odražavajući tijek sazrijevanja koji se odvijaju u moždanom deblu te potom u strukturama prednjeg mozga (diencefaloru i cerebrumu). Nadalje, fetalno motoričko ponašanje nedvojbeno odražava integraciju raznovrsnih kognitivnih, senzornih i motoričkih sustava. Nedavno je dokazano da se primarni poremećaji senzorno-motoričke i afektivne integracije kao i slaba kontrola nad motoričkim namjerama nalaze u pozadini poremećaja iz autističnog spektra. Novi val istraživanja je također ukazao kako se oblici ponašanja nalik emocijama te korjeni emotivnog ponašanja pojavljuju tijekom fetalnog života.

Fetus je sposoban za interakciju s okolišem i posljedično, za procesuiranje informacija u službi pamćenja i učenja (slika 5). Fetalno učenje i pamćenje treba smatrati rudimentarnim, iako danas znamo kako to pamćenje traje duže nego što se prije mislilo. Dugoročno pamćenje zahtijeva funkcionalni integritet limbičkog sistema i diencefalona (hipokampa, amigdale, prednje i mediodorsalne jezgre talamus te jezgre mamilarnog tijela), a te strukture su kod novorođenčadi već potpuno razvijene i funk-

mature infants exposed to maternal sounds had a significantly larger auditory cortex compared with control infants receiving standard care. It is also important to emphasize that the fetus can detect, respond to, and remember stimuli experienced during the prenatal period for a relatively long time. Higher order sensory perception begins in fetal life. Functional thalamocortical connections are also required for fetal awareness of noxious stimuli. Evidence for conscious pain perception during intrauterine life is indirect, but evidence for the subconscious incorporation of fetal pain into neurological development and plasticity is incontrovertible.

Early action planning development and fetal motor learning are fascinating. Importantly, fetal movements provide the brain with sensory input that spurs its development. Progression in behavioral complexity begins with spontaneous fetal movements and culminates with the presumed preference for the sound of the mother's voice, reflecting maturational events that take place in the brain stem, followed by the forebrain structures (the diencephalon and cerebrum). Furthermore, fetal motor behavior undoubtedly reflects development of diverse cognitive, sensory, and motor systems. It has recently been shown that primary sensory-motor and affective integration errors and poorly regulated motor intentions underlie autistic spectrum disorders. A new wave of investigations has also indicated that emotion-like behaviors and roots of emotions appear during fetal life.

The fetus is able to interact with the environment, and, as a result, processes information in the service of memory and learning (Figure 5). Fetal learning and memory should be considered rudimentary, although it is now known that memory lasts longer than previously thought. Long-term memory requires functional integrity of the limbic system and diencephalon (the hippocampus, amygdala, anterior and mediodorsal thalamic nuclei, and mammillary nuclei), and these structures are



SLIKA 5. Sekvence slika (A-H) 4D ultrazvučne snimke površinskog prikaza fetalnog lica u 35. tjednu gestacije. Na slici A uočava se fetus sa zatvorenim očima i rukom ispred lica. Iza ruke nalazi se pupkovina. Na slici B fetus podiže (lijevu) ruku. Na slici C fetus otvara oči i gleda u pupkovinu. Na slikama D-G pokušava ciljano uhvatiti pupkovinu koja mu smeta i odgurnuti je. Na slici H to napokon i uspijeva.

FIGURE 5. Sequences (A-H) of 4D ultrasound images of the surface view, fetal face at 35 weeks of gestation. In Figure A we see a fetus with closed eyes and a hand in front of the face. The umbilical cord is behind the arm. In Figure B the fetus raises the (left) arm. In Figure C the fetus opens his eyes and looks at the umbilical cord. In figures D-G, the fetus tries to grab the umbilical cord that is bothering him and pushes it away. In Figure H, the fetus finally succeeds.

cionalne. Stanične, sinaptičke i molekularne promjene nužne za pamćenje i učenje ovise o plastičnosti mozga, za koju se zna da je na vrhuncu u kasnom prenatalnom razdoblju i tijekom natalnog razdoblja.

Glazbeno vrlo nadarena djeca često pokazuju i talent za matematiku: Danili Bojko, polaznik šestog razreda iz Rusije, već je skladao 60 glazbenih djela, među njima i jednu operu, a piše i računalne programe. Istraživanja pokazuju da se kod djece koja rano nauče svirati neki instrument pojačava gustoća živčanih stanica u žuljevitom tijelu (corpus callosum) - strukturi koja povezuje lijevu i desnu polovicu našeg misaonog organa.

Važno je ukazati na činjenicu da su u novorođenčadi u potpunosti razvijene samo supkorzikalne strukture te primarna kortikalna područja. Stoga možemo zaključiti kako upravo te formacije imaju ključnu ulogu u kognitivnim funkcijama fetusa na kraju trudnoće. Asocijativni korteksi u novorođenčadi pokazuju nisku razinu aktivnosti na snimkama funkcional-

well developed and functioning in newborns. The cellular, synaptic, and molecular changes required for memory and learning depend on brain plasticity, which is known to be highest during the late prenatal and neonatal periods.

Musically very talented children often display a talent for mathematics: Danili Bojko, a sixth-grader from Russia, has so far composed 60 musical pieces, among which one is an opera, and he is also involved in writing computer programs. Research shows that children who learn to play an instrument at an early age display greater density of neurons in their corpus callosum – the structure connecting the left and right hemispheres of our brain.

It is important to point out that only subcortical formations and primary cortical areas are well-developed in a newborn. Therefore, we can conclude that these formations play an important role in cognitive functions of the fetus at the end of pregnancy. Association cortices display low activity in a newborn as recorded by functional magnetic resonance imaging.

nom magnetnom rezonancom. Postnatalno oblikovanje sinapsi u područjima asocijativnih kortexa, koje se ubrzava u razdoblju između osmog mjeseca i druge godine života, prethodi početku viših kognitivnih funkcija kao što su govor i jezik.

Pitanje fetalnih kognitivnih funkcija nije samo predmetom interesa znanstvenika već i ključno pitanje kliničke prakse, pogotovo u svjetlu napretka metoda medicinske dijagnostike i tehnologije koja nam omogućuje invazivne prenatalne medicinske zahvate. Klinički relevantni podatci o kognitivnim funkcijama fetusa mogu biti važni za ograničavanje boli fetusa, terapiju nedonoščadi kao i za poboljšane neurorazvojne ishode fetusa u trudnoćama visokog rizika. Štoviše, razvoj mozga u prenatalnom razdoblju vrlo je osjetljiv proces i neki od kognitivnih oštećenja i nedostataka u djetinjstvu ali i odrasloj dobi (poteškoće u učenju i pamćenju, nedostatak pažnje, odgođen jezični razvoj, intelektualni invaliditet, itd.) možda izviru iz prenatalnog života. Tek počinjemo istraživati fetalne kognitivne funkcije i vjerujemo kako će nam nove tehnologije, kao što su različiti 3D i 4D oblici ultrazvuka te snimanje funkcionalnom magnetnom rezonancom znacajno pomoći u razumijevanju kognitivnih sposobnosti i funkcija fetusa, ali i dopustiti rano otkrivanje nepravilnog razvoja mozga i na taj način nam pružiti mogućnost rane terapijske intervencije.

Postoji li granica ljudske inteligencije? Evolucija je naš mozak učinila tako sposobnim da neki njime mogu shvatiti najsloženije sadržaje, kao što fizičar Abhay Ashtekar razumije kvantnu gravitaciju petlji. No naš je um najvjerojatnije dosegao svoju biološku granicu, argumentiraju psiholozi. U najboljem su slučaju moguća sitna poboljšanja - no vjerojatno ih prate gubitci u drugim područjima.

Razvoj fetalnog mozga, inteligencije i mentalnih poremećaja odražava međuigru između genoma, epigenoma i okoline (stanja unutar

Postnatal formation of synapses in association cortical areas, which intensifies between the 8th month and the 2nd year of life, precedes the onset of higher cognitive functions, such as speech and language.

The issue of fetal cognitive functions has been not only an object of interest for scientists but also an important issue in clinical practice, in light of advances in medical diagnostic methods and technology that allow invasive prenatal medical interventions. Clinically relevant data on cognitive functions of the fetus could be important for the management of fetal pain and treatment of preterm infants as well as for improved neurodevelopmental outcomes in fetuses from high-risk pregnancies. Furthermore, brain development in the prenatal period is a fragile process, and some of the cognitive impairments and deficits in childhood and adulthood (impaired learning and memory, deficits in attention, delayed language development, intellectual disability, etc.) may have their origins in prenatal life. We are just beginning to investigate cognitive functions of the fetus and we believe that new methods and techniques, such as different 3D/4D ultrasound modes and functional magnetic resonance imaging, will significantly help in understanding the cognitive abilities and functions of the fetus and allow early detection of abnormal brain development, thus providing the opportunity for early therapeutic intervention.

Are there limits to human intelligence? Evolution developed our brain to be so capable that some people can grasp even the most complex of issues, allowing for instance the physicist Abhay Ashtekar to understand loop quantum gravity. However, psychologists argue that our mind has probably reached its biological limits. At best, small improvements are still possible, but they would probably be accompanied by losses in other fields of function.

Fetal brain development, intelligence, resilience, and mental disorders are predicated on the interplay between the genome, epigenome,

maternice) pri čemu važnu ulogu ima mentalno zdravlje trudnice, njezin stav prema trudnoći, reakcije na stres, prehrana, mikrobiom, infekcije, itd. Čini se da je došlo pravo vrijeme da se prepozna važnost nove discipline prenatalne i perinatalne psihijatrije.

and environment in the womb, influenced by the mother's mental health, attitude to pregnancy, response to stress, nutrition, microbiome, infection, etc. It seems that the time has come for a recognized specialty in Prenatal and Perinatal Psychiatry.

LITERATURA / REFERENCES

1. Kurjak A, Andonotopo W, Hafner T, Salihagic Kadic A, Stanojevic M, Azumendi G i sur. Normal standards for fetal neurobehavioral developments – longitudinal quantification by four-dimensional sonography. *J Perinat Med* 2006;34:56-65
2. Kurjak A, Azumendi G, Andonotopo W, Salihagic-Kadic A. Three- and four-dimensional ultrasonography for the structural and functional evaluation of the fetal face. *Am J Obstet Gynecol* 2007;196:16-28.
3. Kurjak A, Abo-Yaqoub S, Stanojevic M, Basgul Yigitler A, Vasilij O, Lebit D i sur. The potential of 4D sonography in the assessment of fetal neurobehavior – multicentric study in high-risk pregnancies. *J Perinat Med* 2010;38(1):77-82.
4. Kurjak A, Antsaklis P, Stanojevic M, Vladareanu R, Vladareanu S, Moreira Neto R i sur. Multicentric studies of the fetal neurobehavior by KANET test. *J Perinat Med* 2017; 45(6): 717–727.
5. Kurjak A, Spalldi Barisic L, Stanojevic M, Antsaklis P, Panchal S, Honemeyer U i sur. Multi-center results on the clinical use of KANET. *J. Perinat. Med.* 2019; 47(9): 897–909. <https://doi.org/10.1515/jpm-2019-0281>
6. Salihagić Kadić A, Kurjak A. Cognitive Functions of the Fetus. *Ultraschall in der Medizin* 2017; 38: 1-9.
7. De Ribaupierre A, Lecerf T. Intelligence and cognitive development: three sides of the same coin. *J Intell* 2017; 5:14, doi:10.3390/jintelligence5020014.
8. Demetriou A, Spanoudis G. From cognitive development to intelligence: translating developmental mental milestones into intellect. *J Intell* 2017; 5(3): 30, doi:10.3390/jintelligence5030030.
9. Van der Maas HLJ, Kan K-J, Marsman M, Stevenson CE. Network models for cognitive development and intelligence. *J Intell* 2017; 5: 16. doi:10.3390/jintelligence5020016
10. Nelson CA. Neural development and lifelong plasticity. U: Keating DP. (ed.): *Nature and Nurture in Early Child Development*. Cambridge: Cambridge University Press, 2011, 45-69.
11. Kurjak A, Spalldi Barisic L, Stanojevic M, Salihagić Kadić A, Porovic S. Are We Ready to investigate Cognitive Function of Fetal Brain? The Role of Advanced Four-dimensional Sonography. *Donald School Journal of Ultrasound in Obstetrics and Gynecology* 2016; 10(2): 116-24.
12. Salihagić Kadić A, Predojević M, Kurjak A. Advances in fetal neurophysiology. U: Pooh RK, Kurjak A (ed). *Fetal neurology*. New Delhi: Jaypee Brothers Medical Publishers, 2009, 161-221.
13. Kurjak A, Stanojevic M, Andonotopo W, Salihagić-Kadić A, Carrera JM, Azumendi G. Behavioral pattern continuity from prenatal to postnatal life - a study by four-dimensional (4D) ultrasonography. *J Perinat Med* 2004; 32(4): 346-53.
14. Stanojevic M, Kurjak A, Salihagić-Kadic A, Vasilij O, Miskovic B, Shaddad AN i sur. Neurobehavioral continuity from fetus to neonate. *J Perinat Med* 2011; 39: 171-7.
15. Fitzgerald M. Development of pain mechanisms. *Br Med Bull* 1991; 47: 667-75.
16. Salihagić Kadić A, Predojević M. Fetal neurophysiology according to gestational age. *Semin Fetal Neonatal Med* 2012; 17(5): 256-60.
17. Anand KJS, Sippell WG, Aynsley-Green A. Randomized trial of fentanyl anaesthesia in preterm babies undergoing surgery: effects of the stress response. *Lancet* 1987; 1: 62-6.
18. Morlet T, Collet L, Salle B, Morgan A. Functional maturation of cochlear active mechanisms and of the medial olivocochlear system in humans. *Acta Otolaryngol* 1993; 113(3): 271-7.
19. Morlet T, Collet L, Duclaux R, Lapillonne A, Salle B, Putet G i sur. Spontaneous and evoked otoacoustical emissions in preterm and full term neonates. Is there a clinical application? *Int J Pediatr Otorhinolaryngol* 1995; 33(3): 207-11.
20. Leader LR, Baillie P, Martin B, Vermeulen. The assessment and significance of habituation to a repeated stimulus by the human fetus. *Early Human Dev* 1982; 7(3): 211-19.
21. Liley AW. Fetus as a person. Speech held at the 8th meeting of the psychiatric societies of Australia and New Zealand. *Fetal therapy* 1986; 1: 8-17.
22. Joseph R. Fetal brain and cognitive development. *Dev Rev* 1999; 20: 81-98.
23. Sun W, Hansen A, Zhang L, Lu J, Stolzberg D, Kraus KS. Neonatal nicotine exposure impairs development of auditory temporal processing. *Hear Res* 2008; 245(1-2): 58-64.
24. Kiefer I, Siegel E, Preissl H, Ware M, Schauff B, Lowery C. Delayed maturation of auditory-evoked responses in growth-restricted fetuses revealed by magnetoencephalographic recordings. *Am J Obstet Gynecol* 2008; 199(5): 503-7.
25. Lee CT, Brown CA, Hains SM, Kisilevsky BS. Fetal development: voice processing in normotensive and hypertensive pregnancies. *Biol Res Nurs* 2007; 8(4): 272-82.
26. Huttenlocher PR, de Courten CH. The development of synapses in striate cortex of man. *Human Neurobiol* 1987; 6(1): 1-9.

27. Magoon EH, Robb RM. Development of myelin in human optic nerve tract. A light and electron microscopic study. *Arch Ophthalmol* 1981; 99(4): 655-9.
28. Eswaran H, Wilson J, Preissl H, Robinson S, Vrba J, Murphy P i sur. Magnetoencephalographic recordings of visual evoked brain activity in the human fetus. *Lancet* 2002; 360(9335): 779-80.
29. Kostovic I, Judas M, Petanjek Z, Simic G. Ontogenesis of goal-directed behavior: anatomo-functional considerations. *Int J Psychophysiol* 1995; 19: 85-102.
30. Adair LS. Child and adolescent obesity: epidemiology and developmental perspectives. *Physiol Behav* 2008; 94: 8-16.
31. Hohwü L, Li J, Olsen J, Sørensen TI, Obel C. Severe maternal stress exposure due to bereavement before, during and after pregnancy and risk of overweight and obesity in young adult men: a Danish National Cohort Study. *PLoS One* 2014; 14(9): e97490. doi: 10.1371/journal.pone.0097490.
32. Kurjak A, Schulman H, Predanic A, Predanic M, Kupesic S, Zalud I. Fetal choroid plexus vascularization assessed by color and pulsed Doppler. *J Ultrasound Med* 1994; 13: 841-4.
33. Abrams RM, Gerhardt KJ. The acoustic environment and physiological responses of the fetus. *J Perinatol* 2000; 20(8Pt 2): S31-6.
34. Mennella JA, Jagnow CP, Beauchamp GK. Prenatal and postnatal flavor learning by human infants. *Pediatrics* 2001; 107(6): E88.
35. Granier-Deferre C, Bassereau S, Ribeiro A, Jacquet AY, Decasper AJ. A melodic contour repeatedly experienced by human near-term fetuses elicits a profound cardiac reaction one month after birth. *PLoS One* 2011; 6(2): e17304. doi: 10.1371/journal.pone.0017304.
36. Kostovic I. Prenatal development of nucleus basalis complex and related fiber system in man: a histochemical study. *Neuroscience* 1986; 17(4): 1047-77.
37. Lagercrantz H. The emergence of consciousness: Science and ethics. *Seminars in Fetal & Neonatal Medicine* 2014; 19: 300-5.
38. Salihagić Kadić A, Kurjak A, Spalldi Barišić L. Fiziologija fetusa i dijagnostički ultrazvuk. U: Kurjak A i sur. Ultrazvuk u ginekologiji i perinatologiji, drugo izdanje. Zagreb: Medicinska naklada, 2019, str. 269-300.
39. Epstein R. The Empty Brain. *Aeon* 18 May 2016.
40. Kurjak A, Spalldi Barisic L, Delic T, Porovic S, Stanojevic M. Facts and Doubts about the Beginning of Human Life and Personality. *Donald School Journal of Ultrasound in Obstetrics and Gynecology* 2016; 10(3): 205-13.
41. Kurjak A. Controversies on the beginning of human life – science and religions closer and closer. *Psychiatria Danubina* 2017; 29(1): 89-91.
42. Fedor-Freybergh PG. Prenatal dialogue and its impact on birth and the postnatal human being: integrative approach to modern philosophy for medicine and psychology. U: Klimek R, Fedor-Freybergh PG, Janus L, Walas-Skolicka E. *A time to be born*. Cracow: DREAM Publishing Company, Inc. 1996, str. 36-49.
43. Kim DR, Bale TL, Epperson CN. Prenatal programming of mental illness: Current understanding of relationship and mechanisms. *Current Psychiatry Reports* 2015; 17: 5. doi: 10-1007/s11920-014-0546-9.
44. Damasio A. *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York: Harcourt Brace, 1999.
45. Damasio A. *Self Comes to Mind*. Knopf Doubleday Publishing Group, 2010.
46. Kurjak A, Stanojević M, Salihagić-Kadić A, Spalldi Barišić L, Jakovljević M. Is four-dimensional (4D) ultrasound entering a new field of fetal psychiatry. *Psychiatria Danubina* 2019; 31: 133-40. <https://doi.org/10.24869/psychd.2019.133>
47. Brannigan R, Tanskanen A, Huttunen MO, Cannon M, Leacy FP, Clarke MC. The role of prenatal stress as a pathway to personality disorder: longitudinal birth cohort study. *Br J Psychiatry* 2020; 216: 85-9. doi: 10.1192/bj.2019.190
48. Freedman R, Hunter SK, Hoffman C. Prenatal primary prevention of mental illness by micronutrient supplements in pregnancy. *Am J Psychiatry* 2018; 175: 607-619; doi:10.1176/appi.ajp.2018.17070836
49. Freeman MP. Perinatal psychiatry: An emerging specialty. *J Clin Psychiatry* 2014; 75: 1086-7. doi: 10.10.4088/JCP.14f09366

Društvene mreže, depresivnost i anksioznost

/ Social Networks, Depression and Anxiety

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Društvene mreže su virtualni prostori koji služe za međusobno povezivanje korisnika kojih je trenutno u svijetu preko 3,8 milijarde. Broj korisnika kao i broj različitih društvenih mreža je u stalnom porastu što ukazuje da je tehnologijom posredovana svakodnevica postala sastavni dio života u 21. stoljeću. Nedvojbeno je da postoje brojne prednosti napretka tehnologije, no otvara se pitanje pridonosi li nužno uporaba društvenih mreža dobrobiti i kvaliteti života svakog pojedinca. Zadnjih desetak godina sve je veći broj istraživanja koja nastoje razjasniti vezu između korištenja društvenih mreža i psihičkog zdravlja. U kontekstu društvenih mreža najviše se ispituje subjektivna procjena količine vremena provedenog na društvenim mrežama te na koji je način to vrijeme provedeno (aktivna/pasivna uporaba). U kontekstu psihičkog zdravlja najistraživaniji konstrukti su anksioznost i depresivnost, dok se samopoštovanje, strah od propuštanja, socijalna usporedba, usamljenost pokazuju medijatorima/moderatorima povezanosti društvenih mreža i psihičkog zdravlja. Međutim, iznimno je važno staviti dosadašnja istraživanja u kontekst pandemije COVID-19. Ovaj pregledni rad donosi glavne nalaze u ovom području s jasnim zaključkom kako je potrebno još kvalitetnih longitudinalnih i eksperimentalnih studija koje će dati odgovor na pitanje o smjeru tog odnosa kao i o potencijalnim zaštitnim odnosno rizičnim faktorima, naročito u kontekstu promjene važnosti društvenih mreža za održavanje socijalnih kontakata.

/ Social networks are virtual spaces currently connecting over 3.8 billion users worldwide. The number of users and the number of different social networks is constantly growing, which indicates that technology-mediated daily life has become an integral part of life in the 21st century. It is indubitable that there are many advantages to technological progress, but the question remains whether the use of social networks necessarily contributes to the wellbeing and quality of life of every individual. Over the last decade, a growing number of studies have attempted to clarify the connection between the use of social networks and mental health. In the context of social networks, the most-studied factor is the subjective assessment of time spent on social networks and the type of social network use in those periods (active/passive use). In the context of mental health, the anxiety and depression have been most extensively studied, while self-esteem, fear of missing out, social comparison, and loneliness have shown themselves to be mediators/moderators in the association between social networks and mental health. However, it is extremely important to place existing research in the context of the COVID-19 pandemic. This review article presents the main findings in this field with the clear conclusion that further longitudinal and experimental studies are required to clarify the causal direction of this relationship and the potential protective and risk factors, especially in the context of the alterations in the importance of social networks in maintaining social contacts during the pandemic.

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DRUŠTVENE MREŽE I PSIHIČKO ZDRAVLJE

Društvene mreže su virtualni prostori koji služe za međusobno povezivanje korisnika, a neke od najpoznatijih su *Facebook*, *Instagram*, *YouTube*, *TikTok*, *Twitter*, *LinkedIn*, *Tinder*, *Snapchat*, *WhatsApp*, *Viber*, *Skype*, *Pinterest*, *Tumblr*, *Reddit*. Boyd i Ellison (1) su definirali društvene mreže kao platforme koje omogućavaju korisnicima otvaranje privatnih ili javnih profila te korištenje tih profila za ostvarivanje veza s drugim korisnicima različitim vrstama interakcija. S obzirom da velik broj različitih društvenih mreža odgovara ovoj definiciji, kada se želi analizirati utjecaj koji društvene mreže imaju na pojedince, važno je uzeti u obzir i specifična obilježja pojedinih društvenih mreža (2), kao i karakteristike samih korisnika.

Društvene mreže postale su sastavni dio života u 21. stoljeću, na što ukazuje i činjenica da je trenutno u svijetu preko 3,8 milijarde korisnika (3), dok prema zadnjim podacima u Hrvatskoj društvene mreže koristi oko 97 % mladih između 16. i 24. godine (4). Korištenje društvenih mreža daje nam pregršt mogućnosti: povezivanje s prijateljima, obitelji, kolegama pa čak i sa strancima (koji nam nisu nužno fizički blizu), upoznavanje novih ljudi, izražavanje vlastitih misli i osjećaja te dobivanje podrške, izvor različitih informacija i korisnih sadržaja i sl. što svakako ima potencijal povećanja kvalitete ži-

SOCIAL NETWORKS AND MENTAL HEALTH

Social networks are virtual spaces that connect their users, some of the most famous among them being Facebook, Instagram, YouTube, TikTok, Twitter, LinkedIn, Tinder, Snapchat, WhatsApp, Viber, Skype, Pinterest, Tumblr, and Reddit. Boyd and Ellison (1) defined social networks as platforms that allow users to open private or public profiles and use those profiles to achieve a connection with other users through various types of interactions. Given that a large number of different social networks fits this definition, in analyzing the influence that social networks have on individuals it is important to also consider the specific characteristics of particular social networks (2) as well as the characteristics of the users themselves.

Social networks have become an integral part of life in the 21st century, indicated by the fact that they currently have over 3.8 billion users worldwide (3), whereas in Croatia social networks are used by approximately 97% of young people between the ages of 16 and 24 (4). Use of social networks opens up various possibilities: connecting with friends, family, colleagues, and even strangers (who are not necessarily physically close to us), meeting new people, expressing one's thoughts and feelings and receiving support, providing a source of information and useful content, etc., all of which certain-

vota i dobrobiti pojedinaca. Ove su prednosti posebno naglašavane za vrijeme pandemije COVID-19. Uz navedene prednosti dolaze i potencijalne teškoće života u digitalnom svijetu, a ostaje detaljnije istražiti kako nešto što je dio naše svakodnevice utječe na nas.

Kako se u zadnje vrijeme sve više govori o utjecaju društvenih mreža na psihičko zdravlje, otvaraju se i različita pitanja - može li se uopće sve društvene mreže staviti u istu kategoriju i, ako ne, što je to što ih razlikuje te imaju li te razlike drukčije posljedice na psihičko zdravlje pojedinaca. Možda najvažnije pitanje koje se nameće je smjer samog odnosa, tj. pitanje jesu li ranjivi pojedinci skloniji više/problematičnije koristiti društvene mreže pa time imaju i veću vjerojatnost za razvijanje psihičkih smetnji ili samo (prečesto/problematično) korištenje društvenih mreža dovodi do psihičkih smetnji. Premda trenutno ne možemo ponuditi odgovore na spomenuta pitanja, iako je na ovu temu objavljen već značajan broj sustavnih pregleda, cilj ovog rada je dati detaljan pregled literaturе iz područja povezanosti društvenih mreža i anksioznosti i depresivnosti, kako bismo imali jasniju polazišnu točku za traženje odgovora na postavljena pitanja, ali i za postavljanje novih pitanja. Poseban osvrt dajemo na povezanost društvenih mreža i mentalnog zdravlja tijekom pandemije COVID-19.

Psihičko zdravlje je, prema Svjetskoj zdravstvenoj organizaciji, stanje dobrobiti u kojem pojedinac ostvaruje svoje potencijale, dobro se nosi s normalnim životnim stresom, produktivan je te sposoban pridonositi zajednici (5). Prema navedenoj definiciji psihičko zdravlje ne znači samo odsutnost psihičke bolesti, što bi u kontekstu ove teme značilo da za pojedinca koji učestalo/problematično koristi društvene mreže, a nema zadovoljene kriterije za dijagnozu nekog psihičkog poremećaja, ne možemo nužno reći da je psihički zdrav, odnosno zaključiti da uporaba društvenih mreža na njega nema negativan utjecaj. Kako bi se moglo valjano za-

ly has the potential to improve quality of life and the wellbeing of individuals. These benefits have been especially emphasized during the COVID-19 pandemic. However, these benefits are accompanied by the potential difficulties stemming from living in the digital world, and how this factor that is now part of our everyday lives influences us is yet to be fully determined.

Since the influence of social networks on mental health has recently become a topic of growing interest, various questions have arisen – can all social networks be placed in the same category, and if not, what is it that differentiates them and do those differences result in different effects on the mental health of individuals. Perhaps the most important question that has arisen is about the direction of this relationship, i.e. whether vulnerable individuals have a tendency to use social networks more or in a more problematic way, leading to a higher likelihood of developing mental issues, or whether it is the (overly frequent/problematic) use of social networks itself that leads to mental issues. Although we currently do not have the answers to these questions despite an already high number of systematic reviews, the goal of this article is to provide a detailed overview of the literature on the topic of the association between social networks and depression and anxiety, in order to provide a clearer starting point in seeking answers to the abovementioned question and to be able to set new research questions on the issue. We also provide a special overview of the association between social networks and mental health during the COVID-19 pandemic.

Mental health is, according to the World Health Organization, a state of wellbeing in which the individual achieves their potentials, copes well with normal stress in everyday life, and is productive and can contribute to the community (5). According to this definition, mental health is not only the absence of mental illness, which in the context of this topic would mean that an individual who uses social networks frequently or in a problematic way without fulfilling the criteria for

ključivati o pozitivnom i negativnom utjecaju društvenih mreža na psihičko zdravlje i mehanizmima u podlozi tog utjecaja, potrebno je još vremena i kvalitetnih istraživanja.

Područje psihičkog zdravlja je složeno, od činjenice da se stavovi struke mijenjaju i ponekad kasne za novim spoznajama i promjenama u svijetu koje su sve češće i brže do činjenice da puno dijagnostičkih instrumenata, kao i mjera koje se koriste u istraživanjima, počiva na samoprocjenama. Koncept samoprocjene u smislu psihičkog zdravlja je diskutabilan jer dovodi u pitanje točnost, a onda i relevantnost tih samoprocjena. Ipak, veliki broj istraživača koristi takvu metodologiju pri istraživanju ove problematike kako bi došli do većeg broja sudionika te uštete vlastitih resursa. Jasno je da su objektivni pokazatelji vremena i načina provedenog na društvenim mrežama (kao i psihičkog zdravlja) poželjni, no i subjektivne procjene imaju svoju važnost - subjektivna dobrobit pojedinca upravo je stvar subjektivnog dojma.

Sasvim je sigurno da na našu dobrobit utječe s kim i kako provodimo vrijeme, a ono što je jasno kad pogledamo oko sebe jest da većina ljudi sve više tog vremena provodi u digitalnom svijetu. Istraživanja koja se bave odnosom psihičkog zdravlja i društvenih mreža nastoje ispitati koliko vremena pojedinci provode na društvenim mrežama, na koji način i zbog čega te kako je to povezano s nekim indikatorima psihičkog zdravlja (samopoštovanje, socijalna podrška, zadovoljstvo životom) odnosno psihičke bolesti (usamljenost, anksioznost, depresivnost).

S obzirom na složenost konstrukta u fokusu te činjenice da su društvene mreže (sve) prisutne tek zadnjih desetak godina, nije neobično da je puno oprečnih nalaza istraživanja. Što se tiče povezanosti vremena provedenog na društvenim mrežama i indikatora psihičkog zdravlja, O'Dea i Campbell (6) su na australskom uzorku 400 adolescenata pokazali da je

a diagnosis of some mental disorder cannot necessarily be considered mentally healthy, i.e. we cannot conclude that the use of social networks does not have negative effects purely based on the absence of mental illness. We still require more time and high-quality research in order to form valid conclusions on the positive and negative effects of social networks on mental health and the mechanisms that underlie these effects.

The complexity of the field of mental health stems from multiple factors, ranging from the fact that mainstream expert opinions change and sometimes lag behind new insights and global changes that are becoming more frequent and rapid, to the fact that many diagnostic instruments and measurements used in research are based on self-assessment. The value of self-assessment with regard to mental health is disputable since it raises questions regarding the accuracy and thus also the relevance of these self-assessments. However, many researchers use this methodology when studying this topic in order to achieve larger participant samples and conserve their own resources. It is clear that having objective indicators of the time spent and type of use of social networks (as well as mental health) would be desirable, but subjective assessments are also valuable – subjective wellbeing of individuals is in fact a result of their subjective perception.

It is completely certain that our wellbeing is influenced by who we spend time with and how, and looking at the world around us it is clear that most people are spending more and more of this time in the digital world. Studies on the relationship between mental health and social networks attempt to determine how much time individuals spend on social networks, how they spend it, and why, and try to ascertain how this is related to some indicators of mental health (self-esteem, social support, contentment with life) or mental illness (loneliness, anxiety, depression).

Given the complexity of the constructs in the focal point of the fact that social networks have become (omni)present only in the last decade or

samoprocijenjeno vrijeme provedeno na društvenim mrežama (u vrijeme kad se društvenim mrežama pristupalo samo s kompjutera) u interakciji s drugim korisnicima negativno povezano sa samopoštovanjem i psihološkom uznenirenošću, dok su Sampasa-Kanyinga i Lewis (7) na kanadskom uzorku 753 adolescenata potvrdili da je samoprocjena dnevne uporabe društvenih mreža (*Facebook, Twitter, MySpace i Instagram*) preko dva sata pozitivno povezana s lošijim/nižim samoprocjenama psihičkog zdravlja, suicidalnim idejama te psihološkom uznenirenošću. Jedna longitudinalna studija koja je pratila 500 adolescenata u dobi od trinaeste do dvadesete godine pokazala je da postoji umjerena povezanost između samoprocjene vremena provedenog na društvenim mrežama (*Facebook, Instagram*) i razina anksioznosti odnosno depresivnosti, ali da više vremena provedenog na društvenim mrežama nije značajno povezano s povećanim brojem psihičkih problema ispitanih na individualnoj razini (8).

Ono što se svakako ističe kao važan faktor, uz vrijeme provedeno na društvenim mrežama, je kako je to vrijeme provedeno, odnosno koji se misaoni i ponašajni procesi javljaju kod pojedinaca za vrijeme korištenja društvenih mreža. Rezultati belgijske studije koja je nastojala objasniti mehanizme u podlozi veze društvenih mreža i negativnih ishoda na psihičko zdravlje 1 235 adolescenata, pokazali su kako su depresivni simptomi bili čimbenik ranjivosti za vršnjačku viktimizaciju na *Facebook-u*, ali obrnuta veza nije bila značajna (9). Socijalna usporedba se pokazala kao važan konstrukt, točnije uzlazna socijalna usporedba je potencirala štetnost uporabe *Facebook-a* na subjektivnu dobrobit pojedinca (10-14).

U meta-analizi koja je uključivala 18 radova o uporabi *Facebook-a* i usamljenosti pokazano je da su navedene dvije varijable značajno povezane te da usamljenost predviđa uporabu *Facebook-a*, ali ne i obratno (15). Uporaba društvenih mreža (u vrijeme kad se društvenim mrežama pristupalo samo s kompjutera)

so, it is no surprise that there are many contradictory research findings in the literature. Regarding the association between time spent on social networks and mental health indicators, O'Dea and Campbell (6) examined an Australian sample of 400 adolescents and found that self-assessed time spent on social networks (at a time when social networks could be accessed only via personal computers) in negative interactions with other users negatively associated with self-esteem and mental distress, whereas Sampasa-Kanyinga and Lewis (7) studied a Canadian sample of 753 adolescents and confirmed that self-assessed use of social networks (*Facebook, Twitter, MySpace and Instagram*) of more than two hours positively associated with poorer/lower self-assessed mental health, suicidal ideation, and mental distress. One longitudinal study that followed 500 adolescents aged 13 to 20 found a moderate association between self-assessed time spent on social networks (*Facebook, Instagram*) and levels of anxiety and depression, but also found that more time spent on social networks was not significantly associated with an increased number of mental issues at the individual level (8).

In addition to time spent on social networks, what has certainly been emphasized as an important factor is how this time has been spent, i.e. which mental and behavioral processes take place in individuals while perusing social networks. The results of a Belgian study that tried to explain the mechanisms underlying the connection between social networks and negative outcomes on mental health in 1 235 adolescents showed that depressive symptoms were a factor of peer victimization on Facebook, but the inverse relationship was not significant (9). Social comparison was shown to be an important construct, namely that upward social comparison was an exacerbating factor for the harmfulness of Facebook use on the subjective wellbeing of individuals (10-14).

A meta analysis that included 18 studies on Facebook use and loneliness found that these

tvenih mreža povezana je s nižim razinama usamljenosti i snažnijim osjećajem pripadanja odnosno društvene povezanosti (16) te s većim razinama zadovoljstva životom (17) i samopoštovanja (18). Feder i sur. (19) su pokazali kako je učestala uporaba društvenih mreža povezana s većim brojem simptoma psihopatologije. Također, rezultati jedne studije ukazuju kako je uporaba društvenih mreža čimbenik ranjivosti za psihičko zdravlje mlađih i da bi upuštanje u aktivnosti na društvenim mrežama mogao biti mehanizam nošenja s teškim i neugodnim emocijama (20).

Hawes i sur. (21) su u svom istraživanju dobili rezultate koji ukazuju da kognitivni stilovi i različita ponašanja adolescenata i mlađih na društvenim mrežama imaju štetnije posljedice na psihičko zdravlje od same frekvencije i količine vremena provedenog na društvenim mrežama (*Facebook, Instagram, Snapchat, Twitter, Tumblr*), čemu idu u prilog i nalazi drugih istraživanja (22-24). Medijatori i moderatori veze između učestalosti uporabe društvenih mreža i ishoda na psihičku dobrobit pojedinca koji se smatraju značajnim rizičnim faktorima su socijalna usporedba, kvaliteta prijateljstava, ruminacija, samopoštovanje, motivacija, samoregulacija i očekivanja (10-28).

Ovaj rad donosi pregled istraživanja u području društvenih mreža i depresivnosti i anksioznosti. U uvodnom dijelu su spomenuta relevantna istraživanja koja su ispitivala i neke druge indikatore psihičkog zdravlja, no u nastavku će biti prikazana isključivo istraživanja koja se bave depresivnošću i (socijalnom) anksioznošću jer su ujedno ti konstrukti i najviše istraživani u ovom području. Što se vrste društvenih mreža tiče, većina je istraživanja provedena na *Facebook* korisnicima, no postoje i mnoga istraživanja koja uključuju druge društvene mreže (*Instagram, Twitter, Snapchat...*) što će biti jasno navedeno. Postojeća literatura ne daje jasne odgovore na pitanje utječu li različite društvene mreže drukčije na pojedince u kontekstu

two variables were significantly correlated and that loneliness predicted Facebook use, but not vice versa (15). The use of social networks is associated with lower levels of loneliness and a stronger feeling of belonging and social cohesion (16) as well as with higher levels of contentment with life (17) and self-esteem (18). Feder et al. (19) showed that frequent use of social networks is associated with an increased number of psychopathological symptoms. Furthermore, the results of one study indicate that the use of social networks is a vulnerability factor for mental health in young people and that engaging in activities on social networks could be a coping mechanism for difficult and uncomfortable emotions (20).

Results from a study by Hawes et al. (21) indicate that cognitive style and different behavior in adolescents and youth on social networks have more harmful consequences for mental health than the frequency of use and time spent on social networks (*Facebook, Instagram, Snapchat, Twitter, Tumblr*), which was also supported by findings from other studies (22-24). The mediators and moderations of the connection between frequency of use of social networks and mental health outcomes in individuals that are considered significant risk factors are social comparison, friendship quality, rumination, self-esteem, motivation, self-regulation, and expectations (10-28).

This paper presents an overview of studies on the topic of social networks and depression and anxiety. Relevant studies that examined some other mental health indicators have been mentioned in the introduction, but henceforth we shall focus solely on studies examining depression and (social) anxiety, since these are the constructs that have received the most scientific attention in this field. With regard to social networks types, most studies have been conducted on Facebook users, but there are also many studies that include other social networks (*Instagram, Twitter, Snapchat, etc.*), which will be

anksioznosti i depresivnosti, ovisno o kojoj je društvenoj mreži riječ.

Društvene mreže i depresivnost

“Facebook depresija” (29) je pojam koji je uvela Američka pedijatrijska akademija kako bi opisali utjecaj društvenih mreža na psihičko zdravlje mladih prema kojem depresija dolazi kao posljedica provođenja puno vremena na društvenim mrežama (30). Meta-analiza koja je uključivala 33 studije pokazala je kako je više vremena provedenog na društvenim mrežama, kao i učestalije provjeravanje društvenih mreža, povezano s većim razinama depresivnosti (s malom veličinom učinka) neovisno o dobi sudionika (31).

Studija koja je provedena u šest europskih zemalja na 10 930 adolescenata pokazala je pozitivnu povezanost učestale uporabe društvenih mreža (temeljenu na samoprocjeni sudionika) i depresivnosti (32). Lin i sur. (33) su u kros-sekcijском istraživanju koje su proveli na reprezentativnom američkom uzorku mladih ($N = 1\ 787$) pronašli kako je samoprocijenjeno vrijeme provedeno na društvenim mrežama (*Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, Reddit*) značajno i snažno povezano s depresijom. U usporedbi sa sudionicima u najnižem kvartilu vremena provedenog na društvenim mrežama, oni u najvišem kvartilu imali su značajno povećanu vjerojatnost pojave depresivnosti. Nalaze navedene dvije studije potvrđuju i ostali nalazi kako je količina vremena provedenog na društvenim mrežama ili frekvencija posjeta društvenih mreža povezana s više depresivnih simptoma (9, 34-37). Ipak, postoji velik broj istraživanja koja pokazuju kako je veza između vremena provedenog na društvenim mrežama i depresivnosti neznačajna (26, 29, 38-51).

Prema nalazima iz recentne literature čini se da je uz količinu vremena provedenog na društvenim mrežama barem jednako važno, ako ne

clearly indicated. The existing literature does not provide clear answers to the question whether different social networks have a different influence on individuals in the context of anxiety and depression depending on the social network.

Social networks and depression

“Facebook depression” (29) is a term introduced by the American Academy of Pediatrics in order to describe the influence of social networks on the mental health of young people, according to which depression manifests as a consequence of spending large amounts of time on social networks (30). A meta analysis that included 33 studies showed that spending more time on social networks, as well as more frequent checking of social networks, is associated with higher levels of depression (with a small effect size), regardless of participant age (31).

A study conducted in six European countries on 10 930 adolescents showed a positive association between frequent social network use (based on participant self-assessment) and depression (32). Lin et al. (33) performed a cross-sectional study on a representative sample of American youth ($N = 1\ 787$) and found that self-assessed time spent on social networks (Facebook, Twitter, Google+, YouTube, LinkedIn, Instagram, Pinterest, Tumblr, Vine, Snapchat, Reddit) was significantly and strongly associated with depression symptoms. In comparison with participants in the lower quartile of time spent on social networks, those in the top quartile had significantly increased likelihood of manifesting depression symptoms. The results of these two studies were also confirmed by other findings indicating that the amount of time spent on social networks or the frequency of social network visits was associated with more symptoms of depression (9,34-37). However, there is a large number of studies that found that the association between time spent on social networks and depression was not significant ((26, 29,38-51).

i važnije za psihičko zdravlje, kako je to vrijeme provedeno. Depresivna simptomatologija povezana je s pasivnom uporabom *Facebook-a* (51,52); aktivnom javnom uporabom *Facebook-a* (50,52); objavljivanjem negativnih statusa (45), korištenjem "like" oznake, označavanjem trenutne lokacije i dodavanjem prijatelja (53). Ono što se pokazalo jednim od razloga za korištenje društvenih mreža je upravo socijalna podrška, no istraživanja pokazuju kako su više razine depresivnosti pozitivno povezane s primanjem emocionalne podrške i dobivanjem negativne socijalne podrške (54) te traženjem socijalne podrške (55). Nalazi navedenih istraživanja sugeriraju da su depresivni pojedinci skloniji tražiti socijalnu podršku na *Facebook-u*, kao i primiti negativnu socijalnu podršku (negativni komentari, smanjen broj prijatelja, odbijanje poslanih zahtjeva za prijateljstvo, osjećaj nepovezanosti s drugim korisnicima), no ono što ostaje nejasno jest predviđa je li takvo ponašanje veću razinu depresivnosti ili su upravo ranjivi pojedinci skloniji takvom ponašanju zbog već postojećih depresivnih simptoma. Isto tako, meta-analiza je pokazala kako su veće razine depresivnosti bile povezane s češćom uzlaznom socijalnom usporedbom na *Facebook-u* (sa srednjom veličinom učinka) te da je socijalna usporedba bila snažnije povezana s depresivnošću od vremena provedenog na *Facebook-u* (31). Čini se da je za naše raspoloženje važnije što radimo dok smo na društvenim mrežama odnosno koliko se često uspoređujemo s „boljima“ od sebe (tj. onima koje mi doživljavamo boljima) od samog vremena provedenog na društvenim mrežama.

Ipak, provedena su i brojna istraživanja koja nisu pronašla značajnu vezu depresivnosti i različitim načina korištenja društvenih mreža - aktivna uporaba *Facebook-a* (48,50); pasivna uporaba *Facebook-a* ili aktivna privatna uporaba *Facebook-a* kod mladih muškaraca i aktivna javna uporaba kod žena (52); uključenost na *Facebook-u* (34); frekvencija pozitivnih statusa (45);

According to recent literature data, it seems that, in addition to time spent on social networks, the way this time is spent is at least equally if not more important for mental health. Depression symptoms were associated with passive Facebook use (51,52), active public Facebook use (50,52), publishing negative statuses (45), use of the "like" button, marking one's current location, and adding friends (53). Social support has emerged as one of the reasons for using social networks, but studies have shown that higher levels of depression were positively associated with receiving emotional support and receiving negative social support (54), as well as with seeking social support (55). The results of these studies suggest that depression-prone individuals are more likely to seek social support on Facebook and to receive negative social support (negative comments, reduced number of friends, rejected friendship request, feeling a lack of connection with other users), but what has remained unclear is whether this kind of behavior predicts a higher level of depression or whether such vulnerable individuals are more prone to such behavior due to existing symptoms of depression. Additionally, a meta analysis has shown that higher levels of depression were associated with more frequent upward social comparison on Facebook (with a moderate effect size) and that social comparison was more strongly associated with depression than time spent of Facebook (31). It seems that our mood is more important than what we do while using social networks, i.e. how often we compare ourselves with those who are "better" than us (or rather, those we perceive as better) is more important than time spent on social networks.

However, numerous studies have also been conducted that did not find a significant association between depression and different ways of using social networks – active Facebook use (48,50), passive Facebook use or active private Facebook use in young men and active public use in women (52), engagement on Facebook

percipirana socijalna podrška na *Facebook*-u (54); ponašanja usmjerena na upravljanje dojmom na *Facebook*-u (46,48) i interakcija s vršnjacima na *Facebook*-u (46) nisu bili značajno povezani s depresivnošću korisnika društvenih mreža. Također, depresivnost nije bila značajno povezana ni s brojem prijatelja na *Facebook*-u (34,38,46,51,56); brojem "selfie" fotografija (38); brojem grupa kojima korisnik pripada i/ ili je u njima administrator; brojem "like-ova" i brojem zahtjeva za prijateljstvo na *Facebook*-u (56) te stavovima o *Facebook*-u (53).

Sustavni pregled ovog područja sa 70 izdvojenih radova napravila je Seabrook sa sur. (57) pretraživši osam baza podataka u razdoblju od 2005. do 2016. godine. U pregledu je navedeno kako su depresivni simptomi pozitivno povezani s učestalijom produkcijom sadržaja i interaktivnom komunikacijom na društvenim mrežama *Facebook*, *Twitter*, *Myspace* i *Instagram* (49), dok je depresivnost generalno bila povezana s manje pozitivnih i više negativnih interakcija na navedenim društvenim mrežama (39,41,58-60). U sustavnom pregledu Karima i sur. (61) iz baze podataka *Google Scholar* u razdoblju od 2016. do 2020. godine izdvojeno je 28 radova za analizu uloge društvenih mreža kao što su *Twitter*, *LinkedIn*, *Facebook*, *Instagram* i *Snapchat* u psihičkom zdravlju. Utvrđeno je kako pasivna uporaba društvenih mreža, kao što je čitanje "postova", ima snažniju povezanost s depresijom nego aktivna uporaba kao što je recimo objavljivanje "postova" (62). Blomfield Neira i Barber (47) su u svojoj studiji dobili da veća uključenost u društvene mreže (recimo aktivna uporaba) djeluje kao prediktor depresivnih simptoma adolescenata.

Danas mladi sve ranije otkrivaju tehnologiju i virtualni svijet, a brojna istraživanja pokazuju kako su adolescenti posebno ranjiva skupina. Velika islandska studija na 10 563 adolescenta u dobi od četrnaest do šesnaest godina otkrila je kako je pasivna uporaba društvenih mreža

(34), frequency of positive statuses (45), perceived social support on Facebook (54), behavior aimed at managing impressions on Facebook (46,48), and interacting with peers with regard to age on Facebook (46) were not significantly correlated with depression in social network users. Additionally, depression was not significantly associated with the number of Facebook friends (34,38,46,51,56), the number of "selfie" photographs (38), user membership or administrative roles in Facebook groups, the number of "likes", and the number of friendship requests on Facebook (56), and opinions on Facebook (53).

A systemic review of this topic on 70 individual papers was performed by Seabrook et al. (57), who searched eight databased for the period between 2005 and 2016. The review states that symptoms of depression were positively correlated with more frequent content production and interactive communication on the Facebook, Twitter, Myspace, and Instagram social networks, while depression was generally associated with less positive and more negative interactions on these social networks ((39,41,58-60)). In a systematic review by Karima et al. (61) based on the Google Scholar in the period between 2016 and 2020, 28 papers were selected for analysis to examine the role of social networks such as Twitter, LinkedIn, Facebook, Instagram, and Snapchat on mental health. It was determined that passive use of social networks, such as reading "posts", has a stronger association with depression such as for example writing "posts" (62). Blomfield Neira and Barber (47) performed a study in which they found that higher engagement in social networks (such as active use) was a predictor of symptoms of depression in adolescents.

Today, young people discover technology and the virtual world earlier and earlier in life, and many studies have shown that adolescents are an especially vulnerable group. A large Icelandic study on 10 563 adolescents aged between 14

(*Facebook, Snapchat, Twitter, Instagram*) povezana s izraženijim depresivnim raspoloženjem (i kod djevojaka i kod mladića) i da je aktivna uporaba društvenih mreža povezana sa smanjenjem depresivnog raspoloženja uz kontrolu varijable vremena provedenog na društvenim mrežama. Kada su u model dodani različiti zaštitni i rizični faktori (samopoštovanje, "offline" vršnjačka podrška, loša slika o sebi i socijalna usporedba), veza aktivne uporabe i psihološke uznemirenosti više nije bila značajna, dok je pasivna uporaba društvenih mreža i dalje bila značajno povezana sa simptomima depresivnosti kod ispitanih adolescenata (63). U longitudinalnoj studiji provedenoj na 874 adolescenta u Australiji pronađena je veza između problematičnog korištenja društvenih mreža (*Facebook, MySpace*) i depresivnog raspoloženja, s poremećajem spavanja kao medijatorskom varijablom (64). Barry i sur. (65) proveli su studiju sa 113 dijada adolescent-roditelj, a nalazi studije su potvrdili da, prema podatcima dobivenim od roditelja i adolescenata, postoji korelacija između aktivnosti na društvenim mrežama (broj računa, frekvencija provjeravanja poruka) i depresivnosti adolescenata procijenjene od roditelja.

Rezultati jedne studije provedene na uzorku od 425 američkih studenata pokazuju da se pojedinci koji provode više sati tjedno na *Facebook*-u i koji imaju više prijatelja na *Facebook*-u koje ne poznaju osobno slažu više da drugi imaju bolje živote od njih. Oni koji provode više vremena sa svojim prijateljima uživo manje se slažu s tvrdnjom da drugi imaju bolje živote od njih. Broj godina korištenja *Facebook*-a pokazao se također značajnim faktorom. Oni pojedinci koji dulje imaju *Facebook* skloniji su percipirati druge sretnijima te su manje skloni misliti kako je život pravedan. Isto tako, što su više sati provodili na *Facebook*-u, to su snažnije vjerovali da su drugi sretniji od njih. Pojedinci koji imaju više prijatelja na *Facebook*-u i koji često provode vrijeme sa svojim prijateljima manje su vjero-

to 16 found that passive use of social networks (*Facebook, Snapchat, Twitter, Instagram*) was associated with more pronounced depressive moods (both in girls and young men) and that active use of social networks was associated with a reduction in depressive moods when controlled for the variable of time spent on social networks. When different protective and risk factors were added to the model (self-esteem, "offline" peer support, poor self-image, and social comparison), the association between active use and mental distress was no longer significant, whereas passive use of social networks was still significantly associated with symptoms of depression in adolescents (63). A longitudinal study conducted on 874 adolescents in Australia found an association between problematic social network use (*Facebook, MySpace*) and depressive mood, with sleep disorders as a mediating variable (64). Barry et al. (65) conducted a study on 113 adolescent-parent dyads, and the study results confirmed that, based on the data obtained from the parents and adolescents, there was a correlation between social network activity (number of accounts, frequency of checking for messages) and depression in adolescents as assessed by the parents.

The results of one study conducted on a sample of 425 American showed that individuals who spend multiple hours a week on Facebook and who have more friends on Facebook that they do not personally know are more likely to respond that others have better lives than they do. Those who spend more time in face-to-face interactions with their friends were less likely to agree with the statement that others have better lives than they do. The number of years spent using Facebook was also shown to be a significant factor. Those individuals who used Facebook longer were more prone to perceiving others as happier and were less likely to believe life was fair. Additionally, the more hours they spent on Facebook, the stronger was their belief that others were happier than

vali da su drugi sretniji, a više da je život pravedan (66). Nalazi ove studije pokazuju kako vrijeme provedeno na društvenim mrežama utječe na percepciju drugih ljudi i njihovih života. Na društvenim smo mrežama skloni prikazati svoj život s filterom naglašavajući samo pozitivne stvari. Kontinuirana izloženost tim nerealnim slikama može dovesti do negativnih socijalnih usporedbi, kao i do depresivnih simptoma.

Društvene mreže i anksioznost

Anksiozni poremećaji su najrašireniji psihički poremećaji (67) s prevalencijom od 7,3 % (4,8 % do 10,9 %) u općoj populaciji (68,69). Fokus brojnih znanstvenih studija je upravo odnos uporabe društvenih mreža i anksioznosti, a u ovom su radu prikazani glavni nalazi. Svakodnevno svjedočimo različitim okidačima anksioznosti u stvarnom svijetu, stoga je za pretpostaviti da će i virtualna stvarnost imati nekakvu ulogu u nošenju s tom emocijom, premda još nije sasvim jasno kakvu. Socijalna anksioznost kojoj se istraživači i praktičari sve više obraćaju, kao i njezina uloga u korištenju društvenih mreža, bit će prikazana zasebno.

Prema Seabrook i sur. (57) ukupna frekvencija, odnosno vrijeme provedeno na društvenim mrežama (*Facebook, Twitter, Myspace* i *Instagram*) nije jednoznačno povezano s anksioznošću - tri studije su pokazale pozitivnu povezanost (34,40,49), dok je sedam pokazalo neznačajnu vezu (26,44, 70-74). U sustavnom pregledu Frost i Rickwood (75) iz tri je baze podataka odabrano ukupno 65 radova koji su se bavili povezanošću uporabe *Facebook*-a s različitim ishodima psihičkog zdravlja te je navedeno sedam kros-sekcijskih studija koje su ispitivale vezu između uporabe *Facebook*-a i anksioznosti. Grieve i sur. (76) pronašli su da uporaba *Facebook*-a smanjuje anksiozne simptome, preciznije, sudionici koji su izvještavali o većoj socijalnoj povezanosti na *Facebook*-u bili su manje anksiozni. Ipak, uporaba *Facebook*-a je značila i veće

they were. Individuals who had more friends on Facebook and who often spent time with their friends were less likely to believe that others were happier and were more likely to believe life was fair (66). The results of this study show that time spent on social networks influences the perception of others and their lives. On social networks, we are prone to presenting our lives through a filter, emphasizing only the positive aspects. Continuous exposure to these unrealistic images can lead to negative social comparisons and to symptoms of depression.

Social networks and anxiety

Anxiety disorders are the most widespread group of mental disorders (67), with a prevalence of 7.3% (4.8% to 10.9%) in the general population (68,69). Many scientific studies have focused on the relationship between social networks and anxiety, and we present the main findings herein. We witness various anxiety triggers on a daily basis in the real world, so it is a safe assumption that virtual reality also plays some role in coping with this emotion, although it is not yet fully clear what this role is. Social anxiety, which is something researchers and practitioners refer to more and more, will be presented in a different section below.

According to Seabrook et al. (57), the total frequency, i.e. the time spent on social networks (*Facebook, Twitter, Myspace*, and *Instagram*) is not unambiguously associated with anxiety – three studies showed positive association (34,40,49), while seven showed a non-significant association (26,44,70-74). A systematic review by Frost and Rickwood (75) analyzed a total of 65 papers from three databases that examined the association between the use of *Facebook* and different mental health outcomes, among which there were seven cross-sectional studies on the association between *Facebook* use and anxiety. Grieve et al. (76) found that *Facebook* use reduces symptoms of anxiety, or

razine anksioznosti kod studenata koji su provodili više vremena na *Facebook*-u (34).

Studija provedena u šest europskih zemalja na velikom uzorku pokazala je pozitivnu povezanost česte uporabe društvenih mreža i anksioznosti (32). Yan i sur. (76) su pronašli kako je vrijeme provedeno na društvenim mrežama povezano s anksioznosću kod kineskih adolescenata. Istraživanje koje je provedeno na 113 dijada adolescent-roditelj potvrdilo je da, prema podatcima dobivenim od roditelja i adolescenata, postoji korelacija između aktivnosti njihove djece na društvenim mrežama (broj računa, frekvencija provjeravanja poruka) i anksioznosti adolescenata procijenjene od roditelja (65). Vannucci i sur. (78) su u svojoj studiji provedenoj na američkom uzorku mladih ($N = 563$) dobili pozitivnu vezu između društvenih mreža (*Facebook, Twitter, Instagram, Snapchat, Vine, Tumblr, YouTube, Google+*) i anksioznosti, u smislu da je više vremena provedenog na društvenim mrežama značajno povećavalo vjerojatnost izvještavanja o razinama anksioznosti iznad klinički određenog graničnog rezultata, tj. vjerojatnost zadovoljavanja kriterija za dijagnozu anksioznog poremećaja.

Studija provedena u Škotskoj na 467 adolescenata pokazala je da su veće razine anksioznosti povezane sa češćom uporabom različitih društvenih mreža, noćnim korištenjem društvenih mreža i emocionalnom uključenošću u društvene mreže (79). Povezanost učestalog korištenja društvenih mreža sa anksioznosću pokazale su i druge studije (36,38,40). Kada se uzme u obzir način uporabe društvenih mreža, istraživanje provedeno na 10 563 adolescenata na Islandu otkrilo je kako je pasivno korištenje društvenih mreža (*Facebook, Snapchat, Twitter, Instagram*) bilo povezano s većim brojem simptoma anksioznosti (kod oba spola) te da je aktivna uporaba društvenih mreža bila povezana sa smanjenim brojem simptoma anksioznosti, uz kontrolu vremena provedenog na društvenim mrežama (63).

more precisely, that participants who reported higher social connectedness on Facebook were less anxious. However, the use of Facebook indicated higher levels of anxiety in students who spent more time on Facebook (34).

A study conducted in six European countries on a large sample found a positive association between frequent use of social networks and anxiety (32). Yan et al. (76) found that time spent on social networks was associated with anxiety in Chinese adolescents. A study conducted on 113 adolescent-parent dyads confirmed that, based on the data obtained from the parents and adolescents, there was a correlation between social network activity (number of accounts, frequency of checking for messages) and anxiety in adolescents as assessed by the parents (65). Vannucci et al. (78) performed a study on an American sample of young people ($N = 563$) and found a positive association between social networks (*Facebook, Twitter, Instagram, Snapchat, Vine, Tumblr, YouTube, Google+*) and anxiety, in the sense that more time spent on social network significantly increased the likelihood of reporting anxiety above clinically determined borderline results, i.e. the likelihood of fulfilling criteria for the diagnosis of anxiety disorder.

A study conducted in Scotland on 467 adolescents showed that higher levels of anxiety were associated with more frequent use of different social networks, nighttime use of social networks, and emotional involvement in social networks (79). The association between frequent use of social networks and anxiety has also been demonstrated by other studies (36,38,40). When taking the type of social network use into consideration, a study performed on 10 563 adolescents on Iceland found that passive use of social networks (*Facebook, Snapchat, Twitter, Instagram*) was associated with a higher number of anxiety symptoms (in both sexes) and that active use of social networks was associated with a reduced number of anxiety symptoms, when controlling for the time spent on social networks (63).

Brojna istraživanja ukazuju u prilog složenosti odnosa između korištenja *Facebook-a* i anksioznosti - za neke pojedince sama uporaba ili nemogućnost korištenja mogu izazvati anksiozne simptome (48), za one koji su i inače anksiozni može anksioznost pojačati i/ili održavati (74,80), dok za neke može doći do smanjenja anksioznosti ako su željene potrebe za uporabom društvenih mreža zadovoljene (63).

Društvene mreže i socijalna anksioznost

Socijalno anksiozni poremećaj jedan je od najčešćih anksioznih poremećaja s prevalencijom između 3 i 13 % (81). Osobe koje pate od socijalne anksioznosti često potraže pomoć tek nakon što se već godinama sami bore s anksioznošću; osjećaju se usamljeno i bez adekvatne podrške, imaju narušene socijalne odnose i sliku o sebi te se poslijedično mogu razviti depresivni simptomi, povlačenje te zloupotreba alkohola i psihоaktivnih tvari. Mladi su posebno ranjiva skupina; u toj populaciji je puno izraženiji vršnjački utjecaj kao i potreba za uspoređivanjem s drugima, a pojavljuje se i "strah od propuštanja" (FOMO, engl. *fear of missing out*). Čini se da navedeni konstrukti imaju ulogu, kako u stvarnom, tako i u virtualnom odnosno tehnologijom posredovanom svijetu.

U literaturi postoje dvije hipoteze koje potencijalno mogu objasniti korištenje društvenih mreža. Prva hipoteza je hipoteza socijalne kompenzacije prema kojoj pojedinci koriste društvene mreže kako bi kompenzirali deficit u socijalnim vještinama ili neugodu koju osjećaju u interakcijama "licem u lice" (71). Druga hipoteza je hipoteza socijalnog unaprjeđenja koja pretpostavlja da socijalno vješti pojedinci koriste društvene mreže kako bi našli dodatne prilike za interakciju s drugima. Prema postojećim istraživanjima, postoje dokazi koji idu u prilog objema hipotezama (82).

Dobrean i Pasarelu (82) su u svom sustavnom pregledu iz četiri baze podataka izdvojile 20

Many studies corroborate the complexity of the relationship between Facebook use and anxiety – for some individuals, just the use of Facebook or losing access to it can cause symptoms of anxiety (48) or exacerbate and/or maintain anxiety in those who are also anxious regardless of Facebook use (74,80), but it can also reduce anxiety for some if the desired needs for the use of social networks are met (63).

Social networks and social anxiety

Social anxiety disorder is one of the most common anxiety disorders, with a prevalence between 3% and 13% (81). Persons suffering from social anxiety often seek help only after struggling with anxiety on their own for a period of years; they feel lonely and without adequate support, have disrupted social relationships and self-image, and can consequently develop symptoms of depression, withdrawal, and abuse of alcohol and psychoactive substances. The young are an especially vulnerable group; peer influence is much more pronounced in this group, as is the need to compare oneself with others, and "fear of missing out" (FOMO) is present as well. It seems that these constructs play a role both in the real world and in the technology-mediated virtual world.

There are two hypotheses in the literature which potentially explain the use of social network. The first is the social compensation hypothesis, according to which individuals use social networks to compensate their deficits in social skills or the discomfort they feel in face-to-face interactions (71). The second is the social promotion hypothesis, which assumes that social apt individuals use social networks to find additional opportunities to interact with others. According to existing research, there is evidence supporting both hypotheses (82).

Dobrean and Pasarelu performed a systematic review on 20 articles from four databases that focused on social anxiety in the context

radova koji se bave socijalnom anksioznošću u kontekstu društvenih mreža (većina sudionika u navedenim istraživanjima bili su korisnici *Facebook-a*). S jedne strane postoje studije koje ukazuju na značajnu povezanost društvenih mreža i socijalne anksioznosti. Antheunis i sur. (83) su na velikom uzorku adolescenata pokazali negativnu povezanost *Facebook-a* i socijalne anksioznosti. Lee-Won i sur. (73) su dobili nalaze da je problematično korištenje *Facebook-a* povezano s većom socijalnom anksioznošću. Shaw i sur. (49) su u svojoj studiji provedenoj na studentima izvijestili o značajnoj pozitivnoj vezi vremena provedenog na *Facebook-u* i socijalne anksioznosti, kao i o povezanosti pasivne uporabe *Facebook-a* i socijalne anksioznosti (uz kontrolu depresivnih i anksioznih simptoma). Weidman i Levinson (84) su proveli istraživanje u kojem su uzeli u obzir "online" i "offline" indikatore socijalne anksioznosti te je utvrđena značajna negativna povezanost; broj prijatelja i fotografija kao i duljina statusa bili su negativno povezani sa socijalnom anksioznošću. S druge strane, postoji nekoliko studija koje ne pokazuju povezanost *Facebook-a* i socijalne anksioznosti. Große Deters i sur. (85) nisu našli značajnu vezu između socijalne anksioznosti i različitih parametara uporabe *Facebook-a* (objave statusa, broj "likeova" ili komentara). McCord i suradnici (74) nisu pronašli vezu između aktivne uporabe *Facebook-a* i socijalne anksioznosti. Fernandez i sur. (71) nisu našli povezanost vremena provedenog na *Facebook-u* i objava sa socijalnom anksioznošću u uzorku studenata. Dakako, postoje i studije koje nisu pronašle značajnu povezanost uporabe društvenih mreža i zabrinutosti, stresa ili straha povezanog sa socijalnom evaluacijom (12,86).

U sustavnom pregledu Seabrook i sur. (57) prikazano je nekoliko studija koje su u fokusu imale vezu društvenih mreža i socijalne anksioznosti. Jedna studija pokazala je da su više razine socijalne anksioznosti značajno povezane s pasivnom uporabom *Facebook-a* (gleđanje tudiš profila), ali ne i s produkcijom sadržaja na *Facebook-u*

of social networks (most participants in these studies were Facebook users). On the one hand, there are studies that indicate a significant association between social networks and social anxiety. Antheunis et al. (83) examined a large sample of adolescents and demonstrated a negative association between Facebook and social anxiety. Lee-Won et al. (73) found that problematic Facebook use was associated with greater social anxiety. Shaw et al. (49) conducted a study on students and reported a significant positive association between time spent on Facebook and social anxiety, as well as an association between passive Facebook use and social anxiety (while controlling for symptoms of anxiety and depression). Weidman and Levinson (84) conducted a study that considered both "online" and "offline" indicators of social anxiety and determined a significant negative association; the number of friends and photographs as well as status length were negatively associated with social anxiety. On the other hand, there are several studies that do not show an association between Facebook and social anxiety. Große Deters et al. (85) did not find a significant association between social anxiety and different parameters of Facebook use (posting statuses, number of "likes" or comments). McCord et al. (74) did not find a connection between time spent on Facebook and posts with social anxiety in a student sample. Of course, there are also studies that did not find a significant association between the use of social networks and anxiety, stress, or fear associated with social evaluation (12,86).

A systematic review by Seabrook et al. (57) presents several studies that focused on the relationship between social networks and social anxiety. One study showed that higher levels of social anxiety were significantly associated with passive Facebook use (looking at the profiles of others), but not with producing content on Facebook (49). Brooding has been shown to be a significant mediator in this relationship, which is assumed to be a potential risk factor for increas-

(49). Značajnim medijatorom te veze pokazala se anksiozna ruminacija (engl. "brooding") za koju se pretpostavlja da može biti rizični čimbenik za povećanje simptoma socijalne anksioznosti u slučajevima česte pasivne uporabe *Facebook-a*. McCord i sur. (74) su pokazali da učestalost uporabe *Facebook-a* ne predviđa socijalnu anksioznost u cijelom uzorku, ali je pozitivno povezana s anksioznošću visoko anksioznih pojedinaca. Dvosmjerna veza između anksioznosti i anksiozne ruminacije utvrđena je izvan konteksta društvenih mreža (87). Pojam anksiozna ruminacija definiran je kao uspoređivanje sebe s nerealnim standardima usmjerenim na prošlost ili sadašnjost, dok je anksioznost usmjerenica na budućnost, odnosno na anticipaciju prijetnji i/ili straha (88). S obzirom na konstantnu izloženost tuđim profilima (koji su k tome izdvojeni i idealizirani prikazi života korisnika društvenih mreža), povećana vjerojatnost uspoređivanja s drugima je očekivana (98).

Brojne studije su pokazale da su visoko socijalno anksiozni pojedinci česti korisnici društvenih mreža i da preferiraju tehnologijom posredovanu komunikaciju (90-92). Dempsey i sur. (93) proveli su istraživanje na američkom uzorku od 296 studenata koje je pokazalo kako su "strah od propuštanja" (FOMO) i ruminacija značajni medijatori odnosa između socijalne anksioznosti i problematičnog korištenja *Facebook-a*.

Jedina studija koja je pomoću eksperimentalne metode istraživala kognitivne i bihevioralne procese kod visoko i nisko socijalno anksioznih pojedinaca ukazala je da su tijekom korištenja *Facebook-a* visoko socijalno anksiozni pojedinci skloni razmišljati i ponašati se na vrlo sličan način kako bi se ponašali i u interakcijama "licem u lice" (94). Rezultati studije pokazuju da za vrijeme uporabe *Facebook-a* pojedinci koji imaju visoke razine socijalne anksioznosti imaju veće razine anksioznosti, koriste više sigurnosnih ponašanja, imaju više negativnih misli te su skloniji dvostručnoj interpretaciji negativno interpretirati u odnosu na pojedince s niskim

ing symptoms of social anxiety in cases of frequent passive Facebook use. McCord et al. (74) showed that frequency of Facebook use does not predict social anxiety in the total sample, but it was positively correlated with anxiety in highly anxious individuals. The two-way relationship between anxiety and brooding was demonstrated outside the context of social networks (87). The term "brooding" has been defined as comparing oneself with unrealistic standards directed at the past or present, whereas anxiety is focused on the future, i.e. on the anticipation of threats and/or fear (88). Given the constant exposure to the profiles of others (which are also selected and idealized images of the lives of social network users), the increased likelihood of comparison with others is to be expected (98).

Numerous studies have shown that highly social anxious individuals are often users of social networks and that they prefer technology-mediated communication (90-92). Dempsey et al. (93) conducted a study on an American sample of 296 students, which found that FOMO and brooding were significant mediators in the relationship between social anxiety and problematic Facebook use.

The only study that used the experimental method to investigate cognitive and behavioral processes in individuals with high and low social anxiety indicated that, during Facebook use, highly socially anxious individuals were prone to think and behave in ways very similar to how they would act in face-to-face interactions (94). The results of the study show that during Facebook use individuals with high levels of social anxiety had higher levels of anxiety, used more safety behaviors, had more negative thoughts, and were more likely to interpret ambiguous scenarios in a negative way during Facebook use compared with individuals with low levels of social anxiety. Despite that, however, study participants who were highly socially anxious used Facebook and approximately equal frequency and had the same number of Facebook

razinama socijalne anksioznosti. Usprkos tome sudionici istraživanja koji su bili visoko socijalno anksiozni približno su jednako često koristili *Facebook* te su imali jednak broj prijatelja na *Facebook-u* kao i oni koji nisu bili socijalno anksiozni. Nalazi ove eksperimentalne studije upućuju kako slični kognitivno-bihevioralni procesi koji održavaju socijalnu anksioznost "offline" djeluju i "online" ne sprječavajući socijalno anksiozne pojedince da koriste društvene mreže (95). Također, pokazano je kako je socijalna anksioznost povezana sa sklonošću prema ovisnosti o društvenim mrežama, kao i sa samom ovisnošću o društvenim mrežama (96). Jedno istraživanje je pokazalo kako je za socijalno anksiozne pojedince virtualni svijet sigurnije mjesto (97), a kako bi pobegli iz stvarnih socijalnih situacija i zadovoljili svoju želju za povezivanjem skloni su provoditi više vremena na društvenim mrežama (95). Ipak, postoji jasna potreba za longitudinalnim istraživanjima koja će ispitati jesu li društvene mreže zadovoljavajuća zamjena za stvarnost u kojoj se socijalno anksiozni pojedinci osjećaju neadekvatno s obzirom da trenutna literatura ukazuje da je vjerojatnije da će socijalno anksiozni pojedinci pri korištenju društvenih mreža iskusiti neke negativne ishode (90) kao što su nisko samopostovanje ili depresivni simptomi (98).

Društvene mreže i pandemija

Propisane mjere protiv širenja zaraze tijekom pandemije COVID-19, a koje se u najvećoj mjeri odnose na fizičko distanciranje i ograničavanje druženja, dodatno su usmjerile pozornost na društvene mreže. Tijekom pandemije COVID-19 društvene su mreže postale mjesto zabave, druženja, održavanja kontakata te informiranja. Podatci ukazuju na ogromno povećanje upotrebe društvenih mreža tijekom pandemije COVID-19 (za 61 %) (99), *Facebook* i *Instagram* izvještavaju o povećanju korisnika za 40 % samo u veljači i ožujku 2020. godine, dok se dopisivanje putem njihovih platformi

friends as those who were not socially anxious. The results of this experimental study indicate that similar cognitive-behavioral processes that maintain social anxiety "offline" are also active "online", but do not prevent socially anxious individuals from using social networks (95). It was also shown that social anxiety was associated with a tendency towards social network addiction as well as with social network addiction itself (96). One study showed that the virtual world is a safer place to socially anxious individuals (97), who are prone to spending more time on social network in order to escape real social situations while still meeting their needs for social connections (95). However, there is a clear need for longitudinal studies that will examine whether social networks are a satisfactory replacement for the reality in which socially anxious individuals feel inadequate, given that the current literature indicates it is more likely that socially anxious individuals are more likely to experience some negative outcomes during social network use (90), such as low self-esteem or symptoms of depression (98).

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Social networks and the pandemic

The prescribed measures to prevent infection spread during the COVID-19 pandemic, which primarily referred to on physical distancing and limiting socialization, have focused additional attention on social networks. During the COVID-19 pandemic, social networks have become the place where people go for entertainment, socialization, maintaining contacts, and obtaining information. Data indicate a huge increase in the use of social networks during the COVID-19 pandemic (by 61%) (99), while Facebook and Instagram report an 40% increase in user numbers in February and March of 2020 alone, with communication via their platforms having increased by 70% (100). Increased usage of social networks and their use by mental health professionals to maintain social relationships was intended to reduce the negative con-

povećalo za 70 % (100). Povećano korištenje društvenih mreža i usmjeravanje stručnjaka mentalnog zdravlja na održavanje socijalnih odnosa putem njih imalo je svrhu sprječavanja negativnih posljedica socijalnog distanciranja i izolacije – ublažavanje depresivnih i anksioznih smetnji čija se učestalost znatno povećala tijekom pandemije COVID-19 (101). Međutim, na temelju ovog rada važno je kritički se osvrnuti na posljedice tako učestale i intenzivirane upotrebe društvenih mreža. Ako znamo da je vrijeme provedeno na društvenim mrežama povezano sa simptomima depresivnosti i anksioznosti, pitanje je hoće li ta povezanost ostati takva i u vrijeme pandemije COVID-19. Posebno će biti važno ponovno ispitati sve te odnose, ispitati način na koji su se društvene mreže koristile u pandemiji i je li njihovo korištenje zaista imalo zaštitni učinak ili će ono što smo očekivali da može pomoći u suočavanju biti rizičan čimbenik za depresivne i anksiozne smetnje nakon pandemije. Važno će biti ispitati na koji će se način promijeniti navike korištenja društvenih mreža nakon pandemije – hoćemo li se vratiti starim navikama ili će se novostečene navike i načini korištenja društvenih mreža zadržati i nakon pandemije.

Potreba za dalnjim istraživanjima

Istraživanje utjecaja društvenih mreža na psihičko zdravlje pojedinaca započelo je pojavom *Facebook-a*, a nedvojbena je činjenica da se svijet u zadnjih petnaestak godina u tom pogledu značajno promijenio. Stvari koje prije dvadeset godina nismo mogli zamisliti, sada su dio svakodnevnog funkcioniranja sve većeg broja ljudi, što povlači pitanje jesmo li svjesni promjene koja se događa u nama i što radimo u vezi s time.

Premda su nalazi istraživanja nejednoznačni, ipak je značajan broj onih koja ukazuju kako je učestalo korištenje društvenih mreža povezano s određenim rizicima, barem za specifične skupine pojedinaca. Također, možda i važnije od samog vremena provedenog na društvenim

sequences of social distancing and isolation – ameliorating depression and anxiety-related distress, which have significantly increased during the COVID-19 pandemic (101). However, based on what has been presented herein, it is important to consider the consequences of such frequent and intensified used of social networks. If it is known that time spent on social networks is associated with depression and anxiety, the question is whether this association will remain the same during the COVID-19 pandemic. It will be especially important to reexamine all these relationships, examine the way in which social networks were used during the pandemic, and whether their use truly had a protective effect or whether what we expected to facilitate coping may turn out to be a risk factor for depression and anxiety-related issues after the pandemic. It will be important to ascertain the ways in which social network usage habits will have changed after the pandemic – will we return to our old habits, or will the newly acquired habits and modes of use remain after the pandemic.

The need for further research

Studying the influence of social networks on the mental health of individuals began with the emergence of Facebook, and there is no doubt that the world has changed significantly in this respect over the last fifteen or so years. This that would have been unimaginable twenty years ago are now part of everyday life for a growing number of people, which raises the question of whether we are even aware of the change taking place inside us and what we are doing about it.

Although the research results are ambiguous, there is still a significant number of studies that indicate that frequent use of social networks is associated with certain risks, at least for specific groups. Additionally, the way time is spent on social networks may be even more important than the amount of time invested (active or passive use), and there may be some underlying

mrežama je način na koji je to vrijeme provedeno (aktivna ili pasivna uporaba) te postoje li u podlozi neki rizični (uzlazna socijalna usporedba, loša slika o sebi, ruminacija, „strah od propuštanja“) odnosno zaštitni (samopoštovanje, percipirana socijalna podrška) čimbenici.

Ovaj rad donosi detaljan pregled relevantne i recentne literature kada je riječ o povezanosti korištenja društvenih mreža s anksioznošću i depresivnošću, no to je tek temelj za daljnja istraživanja u ovom području. Buduća istraživanja bi, između ostalog, trebala detaljnije ispitati mehanizme u podlozi korištenja društvenih mreža odnosno jasnije detektirati koji mehanizmi djeluju kao zaštitni čimbenici, a koji pojedine čine ranjivijima za štetne posljedice na psihičko zdravlje. Uz navedeno, daljnja istraživanja su potrebna i kako bi se ispitale potencijalne rodne i dobne razlike. Isto tako, pregledom literature iz ovog područja svakako se može zaključiti da nedostaje eksperimentalnih i longitudinalnih studija kako bismo mogli zaključivati o uzročno-posljedičnoj vezi društvenih mreža i depresivnosti i anksioznosti. Očito je kako bi praktične implikacije takvih istraživanja bile od iznimne važnosti u kliničkom radu, ali i u prevenciji nepoželjnih ishoda.

Društvene mreže bez sumnje utječu na nas, a s obzirom da se ne čini kako idemo u smjeru smanjivanja korištenja tehnologije i s njom povezanih društvenih mreža, dugoročno je od velike važnosti naučiti funkcionirati u tehnologijom posredovanom svijetu na način koji će ići u prilog našem psihičkom zdravlju. Pandemjsko vrijeme dodatno je osvijestilo i sve potencijalne prednosti društvenih mreža, no pitanje je hoće li intenzivno korištenje društvenih mreža u konačnici imati pozitivne ili negativne učinke na depresivnost i anksioznost njihovih korisnika. Stoga je potrebno sve do sada dobitne, a u ovom radu opisane nalaze, u budućem kliničkom i znanstvenom radu provjeriti, i vidjeti može li krizna situacija moderirati do sada utvrđene odnose korištenja društvenih mreža i mentalnog zdravlja.

risk (upward social comparison, poor self-image, rumination, fear of missing out) or protective (self-esteem, perceived social support) factors.

This paper presents a detailed overview of relevant and recent literature on the association between the use of social networks and anxiety and depression, but this only represents the basis for future research on this topic. Future research should, among other things, closely examine the mechanisms underlying the use of social networks and more clearly determine which mechanisms act as protective factors and which make individuals more vulnerable to harmful consequences for mental health. In addition to the above, further research is also necessary to ascertain the potential gender and age differences with regard to this issue. Furthermore, an overview of the literature on this topic certainly indicates that there is a lack of experimental and longitudinal studies that would allow us to form conclusions on the causal relationship between social networks and depression and anxiety. It is clear that the practical implications of such research would be of supreme importance for both for clinical work and for the prevention of unwanted outcomes.

Social networks undoubtedly influence us, and since it does not seem we are moving towards reducing the use of technology and the social networks related to it, from a long-term perspective it is very important to learn how to function in a technologically-mediated world in a way that will benefit our mental health. The pandemic has contributed to raising awareness of all the potential advantages of social networks, but the question remains whether intensive use of social networks will ultimately have positive or negative effect on depression and anxiety in its users. It is therefore important the data obtained so far and described in this paper be checked and verified in future clinical work and research work in order to determine whether this crisis can moderate the previously established relationship between social network use and mental health.

LITERATURA / REFERENCES

1. Boyd DM, Ellison NB. Social network sites: Definition, history, and scholarship. *J Comput Commun [Internet]* 2007 Oct 1 [cited 2020 Oct 15];13(1):210-230. Available from: <https://academic.oup.com/jcmc/article/13/1/210-230/4583062>.
2. Panek ET, Nardis Y, Konrath S. Defining social networking sites and measuring their use: How narcissists differ in their use of Facebook and Twitter. *Comput Human Behav* 2013; 29(5): 2004-12.
3. Statista. Social media – Statistics & Facts | Statista [Internet] 2020 [cited 2020 Oct 27]. Available from: <https://www.statista.com/topics/1164/social-networks/>.
4. Eurostat. Individuals – internet activities. 2020.
5. World Health Organization. Promoting mental health: Concepts, emerging evidence, practice (Summary report). Geneva: WHO, 2004.
6. O'Dea B, Campbell A. Online social networking amongst teens: Friend or foe? *Annu Rev Cyber Therapy Telemed [Internet]* 2011 [cited 2020 Oct 16];9(1):108-112. Available from: <https://pubmed.ncbi.nlm.nih.gov/21685655/>.
7. Sampasa-Kanyinga H, Lewis RF. Frequent Use of Social Networking Sites is Associated with Poor Psychological Functioning among Children and Adolescents. *Cyberpsychology, Behav Soc Netw [Internet]* 2015 [cited 2020 Oct 15];18(7):380-385. Available from: <https://pubmed.ncbi.nlm.nih.gov/26167836/>.
8. Coyne SM, Rogers AA, Zurcher JD, Stockdale L, Booth M. Does time spent using social media impact mental health?: An eight year longitudinal study. *Comput Human Behav* 2020; 104: 106-60.
9. Frison E, Subrahmanyam K, Eggermont S. The Short-Term Longitudinal and Reciprocal Relations Between Peer Victimization on Facebook and Adolescents' Well-Being. *J Youth Adolesc [Internet]* 2016 Sep 1 [cited 2020 Oct 16];45(9):1755-1771. Available from: <https://pubmed.ncbi.nlm.nih.gov/26880284/>.
10. Feinstein BA, Hershenberg R, Bhatia V, Latack JA, Meuwly N, Davila J. Negative social comparison on Facebook and depressive symptoms: Rumination as a mechanism. *Psychol Pop Media Cult* 2013; 2(3): 161-70.
11. Kalpidou M, Costin D, Morris J. The relationship between facebook and the well-being of undergraduate college students. *Cyberpsychology, Behav Soc Netw [Internet]* 2011 Apr 1 [cited 2020 Oct 16];14(4):183-189. Available from: <https://pubmed.ncbi.nlm.nih.gov/21192765/>.
12. Kross E, Verdun P, Demiralp E, Park J, Lee DS, Lin N et al. Facebook Use Predicts Declines in Subjective Well-Being in Young Adults. *PLoS One [Internet]* 2013 Aug 14 [cited 2020 Oct 16];8(8). Available from: <https://pubmed.ncbi.nlm.nih.gov/23967061/>.
13. Mehdizadeh S. Self-presentation 2.0: Narcissism and self-esteem on facebook. *Cyberpsychology, Behav Soc Netw [Internet]* 2010 Aug 1 [cited 2020 Oct 16];13(4):357-364. Available from: <https://pubmed.ncbi.nlm.nih.gov/20712493/>.
14. Rutledge CM, Gillmor KL, Gillen MM. Does this profile picture make me look fat? Facebook and body image in college students. *Psychol Pop Media Cult* 2013; 2(4): 251-8.
15. Song H, Zmeyslinski-Seelig A, Kim J, Drent A, Victor A, Omori K et al. Does Facebook make you lonely?: A meta analysis. *Comput Human Behav* 2014; 36: 446-52.
16. Lee KT, Noh MJ, Koo DM. Lonely people are no longer lonely on social networking sites: The mediating role of self-disclosure and social support. *Cyberpsychology, Behav Soc Netw [Internet]* 2013 Jun 1 [cited 2020 Oct 16];16(6):413-418. Available from: <https://pubmed.ncbi.nlm.nih.gov/23621716/>
17. Oh HJ, Ozkaya E, Larose R. How does online social networking enhance life satisfaction? the relationships among online supportive interaction, affect, perceived social support, sense of community, and life satisfaction. *Comput Human Behav* 2014; 30: 69-78.
18. Manago AM, Taylor T, Greenfield PM. Me and my 400 friends: The anatomy of college students' facebook networks, their communication patterns, and well-being. *Dev Psychol [Internet]* 2012 Mar [cited 2020 Oct 16];48(2):369-380. Available from: <https://pubmed.ncbi.nlm.nih.gov/22288367/>.
19. Feder KA, Riehm KE, Mojtabai R. Is There an Association between Social Media Use and Mental Health? the Timing of Confounding Measurement Matters – Reply [Internet]. Vol. 77, *JAMA Psychiatry*. American Medical Association; 2020 [cited 2020 Oct 16]. p. 438. Available from: <https://pubmed.ncbi.nlm.nih.gov/31940005/>.
20. Rasmussen EE, Punyanunt-Carter N, LaFreniere JR, Norman MS, Kimball TG. The serially mediated relationship between emerging adults' social media use and mental well-being. *Comput Human Behav* 2020; 102: 206-13.
21. Hawes T, Zimmer-Gembeck MJ, Campbell SM. Unique associations of social media use and online appearance preoccupation with depression, anxiety, and appearance rejection sensitivity. *Body Image [Internet]* 2020 Jun 1 [cited 2020 Oct 16];33:66-76. Available from: <https://pubmed.ncbi.nlm.nih.gov/32113009/>.
22. Andreassen C, Pallesen S. Social Network Site Addiction – An Overview. *Curr Pharm Des [Internet]* 2014 Jun 27 [cited 2020 Oct 16];20(25):4053-4061. Available from: <https://pubmed.ncbi.nlm.nih.gov/24001298/>.
23. Bodroža B, Jovanović T. Validation of the new scale for measuring behaviors of Facebook users: Psycho-Social Aspects of Facebook Use (PSAFU). *Comput Human Behav* 2016; 54: 425-35.
24. Shensa A, Sidani JE, Dew MA, Escobar-Viera CG, Primack BA. Social media use and depression and anxiety symptoms: A cluster analysis. *Am J Health Behav [Internet]* 2018 Mar 1 [cited 2020 Oct 16];42(2):116-128. Available from: [/pmc/articles/PMC5904786/?report=abstract](https://pmc/articles/PMC5904786/?report=abstract).
25. Bosacki S, Dane A, Marini Z. Peer relationships and internalizing problems in adolescents: Mediating role of self-esteem. *Emot Behav Difficulties* 2007; 12(4): 261-82.

26. Rae JR, Lonborg SD. Do motivations for using Facebook moderate the association between Facebook use and psychological well-being? *Front Psychol* 2015;
27. Selfhout MHW, Branje SJT, Delsing M, ter Bogt TFM, Meeus WHJ. Different types of Internet use, depression, and social anxiety: The role of perceived friendship quality. *J Adolesc* [Internet] 2009 Aug [cited 2020 Oct 16];32(4):819-833. Available from: <https://pubmed.ncbi.nlm.nih.gov/19027940/>
28. Wegmann E, Stodt B, Brand M. Addictive use of social networking sites can be explained by the interaction of Internet use expectancies, Internet literacy, and psychopathological symptoms. *J Behav Addict* [Internet] 2015 Sep 1 [cited 2020 Oct 16];4(3):155-162. Available from: <https://pubmed.ncbi.nlm.nih.gov/26551905/>.
29. Jelenchick LA, Eickhoff JC, Moreno MA. Facebook depression? social networking site use and depression in older adolescents. *J Adolesc Heal* 2013; 52(1): 128-30.
30. O'Keefe GS, Clarke-Pearson K, Mulligan DA, Altmann TR, Brown A, Christakis DA et al. Clinical report – The impact of social media on children, adolescents, and families [Internet]. *Pediatrics* 2011; 127:800-804. Available from: <https://pubmed.ncbi.nlm.nih.gov/21444588/>.
31. Yoon S, Kleinman M, Mertz J, Brannick M. Is social network site usage related to depression? A meta-analysis of Facebook – depression relations [Internet]. Vol. 248, *Journal of Affective Disorders* Elsevier B.V.; 2019 [cited 2020 Oct 22]:65-72. Available from: <https://pubmed.ncbi.nlm.nih.gov/30711871/>.
32. Tsitsika AK, Tzavela EC, Janikian M, Ólafsson K, Iordache A, Schoenmakers TM et al. Online social networking in adolescence: Patterns of use in six European countries and links with psychosocial functioning. *J Adolesc Heal* 2014; 55(1): 141-7.
33. Lin LY, Sidani JE, Shensa A, Radovic A, Miller E, Colditz JB et al. Association between social media use and depression among U.S. young adults. *Depress Anxiety* [Internet] 2016 Apr 1 [cited 2020 Oct 16];33(4):323-331. Available from: [/pmc/articles/PMC4853817/](https://pmc/articles/PMC4853817/)?report=abstract.
34. Labrague LJ. Facebook use and adolescents' emotional states of depression, anxiety, and stress. *Heal Sci J* [Internet] 2014 [cited 2020 Oct 16];8(1):80-89. Available from: https://www.researchgate.net/publication/262725734_Facebook_use_and_adolescents'_emotional_states_of_depression_anxiety_and_stress.
35. Lup K, Trub L, Rosenthal L. Instagram #Instasad?: Exploring Associations Among Instagram Use, Depressive Symptoms, Negative Social Comparison, and Strangers Followed. *Cyberpsychology, Behav Soc Netw* 2015; 18(5): 247-52.
36. Pantic I, Damjanovic A, Todorovic J, Topalovic D, Bojovic-Jovic D, Ristic S et al. Association between online social networking and depression in high school students: Behavioral physiology viewpoint. *Psychiatr Danub* [Internet] 2012 [cited 2020 Oct 16];24(1):90-3. Available from: <https://pubmed.ncbi.nlm.nih.gov/22447092/>.
37. Steers MLN, Wickham RE, Acitelli LK. Seeing everyone else's highlight reels: How Facebook usage is linked to depressive symptoms. *J Soc Clin Psychol* 2014; 33(8): 701-31.
38. Banjanin N, Banjanin N, Dimitrijevic I, Pantic I. Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. *Comput Human Behav* 2015; 43: 308-12.
39. Davila J, Hershenberg R, Feinstein BA, Gorman K, Bhatia V, Starr LR. Frequency and quality of social networking among young adults: Associations with depressive symptoms, rumination, and corumination. *Psychol Pop Media Cult* [Internet] 2012 Apr [cited 2020 Oct 16];1(2):72-86. Available from: [/pmc/articles/PMC3907111/](https://pmc/articles/PMC3907111/)?report=abstract.
40. Farahani HA, Kazemi Z, Aghamohamadi S, Bakhtiarvand F, Ansari M. Examining mental health indices in students using Facebook in Iran. In: *Procedia – Social and Behavioral Sciences* 2011; 811-14.
41. Feinstein BA, Bhatia V, Hershenberg R, Davila J. Another venue for problematic interpersonal behavior: The effects of depressive and anxious symptoms on social networking experiences. *J Soc Clin Psychol* 2012; 31(4): 356-82.
42. Giota KG, Kleftaras G. The role of personality and depression in problematic use of social networking sites in Greece. *Cyberpsychology* 2013; 7(3).
43. Hong FY, Huang DH, Lin HY, Chiu SL. Analysis of the psychological traits, Facebook usage, and Facebook addiction model of Taiwanese university students. *Telemat Informatics* 2014; 31(4): 597-606.
44. Koc M, Gulyagci S. Facebook addiction among Turkish college students: The role of psychological health, demographic, and usage characteristics. *Cyberpsychology Behav Soc Netw* [Internet] 2013 Apr 1 [cited 2020 Oct 16];16(4):279-84. Available from: <https://pubmed.ncbi.nlm.nih.gov/23286695/>.
45. Locatelli S, Kluwe K, Bryant F. Facebook use and the tendency to ruminate among college students: Testing mediational hypotheses. *J Educ Comput Res* 2012; 46(4): 377-94.
46. Morin-Major JK, Marin MF, Durand N, Wan N, Juster RP, Lupien SJ. Facebook behaviors associated with diurnal cortisol in adolescents: Is befriending stressful? *Psychoneuroendocrinology* 2016; 63: 238-46.
47. Blomfield Neira CJ, Barber BL. Social networking site use: Linked to adolescents' social self-concept, self-esteem, and depressed mood. *Aust J Psychol* 2014; 66(1):56-64.
48. Rosen LD, Whaling K, Rab S, Carrier LM, Cheever NA. Is Facebook creating "iDisorders"? The link between clinical symptoms of psychiatric disorders and technology use, attitudes and anxiety. *Comput Human Behav* 2013; 29(3): 1243-54.
49. Shaw AM, Timpano KR, Tran TB, Joormann J. Correlates of Facebook usage patterns: The relationship between passive Facebook use, social anxiety symptoms, and brooding. *Comput Human Behav* 2015 Jul 1;48:575-580.
50. Simoncic TE, Kuhlman KR, Vargas I, Houchins S, Lopez-Duran NL. Facebook use and depressive symptomatology: Investigating the role of neuroticism and extraversion in youth. *Comput Human Behav* 2014; 40: 1-5.
51. Tandoc EC, Ferrucci P, Duffy M. Facebook use, envy, and depression among college students: Is facebooking depressing? *Comput Human Behav* 2015; 43: 139-46.

52. Frison E, Eggermont S. Exploring the Relationships Between Different Types of Facebook Use, Perceived Online Social Support, and Adolescents' Depressed Mood. *Soc Sci Comput Rev* 2016; 34(2): 153-71.
53. Naja WJ, Kansoun AH, Haddad RS. Prevalence of Depression in Medical Students at the Lebanese University and Exploring its Correlation With Facebook Relevance: A Questionnaire Study. *JMIR Res Protoc* [Internet]. 2016 May 31 [cited 2020 Oct 16];5(2):e96. Available from: <https://pubmed.ncbi.nlm.nih.gov/27246394/>.
54. McCloskey W, Iwanicki S, Lauterbach D, Giannittono DM, Maxwell K. Are Facebook "friends" Helpful? Development of a Facebook-Based Measure of Social Support and Examination of Relationships among Depression, Quality of Life, and Social Support. *Cyberpsychology, Behav Soc Netw* [Internet]. 2015 Sep 1 [cited 2020 Oct 16];18(9):499-505. Available from: <https://pubmed.ncbi.nlm.nih.gov/26348809/>.
55. Frison E, Eggermont S. The impact of daily stress on adolescents' depressed mood: The role of social support seeking through Facebook. *Comput Human Behav* 2015; 44: 315-25.
56. Park S, Lee SW, Kwak J, Cha M, Jeong B. Activities on Facebook reveal the depressive state of users. *J Med Internet Res* [Internet]. 2013 Oct [cited 2020 Oct 16];15(10). Available from: [/pmc/articles/PMC3806432/?report=abstract](https://pmc/articles/PMC3806432/?report=abstract).
57. Seabrook EM, Kern ML, Rickard NS. Social Networking Sites, Depression, and Anxiety: A Systematic Review. *JMIR Ment Heal* [Internet] 2016 Nov 23 [cited 2020 Oct 16];3(4):e50. Available from: <https://pubmed.ncbi.nlm.nih.gov/27881357/>.
58. Landoll RR, La Greca AM, Lai BS. Aversive Peer Experiences on Social Networking Sites: Development of the Social Networking-Peer Experiences Questionnaire (SN-PEQ). *J Res Adolesc* [Internet] 2013 Dec [cited 2020 Oct 16];23(4):695-705. Available from: <https://pubmed.ncbi.nlm.nih.gov/24288449/>.
59. Moberg FB, Anestis MD. A preliminary examination of the relationship between social networking interactions, internet use, and thwarted belongingness. *Crisis* [Internet] 2015 [cited 2020 Oct 16];36(3):187-193. Available from: <https://pubmed.ncbi.nlm.nih.gov/26088827/>.
60. Szwedo DE, Mikami AY, Allen JP. Qualities of peer relations on social networking websites: Predictions from negative mother-teen interactions. *J Res Adolesc* [Internet]. 2011 Sep [cited 2020 Oct 16];21(3):595-607. Available from: <https://pubmed.ncbi.nlm.nih.gov/21860584/>.
61. Karim F, Oyewande A, Abdalla LF, Chaudhry Ehsanullah R, Khan S. Social Media Use and Its Connection to Mental Health: A Systematic Review. *Cureus* [Internet]. 2020 Jun 15 [cited 2020 Oct 16];12(6). Available from: [/pmc/articles/PMC7364393/?report=abstract](https://pmc/articles/PMC7364393/?report=abstract).
62. Nereim CD, Bickham DS, Rich MO. 234. Social Media and Adolescent Mental Health: Who You are and What You do Matter. *J Adolesc Heal* 2020; 66(2): S118-19.
63. Thorisdottir IE, Sigurvinssdottir R, Asgeirsdottir BB, Allegranter JP, Sigfusdottir ID. Active and Passive Social Media Use and Symptoms of Anxiety and Depressed Mood among Icelandic Adolescents. *Cyberpsychology, Behav Soc Netw* [Internet]. 2019 Aug 1 [cited 2020 Oct 16];22(8):535-542. Available from: <https://pubmed.ncbi.nlm.nih.gov/31361508/>.
64. Vernon L, Modecki KL, Barber BL. Tracking Effects of Problematic Social Networking on Adolescent Psychopathology: The Mediating Role of Sleep Disruptions. *J Clin Child Adolesc Psychol* 2017; 46(2): 269-83.
65. Barry CT, Sidoti CL, Briggs SM, Reiter SR, Lindsey RA. Adolescent social media use and mental health from adolescent and parent perspectives. *J Adolesc* 2017; 61: 1-11.
66. Chou HTG, Edge N. "They are happier and having better lives than I am": The impact of using facebook on perceptions of others' lives. *Cyberpsychology, Behav Soc Netw* [Internet] 2012 Feb 1 [cited 2020 Oct 16];15(2):117-121. Available from: <https://pubmed.ncbi.nlm.nih.gov/22165917/>.
67. Stein DJ, Scott KM, Jonge P de, Kessler RC. Epidemiology of anxiety disorders: From surveys to nosology and back. *Dialogues Clin Neurosci* [Internet] 2017 [cited 2020 Oct 16];19(2):127-136. Available from: www.dialogues-cns.org.
68. Baxter AJ, Scott KM, Vos T, Whiteford HA. Global prevalence of anxiety disorders: A systematic review and meta-regression [Internet]. Vol. 43, Psychological Medicine. *Psychol Med* 2013 [cited 2020 Oct 16]. p. 897-910. Available from: <https://pubmed.ncbi.nlm.nih.gov/22781489/>.
69. Remes O, Brayne C, van der Linde R, Lafontaine L. A systematic review of reviews on the prevalence of anxiety disorders in adult populations. *Brain Behav* 2016; 6(7), e00497, doi: 10.1002/brb3.49770.
70. Burke TJ, Ruppel EK. Facebook Self-Presentational Motives: Daily Effects on Social Anxiety and Interaction Success. *Commun Stud* 2015; 66(2): 204-17.
71. Fernandez KC, Levinson CA, Rodebaugh TL. Profiling: Predicting social anxiety from facebook profiles. *Soc Psychol Personal Sci* 2012; 3(6): 706-13.
72. Green T, Wilhelmsen T, Wilmots E, Dodd B, Quinn S. Social anxiety, attributes of online communication and self-disclosure across private and public Facebook communication. *Comput Human Behav* 2016; 58: 206-13.
73. Lee-Won RJ, Herzog L, Park SG. Hooked on Facebook: The Role of Social Anxiety and Need for Social Assurance in Problematic Use of Facebook [Internet]. Vol. 18, *Cyberpsychology, Behavior, and Social Networking*. Mary Ann Liebert Inc.; 2015 [cited 2020 Oct 16]. p. 567-574. Available from: <https://pubmed.ncbi.nlm.nih.gov/26383178/>.
74. McCord B, Rodebaugh TL, Levinson CA. Facebook: Social uses and anxiety. *Comput Human Behav* 2014; 34: 23-7.
75. Frost RL, Rickwood DJ. A systematic review of the mental health outcomes associated with Facebook use. *Comput Human Behav* 2017; 76: 576-600.
76. Grieve R, Indian M, Witteveen K, Anne Tolan G, Marrington J. Face-to-face or Facebook: Can social connectedness be derived online? *Comput Human Behav* 2013; 29(3): 604-9.

77. Yan H, Zhang R, Oniffrey TM, Chen G, Wang Y *et al.* Associations among screen time and unhealthy behaviors, academic performance, and well-being in Chinese adolescents. *Int J Environ Res Public Health* [Internet] 2017 Jun 1 [cited 2020 Oct 16];14(6). Available from: <https://pubmed.ncbi.nlm.nih.gov/28587225/>.
78. Vannucci A, Flannery KM, Ohannessian CMC. Social media use and anxiety in emerging adults. *J Affect Disord* 2017; 207: 163-66.
79. Woods HC, Scott H. #Sleepyteen: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *J Adolesc* [Internet] 2016 Aug 1 [cited 2020 Oct 22];51:41-49. Available from: <https://pubmed.ncbi.nlm.nih.gov/27294324/>.
80. Farquhar L, Davidson T. Facebook frets: the role of social media use in predicting social and Facebook-specific anxiety. *J Alabama Acad Sci* [Internet] 2014 Jan 1 [cited 2020 Oct 16];85(1):8-23. Available from: https://digitalcommons.butler.edu/ccom_papers/165.
81. Leahy RL, Holland SJ, Butler AC. Treatment Plans and Interventions for Depression and Anxiety Disorders. *J Cogn Psychother* [Internet] 2000 [cited 2020 Oct 28];14(4):409-410. Available from: <https://lib.ebookcentral.proquest.com.libproxy.brown.edu/lib/brown/reader.action?docID=5149370®ion-Changed=&redirect=25240551>.
82. Dobrean A, Pasarelu C-R. Impact of Social Media on Social Anxiety: A Systematic Review. In: *New Developments in Anxiety Disorders*. InTech; 2016.
83. Antheunis ML, Schouten AP, Krahmer E. The Role of Social Networking Sites in Early Adolescents' Social Lives. *J Early Adolesc* [Internet] 2016 Apr 22 [cited 2020 Oct 16];36(3):348-371. Available from: <http://journals.sagepub.com/doi/10.1177/0272431614564060>.
84. Weidman AC, Levinson CA. I'm still socially anxious online: Offline relationship impairment characterizing social anxiety manifests and is accurately perceived in online social networking profiles. *Comput Human Behav* 2015; 49: 12-19.
85. Große Deters F, Mehl MR, Eid M. Social responses to Facebook status updates: The role of extraversion and social anxiety. *Comput Human Behav* 2016; 61: 1-13.
86. Muench F, Hayes M, Kuerbis A, Shao S. The independent relationship between trouble controlling Facebook use, time spent on the site and distress. *J Behav Addict* [Internet] 2015 Sep 1 [cited 2020 Oct 16];4(3):163-169. Available from: <https://pubmed.ncbi.nlm.nih.gov/26551906/>.
87. Grant DM, Judah MR, Mills AC, Lechner W V, Davidson CL, Wingate LR. Rumination and excessive reassurance seeking: Mediators of the relationship between social anxiety and depression? *J Psychopathol Behav Assess* 2014; 36(3): 465-74.
88. Jose PE, Weir KF. How is Anxiety Involved in the Longitudinal Relationship between Brooding Rumination and Depressive Symptoms in Adolescents? *J Youth Adolesc* [Internet]. 2013 Aug [cited 2020 Oct 16];42(8):1210-1222. Available from: <https://pubmed.ncbi.nlm.nih.gov/23266617/>.
89. Delise NN. How do you Facebook? The gendered characteristics of online interaction. In: *Illuminating How Identities, Stereotypes and Inequalities Matter through Gender Studies*. Netherlands: Springer 2014. p. 9-27.
90. Caplan SE. Relations among loneliness, social anxiety, and problematic internet use. *Cyberpsychology Behav* [Internet] 2007 Apr [cited 2020 Oct 16];10(2):234-242. Available from: <https://pubmed.ncbi.nlm.nih.gov/17474841/>.
91. Murphy EC, Tasker TE. Lost in a Crowded Room: A Correlational Study of Facebook & Social Anxiety 2011 [cited 2020 Oct 16];11:89-94. Available from: <https://commons.pacificu.edu/work/sc/fa060f11-50dd-4745-ac3f-114c6e48b0a2>.
92. Pierce T. Social anxiety and technology: Face-to-face communication versus technological communication among teens. *Comput Human Behav* 2009; 25(6): 1367-72.
93. Dempsey AE, O'Brien KD, Tiamiyu MF, Elhai JD. Fear of missing out (FoMO) and rumination mediate relations between social anxiety and problematic Facebook use. *Addict Behav Reports* 2019; 9: 100-150.
94. Carruthers SE, Warnock-Parkes EL, Clark DM. Accessing social media: Help or hindrance for people with social anxiety? *J Exp Psychopathol* [Internet] 2019 Apr 4 [cited 2020 Oct 16];10(2):204380871983781. Available from: <http://journals.sagepub.com/doi/10.1177/2043808719837811>.
95. Chen Y, Li R, Zhang P, Liu X. The Moderating Role of State Attachment Anxiety and Avoidance Between Social Anxiety and Social Networking Sites Addiction. *Psychol Rep* [Internet] 2020 Jun 1 [cited 2020 Oct 16];123(3):633-647. Available from: <https://pubmed.ncbi.nlm.nih.gov/30612521/>.
96. Erwin BA, Turk CL, Heimberg RG, Fresco DM, Hantula DA. The Internet: Home to a severe population of individuals with social anxiety disorder? *J Anxiety Disord* [Internet] 2004 [cited 2020 Oct 16];18(5):629-646. Available from: <https://pubmed.ncbi.nlm.nih.gov/15275943/>.
97. Roberts L, Smith L, Pollock C. "u r a lot bolder on the net." In: *Shyness development, consolidation and change* [Internet]. Routledge; 2000 [cited 2020 Oct 16]. p. 137-154. Available from: <https://www.taylorfrancis.com/>.
98. Weidman AC, Fernandez KC, Levinson CA, Augustine AA, Larsen RJ, Rodebaugh TL. Compensatory internet use among individuals higher in social anxiety and its implications for well-being. *Pers Individ Dif* [Internet] 2012 Aug [cited 2020 Oct 16];53(3):191-195. Available from: [http://pmc.articles/PMC3392122/?report=abstract](http://pmc/articles/PMC3392122/?report=abstract).
99. Holmes R. Forbes; 2020. Is COVID-19 social media's levelling up moment? April 24. <https://www.forbes.com/sites/ryanholmes/2020/04/24/is-covid-19-social-medias-levelling-up-moment/#32e022256c60> (Accessed 5 September 2020).
100. Perez S. TechCrunch; 2020. Report: WhatsApp has seen a 40% increase in usage due to COVID-19 pandemic | TechCrunch. March 26. <https://techcrunch.com/2020/03/26/report-whatsapp-has-seen-a-40-increase-in-usage-due-to-covid-19-pandemic/>, (Accessed 5 September 2020).
101. Twenge JM, Joiner TE. U.S. Census Bureau-assessed prevalence of anxiety and depressive symptoms in 2019 and during the 2020 COVID-19 pandemic. *Depress Anxiety* 2020; 37(10): 954-6. doi: 10.1002/da.23077. Epub 2020 Jul 15. PMID: 32667081; PMCID: PMC7405486.

Pandemija Covid-19 kao zrcalo: o odnosu između tradicionalnih vrijednosti i novih izazova

/ The Covid-19 Pandemic as a Mirror: On the Relationship Between Traditional Values and New Challenges

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Autor iznosi neke aspekte suočavanja s novom stvarnošću zbog prijetnji povezano s pandemijom s koronavirusima i prodora novih tehnologija u brojne aspekte našeg svakodnevnog života, privatnog, socijalnog i profesionalnog. Iznosi vlastita opažanja i rezultate nekih istraživanja u području profesionalne djelatnosti. Zbog globalnog zahvata virusne pandemije, te značajnog pomaka svakodnevnih aktivnosti od realnog prema virtualnom svijetu, iznosi razmišljanje o potrebi preispitivanja određenih tradicionalnih vrijednosti i mogućnosti iskorištavanja aktualne krizne situacije za osmišljavanje nove paradigme za međuljudske odnose, od kompeticije prema kooperaciji. U radu se iznose rezultati pojedinih istraživanja, primjeri iz kulturne domene, te neophodnost proučavanja promjena profesionalnog identiteta i novih elemenata u međuljudskim odnosima, te utjecaja na terapijski pristup u individualnom i grupnom setingu.

/ In this paper, the author presents some aspects of dealing with the new reality due to the threats related to the coronavirus pandemic and the penetration of new technologies into many aspects of our daily private, social, and professional lives. The author presents his own observations and some research results in the field of professional activity. Based on the global impact of the viral pandemic and the significant shift of daily activities from the real to the virtual world, the author expresses his thoughts on the need to reconsider certain traditional values and the possibility of using the current crisis situation to conceive a new paradigm for interpersonal relationships, from competitiveness towards cooperation. The paper presents the results of certain studies, examples from the cultural domain, and the need to study changes in professional identity and new elements in interpersonal relationships, as well as the impact on the therapeutic approach in individual and group settings.

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Kada se prije 20 godina očekivao dolazak novog tisućljeća predviđanja su se kretala u smjeru stalnih napredaka na svim poljima predviđena znanstvenim otkrićima i većom sviješću o dalnjim socijalnim, ekonomskim i političkim razvojima na korist čitavog čovječanstva. Globalno. Osjećalo se strujanje nekog optimizma. Mnoge su naznake bile u tom smislu. Međutim, spektakularni teroristički akt rušenja nebodera - blizanaca u New Yorku 2001. godine najavio je kraj mnogih iluzija i težak put usklajivanja brojnih kontroverznih i nerazriješenih problema koji na širokoj ljestvici pritišću stanovništvo cijelog svijeta. Pandemija koronavirusa COVID-19 samo je pogoršala zabrinutost i još jedanput ukazala na krhkost ljudske egzistencije i institucija koje stvaramo da bismo ojačali osjećaj sigurnosti i efikasnost borbe protiv razornih, prijetečih sila. Ta situacija, o kojoj je javljeno u prosincu 2019. godine, iz kineskog Wuhanu proširila se u sve kutke planeta i njava je novu vrstu „kuge“ s kojom se moramo nositi i protiv koje trebamo razviti strategije obrane. To novo stanje kapilarno je proželo baš sve sfere ljudske egzistencije, kako pojedince tako i intimne, obiteljske, prijateljske, društvene, duhovne, socijalne, radne i političke odnose grupa i čitavih naroda. Očekujući cjepivo kao spas iz začaranog kruga u svakodnevnoj medicinskoj i mentalno-zdravstvenoj praksi sve više se očrtava porast anksioznih i depresivnih stanja, porast psihosomatske simptomatike, uznenamirenosti, pesimističkog raspoloženja i razmišljanja. Sve to dodatno je opterećeno novim ekonomskim poteškoćama i lošim predviđanjima, rastućom nezaposlenošću, zabrinutošću za djecu, unučad, bolesne, stare, nezbrinute.

Možemo reći da su, kako svaki pojedinac tako i čitav svijet, suočeni s mnogočasnog globalnom opasnošću kakvu se nije vidjelo već čitavo jedno stoljeće, tj. od tzv. španjolske gripe. S čime smo suočeni i kako se postaviti?

Awaiting the arrival of the new millennium 20 years ago, predictions envisaged steady progress in all fields, led by scientific discoveries and greater awareness of further social, economic, and political developments for the global benefit of all mankind. There was a stream of optimism. Many indications spoke in that sense. However, the spectacular terrorist act of destroying the twin skyscrapers in New York in 2001 heralded the end of many illusions and the difficult path of reconciling many controversial and unresolved issues that are, on a large scale, oppressing the population of the whole world. The COVID-19 coronavirus pandemic has only exacerbated concerns and once again pointed to the fragility of human existence and the institutions we create to strengthen the sense of security and effectiveness of the fight against destructive, threatening forces. This situation, which was reported in December 2019, spread from Wuhan, China, to all corners of the planet and announced a new type of "plague" that we must deal with and against which we need to develop defense strategies. This new situation has permeated all spheres of human existence, both individuals and intimate, family, friendly, social, spiritual work and political relations, groups, and entire nations. Expecting the vaccine as a salvation from the vicious circle in everyday medical and mental health practice, an increase in anxiety and depression, in psychosomatic symptoms, and pessimistic thinking are ever increasing. All of this is further burdened by new economic difficulties and poor forecasts, rising unemployment, concerns for children, grandchildren, the sick, the elderly, and the homeless.

We can say that, as individuals and from the perspective of the whole world, we are faced with a global threat as has not been seen for a whole century, i.e. since the so-called Spanish flu. What are we facing and how do we align ourselves against it?

SUOČAVANJE S NOVOM STVARNOŠĆU

Još u početku ove pandemije, ovog proljeća, opazilo se da se ljudi teško mire s ograničenjima posebno u pogledu druženja, kontaktiranja, te nošenja maski i izbjegavanja bliskih susreta. Čovjek je društveno biće i ta njegova bit i potreba stalno izbijaju u prvi plan kad se nameću ograničenja u tom smislu, a posebno *lockdown*. Ali, išli smo ususret ljetu i rastao je optimizam u skladu sa željama. Turistička sezona se ostvarivala na razini jedne trećine u odnosu na prethodnu godinu i zabrinutost je počela rasti. Sada, u jesen, sedam mjeseci od proglašenja pandemije suočeni smo s novim dimenzijama zaraze koje još više opterećuju sve sfere osobnih i društvenih odnosa. Navest ću podatke na koje nas navodi jedno kinesko istraživanje provedeno u prosincu 2019. i siječnju i veljači 2020. godine.

Kineska psihijatrica Jianyin Qiu i njezin tim (1) objavili su pregled psihološkog stresa u kineskoj populaciji zbog epidemije s COVID-19 navodeći da je navedena pandemija prouzročila ozbiljnu prijetnju tjelesnom zdravlju i životu, a istovremeno potaknula široki spektar psiholoških problema poput paničnih poremećaja, anksioznosti i depresije. Navedeni tim je po prvi puta istraživao prevalenciju i jačinu peritraumatskog psihološkog distresa i opterećenja za društvo u cilju planiranja i primjene adekvatnih mjera suprotstavljanja tom izazovu. Istraživanje je obuhvatilo preko 50.000 anketiranih u Kini, Hong-Kongu, Macau i na Taiwanu. Dobili su podatak da je 35 % ispitanika doživjelo psihološki distres. Pri tom su žene doživjele značajno jači psihološki distres nego muškarci. Zaključili su da su žene *značajno vulnerabilnije na stres* i da je veća vjerojatnost da one razviju posttraumatski stresni poremećaj. Također su ustanovili da starija populacija i osobe s višim obrazovanjem pokazuju veću vjerojatnost za razvoj psihičkih posljedica. Posebno su upozorili na veću izloženost virusnoj infekciji u sred-

DEALING WITH THE NEW REALITY

As early as the beginning of this pandemic, in the spring of 2020, it was observed that people find it difficult to come to terms with restrictions, especially in terms of socializing, contacting, and wearing masks and avoiding close encounters. Humans are social beings and this essential trait and associated needs constantly come to the fore when restrictions are imposed in this regard, especially in the form of *lockdowns*. But we were heading towards summer and optimism grew in line with our hopes and wishes. The tourist season in Croatia was at the level of one third compared to the previous year, and concern began to grow. Now, in the autumn, seven months after the declaration of the pandemic, we are faced with new dimensions of infection that further burden all spheres of personal and social relations. I will cite data published by a Chinese survey conducted in December 2019 and January and February 2020.

The Chinese psychiatrist Jianyin Qiu and her team (2020) published an overview of psychological stress in the Chinese population due to the COVID-19 epidemic. They reported that the pandemic caused a serious threat to physical health and life and at the same time triggered a wide range of psychological problems such as panic disorders, anxiety, and depression. This team was the first to explore the prevalence and severity of peritraumatic psychological distress and burden to society in order to plan and apply adequate measures confronting this challenge. The survey included over 50,000 respondents in China, Hong Kong, Macau, and Taiwan. They collected data indicating that 35% of respondents experienced psychological distress. Among the respondents, women experienced significantly stronger psychological distress than men. They concluded that *women are significantly more vulnerable to stress* and are more likely to develop post-traumatic stress disorder. They also found that the *elderly population and people with higher education are more likely to develop psychological consequences*. In particular, they warned of greater exposure to

stvima javnog prijevoza i utjecaju koji to može imati na radnu efikasnost.

Između ostalog zaključuje se o neophodnosti posebne pažnje u odnosu na najvulnerabilnije grupe, dostupnost medicinskih institucija, nacionalni plan strategije i intervencija, te osim medicinskih uputa i redukciju psihološkog distresa.

Navedeno kinesko istraživanje prethodilo je našem iskustvu u Hrvatskoj. Proglašavanjem pandemije s COVID-19 u ožujku ove godine, u početku su se preporuke epidemiologa većini stanovništva činile pretjeranom, a izvješća iz Italije i drugih zemalja „dalekim događanjima“. Međutim, pandemija se brzo počela širiti ne samo Hrvatskom nego je zahvatila čitavu regiju. *Lockdown* su ljudi teško podnosili i izbjegavali. Širenje pandemije jako se osjetilo osobito u uslužnim djelatnostima kao turizmu, prometu, trgovini, i najavilo je nove socijalne i ekonomski reperkusije. I sada, sa svim vlastitim iskustvima još uvijek se pokazuju otpori prihvaćanju mjera preporučenih od epidemiologa i drugih djelatnika u javnom zdravstvu.

Psihijatrijske i psihoterapijske službe vrlo brzo su registrirale posljedice pandemije. Pacijenti su se sve višejavljali iznoseći strahove, tjeskobu i čitav spektar simptoma iz depresivnog kruža. Posebno pacijenti sa sklonosću psihotičnim dekompenzacijama pokazuju paranoidne simptome u obliku doživljavanja progostvenih namjera od nepoznatih sila koje bi njih i njihove obitelji htjeli uništiti iz njima uglavnom nepoznatih razloga. Ponekad se u taj paranoidni spektar simptoma upliču i grandiozne i mistične misli i halucinacije, što još više intenzivira paranoidna doživljavanja i uvjerenja, strah, uzinemirenost i posljedična nasilna ponašanja ili autistična povlačenja.

Povišena razina opće anksioznosti kod posebno vulnerabilnog dijela stanovništva sve se više očitovala i očituje se u pritužbama pacijenata na simptome iz anksioznog, hipohondrijskog

viral infection in public transport and the impact this could have on work efficiency.

Among other things, the report concluded that there was a need for special attention with regard to the most vulnerable groups, the availability of medical institutions, a national plan of strategy and interventions and reduction of psychological distress in addition to medical instructions .

This Chinese research preceded our experience in Croatia. Declaring a COVID-19 pandemic in March of 2020, initially the recommendations of the epidemiologists seemed excessive to most people, because reports from Italy and other countries were viewed like as “distant events”. However, the pandemic quickly began to spread not only to Croatia but in the entire region. The *lockdown* was hard for people to bear. The spread of the pandemic was deeply felt, especially in the service activities such as tourism, transport, and trade, and heralded new social and economic repercussions. Even now, with all our first-hand experience, there is still resistance to accepting the measures recommended by epidemiologists and other public health professionals.

Psychiatric and psychotherapeutic services very quickly registered the consequences of the pandemic. Patients came forward more and more, expressing fears, anxiety, and a whole range of symptoms from the depressive spectrum. In particular, patients with a predisposition to psychotic decompensation showed paranoid symptoms in the form of experiencing persecution by unknown forces, that would like to destroy them and their families for mostly unknown reasons. Sometimes grandiose and mystical thoughts and hallucinations were involved in this paranoid spectrum of symptoms, which further intensified paranoid experiences and beliefs, fear, anxiety, and consequent violent behaviors or autistic withdrawals.

Elevated levels of general anxiety in a particularly vulnerable portion of the population have become increasingly apparent and are reflected in patients' complaints of symptoms from anxious, hypochondriac, and depressive spheres. My

i depresivnog kruga. Moje iskustvo ukazuje da je u tim slučajevima indiciran psihoterapijski pristup, često uz psihostabilizirajuću medikamentnu podršku

U novonastaloj situaciji psihoterapijski pristup, bilo individualni ili grupni, našao se na posebnom iskušenju. Zbog *lockdown-a* bile su reducirane ambulantne aktivnosti na neophodne intervencije, i velik dio psihoterapijskih seansi je u početku bio otkazan. To su pacijenti vrlo teško doživljavali, sve češće su zvali telefonom ili se javljali putem *Skype-a*. Ta situacija i ublažavanje *lockdown* pristupa pandemiji navela nas je da razmislimo o korištenju novih tehnologija, što su pacijenti uglavnom bolje prihvaćali nego sami psihoterapeuti. Navikli na psihoterapijski setting licem u lice, što je izlagalo čitavu osobu, i pacijenta/pacijente i psihoterapeuta/voditelja grupe pogledu, doživljaju, dakle i verbalnoj i neverbalnoj komunikaciji, predstavljalje je novi izazov pred kojim su se našli svi psihoterapijski pravci.

ZAROBLJENI IZMEĐU PRIJETNJI PANDEMIJE I PRODORA NOVIH TEHNOLOGIJA

Posljednjih desetak godina psihoterapeuti radeći u individualnom i grupnom okviru sve se više susreću s prodorom suvremene tehnologije, mobilnih telefona, interneta itd. U profesionalnoj literaturi sve više se pojavljuju radovi koji s jedne strane ističu prikladnost upotrebe novih tehnoloških mogućnosti za odvijanje psihoterapije na razdaljinu, dok se s druge strane ističu određeni nedostatci elemenata na koje smo naučili u osobnim kontaktima (2,3). Međutim, pandemija je bila jača, *lockdown* i prekid brojnih komunikacija efikasan, što nije ostavljalo puno izbora. Na primjer, neki pacijenti našli su se u krizi i boraveći u inozemstvu ili na drugim kontinentima nisu bili u stanju posjetiti psihijatra odnosno psihoterapeutu, te je jedina mogućnost bila korištenje novih

experience is that a psychotherapeutic approach, often with psychostabilizing drug support, is indicated in these cases.

In the new situation, taking an individual or group psychotherapeutic approach, either was especially tempting. Due to the *lockdown*, outpatient activities were reduced to necessary interventions, and many of the psychotherapy sessions were initially canceled. This was very difficult for patients to experience; they were increasingly calling on the phone or via Skype. This situation and alleviating the *lockdown* approach to the pandemic led us to consider using new technologies, which were generally better accepted by patients than by the psychotherapists themselves. Having been accustomed to the face-to-face psychotherapeutic setting, where the whole person is exposed to view and the patient / patients and psychotherapist / group leader can all therefore view and experience verbal and nonverbal communication, this was a new challenge facing all psychotherapeutic directions.

CAPTURED BETWEEN THE THREAT OF A PANDEMIC AND THE PENETRATION OF NEW TECHNOLOGIES

In the last ten years, psychotherapists working in individual and group frameworks have increasingly encountered the penetration of modern technology, mobile phones, the internet, etc. In the professional literature, there are more and more works that on the one hand emphasize the suitability of the use of new technological possibilities for distance psychotherapy, while on the other hand point out certain shortcomings of elements we learned in personal contacts (Hutchinson, 2019; Urlić, 2019). However, the pandemic had a stronger effect, and the *lockdown* and interruption of numerous communications did not leave much choice about the adoption of new technologies. For example, some patients found themselves in a crisis and were staying abroad or on other continents, unable to visit

tehnoloških mogućnosti. Ako kao psihijatri i/ili psihoterapeuti svi lada možemo otpore i predrasude, vrlo brzo smo dobili pozitivni *feedback* od naših pacijenata. Moja iskustva u tom pogledu uvjerila su me da se korištenjem novih tehnologija može premostiti ono što nam je pandemija uskratila, a to je nastavak terapijske suradnje i psihoterapijskih procesa. Iznijet će neka početna iskustva iz psihoterapijskog rada s grupama u Hrvatskoj uz pomoć Zoom platforme.

Grupna analitičarka Britvić (4) pri završetku druge seanse na virtualnoj platformi komentira da je većini članova grupe teško „jer su nam se životi u potpunosti promijenili, puno toga što nam je činilo svakodnevnicu prestalo je, nije se lako prilagoditi na novonastale okolnosti“. Pri tužbe na poteškoće prilagođavanja novim uvjetima očito je trebalo prepoznati i kontejnirati. Članovi grupe tužili su se da su „stavili život na čekanje“. Voditeljica grupe navodi da članovima nije lako pričati, boje se da ih ne čuju članovi obitelji koji su u susjednim prostorijama, a povremeno se neka kućna dinamika ocrta na ekranu. Na taj način granice intimnosti prodiru kroz narativ članova grupe mimo uobičajenih granica vlastitog prikazivanja intimnih situacija u vlastitom domu.

Međutim, virtualni prostor pruža mogućnost za nastavak komunikacije u kriznoj situaciji. Ono što su sami članovi grupe formirali tijekom prekida uobičajenog ritma rada grupe najprije su premostili komunikacijom koju su nazvali WhatsApp grupom, što ih je psihološki pripremilo za novi korak u virtualnom sastajanju. Očito je da je članovima grupe, pa i voditelju, trebalo dati vremena da se prilagode potpuno novom *settingu*. Autorica je uočila koliko je članovima grupe važna međusobna komunikacija u trenutku kad se nije znalo hoće li se grupa uopće nastaviti ili ne, o čemu su u grupi razgovarali već na trećoj virtualnoj seansi. Ta situacija dala je mogućnost članovima grupe da ne samo da iznose svoje strahove, tjeskobe, dosadu, mrzovlje, nego i da iskažu obradu tih situacija hu-

a psychiatrist or psychotherapist, and the only option was to use new technological opportunities. If we, as psychiatrists and/or psychotherapists, overcome resistance and prejudice, we very quickly receive positive feedback from our patients. My experience in this regard has convinced me that the use of new technologies can bridge what the pandemic has denied us and allow is the continuation of therapeutic collaboration and psychotherapeutic processes. I will share some initial experiences from psychotherapy work with groups in Croatia with the help of the Zoom platform.

At the end of the second session on the virtual platform, Britvić (2020), a group analyst, commented that it was difficult for most members of the group “because our lives have completely changed, a lot of things that made up our everyday life have stopped, it is not easy to adapt to new circumstances”. Complaints about difficulties in adapting to the new conditions obviously needed to be recognized and contained. Members of the group complained that they had to “put life on hold”. The group leader states that it is not easy for members to talk, that they are afraid that they could be heard by family members who are in the adjacent rooms, and occasionally some house dynamics are visible on the screen. In this way, the boundaries of intimacy penetrate the narrative of the group members beyond the usual boundaries of their own portrayal of intimate situations in their own home.

However, the virtual space also provides an opportunity to continue communication in a crisis situation. During the interruption of the normal rhythm of the group's work, initially the group members themselves organized communication through what they called the WhatsApp group, which formed a bridge towards and psychological preparation for the next step of the virtual therapy meeting. It was obvious that the members of the group as well as the group leader needed time to adjust to the completely new setting. The author noticed how important it is for the members of the group to communicate with each other at a time when it was not known whether the group

morom karakterističnim za mediteransko podneblje. Britvić dalje navodi da se i putem Zoom platforme moglo razgovarati o tome koliko je članovima grupe virtualni prostor u kojem se ocrtava i nešto od kućne dinamike zapreka za emocionalnu blizinu i koliko ih prisutnost članova obitelji u susjednim prostorijama ometa u dalnjem otvaranju.

Sljedeće iskustvo iz grupne terapije u vrijeme pandemije bolesti izazvane novim korona virusom iznosi grupna analitičarka Brkić (5) iz Bosne i Hercegovine. Autorica navodi da se na katastrofalne događaje neki prilagode fleksibilnošću i kreativnošću, dok drugi nastave živjeti kao traumatizirane osobe. Razmatrajući upotrebu virtualnih platformi/medija u smislu „cyberterapije“ autorica navodi da ono što znanosti koje se bave međuljudskim odnosima naglašavaju jest da razvoj tehnologije ne znači nužno i napredak u međuljudskim odnosima, te ističu otuđenost i svojevrsno autistično poнаšanje kao nuzproizvod te vrste civilizacijskog napretka.

Autorica prikazuje vlastito iskustvo u virtualnim medijima i kako se pacijenti u procesu grupne analize nastoje adaptirati na nove situacije nametnute pandemijom. Anksioznost i egzistencijski strah vrlo su se brzo pojavili kao tema i stanje emocija članova grupe, a autorica je doživljavala percepciju grupe kao prijelaznog objekta. Zaključila je da je „terapeut koji je pouzdano prisutan, siguran, neprimjetan osim u posebnim okolnostima zapravo najvažniji dio dobrog setinga. Dalje navodi da unatoč općoj frustrirajućoj situaciji, „ako je frustracija optimalna i nije traumatična i ako u odnosu postoji dovoljno povjerenja, paradoksalno *setting* predstavlja istodobno izvor frustracija i povjerenja (jer osigurava između ostalog kontinuitet i sigurnost). Jedino se u takvim uvjetima može razvijati simbolična razina mišljenja (6).

Autorica zaključuje na osnovi vlastitog iskustva da je *online* psihoterapija korisna, ali samo u situacijama kada uobičajene terapijske okvi-

would continue at all or not, which they discussed in the group as early as in the third virtual session. This situation gave the group members the opportunity not only to express their fears, anxieties, boredom, and grumpiness, but also to confront these situations with humor characteristic of the Mediterranean region. Britvić further states that through the Zoom platform it was possible to discuss how much the members of the group had a virtual space in which some of the home dynamics represent obstacles for emotional closeness and how much the presence of family members in neighboring rooms hindered them in opening up further during sessions.

The following experience from group therapy during a pandemic of a disease caused by a new corona virus is presented by Brkić (2020), a group analyst from Bosnia and Herzegovina. The author states that some adapt to catastrophic events with flexibility and creativity, while others continue to live as traumatized persons. Considering the use of virtual platforms/media in terms of “cyber therapy”, the author states that what the sciences dealing with interpersonal relationships emphasize is that the development of technology does not necessarily mean progress in interpersonal relationships and emphasizes alienation and autistic behavior as a byproduct of this kind of civilizational progress.

The author presents her own experience in virtual media and how patients in the process of group analysis try to adapt to new situations imposed by the pandemic. Anxiety and existential fear very quickly emerged as the theme and state of emotions of the group members, and the author experienced the perception of the group as a transitional object. She concluded that “a therapist who is reliably present, safe, inconspicuous except in special circumstances, is in fact the most important part of a good *setting*.” She further states that despite the general frustrating situation, “if the frustration is optimal and not traumatic and if there is enough trust in the relationship, paradoxically *setting* is both a source of frustration and trust (because it ensures continuity and security, among other things). Only in

re nije moguće održati. Podcrtava vrijednost supervizije da bi se adekvatnije uključilo nove tehnologije u psihoterapijski rad, bilo individualni ili grupni.

Dosadašnja iskustva hrvatskih i bosansko-hercegovačkih grupnih analitičara/psihoterapeuta ukazuju da primjena virtualne platforme zahtjeva prilagodbu članova grupe (odnosno svakog pacijenta) ali i voditelja (psihoterapeuta). Zbog krize izazvane pandemijom COVID-19 otvaraju se brojni izazovi. Pruža se mogućnost nastavka psihoterapije/grupne analize u virtualnom prostoru. U navedenim primjerima članovi grupe uvođenje mogućnosti nastavka psihoterapije *online* doživjeli su kao veliko olakšanje. Međutim, pitanje prilagodbe na nove uvjete uvijek i dalje je značajan izazov.

Osim toga nove društvene okolnosti u kojima se nalaze i osobe u psihoterapiji (individualnoj ili grupnoj) predstavljaju nove društvene okolnosti za sve. Svima je oduzeta svakodnevna rutina života i načini na koje jedna osoba održava unutarnju emocionalnu i psihičku ravnotežu, određenu predvidivost života. Nedostaju socijalni kontakti na bogatoj ljestvici raznolikosti. Premostiti takvu situaciju može se barem donekle primjenom digitalnih tehnologija koje omogućuju prilagodbu na uvjete socijalne distance, pa i izolacije, kao što je to nametnula pandemija koronavirusima.

ISTRAŽIVANJA I RAZMIŠLJANJA U PODRUČJU PREŽIVLJAVANJA LJUDSKE VRSTE

Najnoviji razvoj suočavanja sa širenjem pandemije sa COVID-19 u Europi konfrontira nas sve više s činjenicom širenja ugroze ne samo u zdravstvenom nego, kako sam već istakao, višežnačnom egzistencijskom smislu. Ono što zrcali naš profesionalni rad i dosadašnja iskustva u navedenom okviru ukazuje na porast simptoma iz anksioznog i depresivnog spek-

such conditions can a symbolic level of opinion be developed (Fonda, 2016)".

The author concludes from her own experience that online psychotherapy is useful, but only in situations where the usual therapeutic frameworks cannot be maintained. It underlines the value of supervision to more adequately incorporate new technologies into psychotherapeutic work, whether as individual or group therapy.

Previous experiences of Croatian and Bosnian-Herzegovinian group analysts/psychotherapists indicate that the application of a virtual platform requires the adjustment of group members (i.e. each patient) but also the group leader (psychotherapist). The crisis caused by the COVID-19 pandemic raises a number of challenges. The possibility of continuing psychotherapy/group analysis in a virtual space was provided to patients. In the above examples, the members of the group saw the introduction of the option to continue psychotherapy online as a great relief. However, the issue of adapting to the new conditions remains a significant challenge.

In addition, the new social circumstances in which people in (individual or group) psychotherapy find themselves represent new social circumstances for everyone. Everyone is deprived of the daily routine of life and the ways in which a person maintains an inner emotional and mental balance, a certain predictability of life. Social contacts on a rich diversity scale are lacking. Such a situation can be overcome, at least to some extent, by applying digital technologies that enable adaptation to the conditions of social distance, including isolation, as imposed by the coronavirus pandemic.

RESEARCH AND REFLECTIONS IN THE FIELD OF HUMAN SURVIVAL

The latest development in dealing with the spread of the COVID-19 pandemic in Europe increasingly confronts us with the fact that the threat is spreading not only in terms of health but, as I have already pointed out, in terms of existence.

tra, s porastom psihosomatskih simptoma i porastom broja samoubojstava. Autoagresivno i heteroagresivno ponašanje u porastu očito je stimulirano pojačanim egzistencijskim pritiskom koji u sadašnjem trenutku pokazuje novi uzlazni trend. To je u skladu s predviđanjima epidemiologa da bi naš kontinent, a i šire, mogao zahvatiti drugi val pandemije čemu smo svjedoci ovih dana.

U svom predavanju „Transhumana agenda: posljednje stoljeće homo sapiensa“, hrvatski astronom Korado Korlević (7) iznio je svoje razmišljanje da idemo prema homo superioru, tj. da će se naša današnja civilizacija raspasti za 2-3 desetljeća. Zaključio je da postoji potreba za razmišljanjem o budućnosti, kako se zaštитiti od njezinog kolapsa i kako konstruktivno iskoristiti buduće plodove tehnološkog napretka. U sljedećih 20 godina, on navodi, svijet će biti vrlo zanimljivo mjesto.

U okviru nedavno održanog webinara na Sveučilištu u Rijeci u okviru aktivnosti Hrvatske akademije znanosti i umjetnosti pod naslovom „Stablo za preživljavanje ljudske vrste“, tematika je bila fragilnost ljudskog društva i predviđanja pojave „crnih labudova“, te pomaci u ponašanju zbog gubitka povjerenja i problema predviđanja. Baveći se preživljavanjem ljudske vrste razmišljalo se o promjeni klime i o novim energetskim izvorima. Izneseno je da već više od jednog stoljeća znamo da fosilna goriva uzrokuju promjenu klime, a već pedesetak godina smo svjesni da će promjena klime imati devastirajuće učinke tijekom 21. stoljeća. Ako se oko 200 država na svijetu ne dogovori o promjeni izvora energije izgubit će rat povezano s promjenom klime. Možda će „neprijatelj“ biti pobijeden, ali će se svijet konačno morati adaptirati na katastrofalnu 3-4 stupnja višu temperaturu, što će možda dovesti do kraja civilizacije i svijeta kakvog poznajemo. Ono što je COVID-19 učinio je začuđujuće. Zaustavio je mogućnost putovanja i veliki dio nebitnih ekonomskih aktivnosti i onih koje ovise o energiji

Our professional work and previous experience in this framework indicates an increase in symptoms from the anxiety and depressive spectrum, with an increase in psychosomatic symptoms and in the number of suicides. Autoaggressive and heteroaggressive behaviors are on the rise, obviously stimulated by increased existential pressure that is currently showing a new upward trend. This is in line with epidemiologists' predictions that our continent and beyond could be hit by another wave of pandemics, which we are witnessing now.

In his lecture “Transhuman agenda: the last century of homo sapiens”, Croatian astronomer Korado Korlević (2019) expressed his position that we are moving towards a homo superior, i.e. that our current civilization will fall apart in 2-3 decades. He concluded that there is a need to think about future, how to protect oneself from its collapse and how to constructively use the future fruits of technological progress. In the next 20 years, he states, the world will be a very interesting place.

In the recently held webinar at the University of Rijeka in the framework of activities of the Croatian Academy of Sciences and Arts, entitled “A tree for survival of the human species”, the theme was the fragility of human society and forecasts about the occurrence of “black swans” and shifts in behavior due to loss of confidence and problems of prediction. With regard to the survival of the human species, climate change and new energy sources were considered. It was pointed out that we have already known for more than a century that fossil fuels cause climate change, and for more than fifty years we are aware that climate change will have devastating effects during the 21st century. If about 200 countries in the world do not agree on a change in energy sources, we will lose the war on climate change. Perhaps the “enemy” will be defeated, but the world will finally have to adapt to a catastrophic 3-4 degree higher temperature, which may lead to the end of civilization and the world as we know it. What COVID-19 did is amazing. It stopped the possibility of travel and a large part of less significant

fosilnih goriva. Cijene nafte su pale po prvi put, upozoravajući proizvođače da dolazi kraj stoljeća povezanog s naftom. Investicije u ugljen i naftu su pale, a uočava se brzi rast investicija u čiste tehnologije (8).

Govoreći o prijetnjama ljudskom rodu kojima smo izloženi u ovom trenutku Ana Meštrović (9) sa Sveučilišta u Rijeci nas je nedavno upozorila na tzv. "infodemiju" – brzu difuziju informacija i lažnih informacija (*fake news*).

I Kristijan Lenac (10) sa Sveučilišta u Rijeci upozorava da je pandemija COVID-19 ubrzala proces digitalne transformacije društva u nekim važnim područjima poput pružanja zdravstvenih usluga, razmjene informacija, rada na daljinu i raznim drugim područjima.

Postavilo se pitanje jesmo li spremni za našu budućnost?

Iz kliničkih primjera je razvidno da se kao ljudi, a u profesiji vezanoj za intervencije u području mentalnog zdravlja, nalazimo nagnuti nad brojnim nepoznanicama u odnosu čak i na našu neposrednu budućnost. Vidjeli smo kako se to ocrtava u terapijskim okvirima. Prema mom iskustvu, sadašnja atmosfera u zdravstvenim ustanovama u Hrvatskoj jako me podsjeća na atmosferu s kojom smo se nosili u vrijeme raspada Jugoslavije i rata za neovisnost 1991.-1995. Atmosfera pandemije kapilarno prodire u sve pore svakodnevnog života, pa tako i u zdravstvene ustanove i službe za mentalno zdravlje. Ni zdravstveni radnici nisu imuni na zarazu COVID-19. Ova pandemija stvara višestruke poteškoće u organizaciji i obavljanju zdravstvenih službi. Brojni zdravstveni radnici sve više oboljevaju od koronaviroze, dok se s druge strane kod njih očituje sindrom pregrijevanja (*burnout*) zbog preopterećenosti radom. U pitanju je koliko će dugo zdravstvene službe moći izdržati opterećenje prouzročeno aktualnom pandemijom, ali i školski i drugi sustavi od javnog i privatnog interesa.

economic activities and those that depend on the energy of fossil fuels. Oil prices have fallen for the first time, warning producers that the end of the oil-driven century is approaching. Investments in coal and oil have fallen, and there is a rapid growth of investments in clean technologies (Duić, 2020).

Speaking about threats to the human race to which we are currently exposed, Ana Meštrović from the University of Rijeka recently warned us about the so-called "infodemia" – the rapid diffusion of information and false information (*fake news*).

Kristijan Lenac (2020) from the University of Rijeka also warns that the COVID-19 pandemic has accelerated the process of digital transformation of society in some important areas such as health services, information exchange, teleworking, and various other areas.

The question was, are we ready for our future?

It is clear from clinical examples that as human beings, and in the profession related to mental health interventions, we find ourselves looking out over numerous unknowns in relation to even our immediate future. We have seen this outlined in therapeutic frameworks. In my experience, the current atmosphere in health care institutions in Croatia strongly reminds me of the atmosphere we dealt with during the falling apart of Yugoslavia and the 1991-1995 war of independence. The atmosphere of the pandemic penetrates into all pores of everyday life, including health institutions and mental health services. Healthcare workers are not immune to COVID-19 infection either. This pandemic creates multiple difficulties in the organization and performance of health services. Many healthcare workers are increasingly suffering from coronavirus, while on the other hand many also suffer from burnout syndrome due to work overload. It is a question of how long the health services, but also schools and other systems of public and private interest, will be able to withstand the burden caused by the current pandemic.

TRADICIONALNE VRIJEDNOSTI I MOGUĆNOST ISKORIŠTAVANJA SADAŠNJE KRIZE ZA OTVARANJE NOVE PARADIGME ZA MEĐULJUDSKE ODNOSE: OD KOMPETICIJE DO KOOPERACIJE

Već je prošla jedna petina trajanja 21. stoljeća i možemo se osvrnuti na ondašnja očekivanja, vizije i nade, kao i na stvarnost koja se odvila tijekom tih dvaju desetljeća. Puno je razloga koji utječu na sve veću opterećenost stanovništva anksioznošću i depresijom koju primjećujemo kako se širi kao stanje duha koje aktualno prevladava i zrcali promjene kao posljedice pojave „crnog labuda“ i predvidljivih posljedica. Čak je i Europska udruga za borbu protiv depresije prošle godine odabrala temu „Depresija između virtualnog i stvarnog svijeta“ koju je preporučila obrađivati tijekom mjeseca listopada koji je posvećen borbi protiv depresije. Tema se pokazala prediktivnom.

Organizirajući predavanja na tu temu slušatelji radio i TV emisija najčešće izražavaju zabrinutost pitajući kako se pripremiti za dugi „mračni period“ jeseni i zime kada se druženja ne prepisuju i čak zabranjuju i kada se predviđa porast agresivnih ponašanja zbog tjeskobe, napesti, razdražljivosti, nedostatka odterećujućih aktivnosti u obliku društvenosti, prijateljskih druženja i prijateljskih blizina iz kruga uobičajenih socijalnih igara koje služe odterećivanju, razonodi, kontejniranju briga.

S druge strane gledano, sve više dolazi do izražaja pojam topline u ljudskim odnosima, empatije, zaboravljeni pojam ognjišta. Sherry Turkle (11), psihologinja i antropologinja sa MIT-a komentira da su danas ljudi ostali bez ognjišta. Poput Odiseja, suvremeni čovjek je poput ptice selice bez ognjišta, ali uvijek u potrazi za njim. Ona navodi da nakon *homo habilis*-a, *erectus*-a i *sapiens*-a, našu aktualnu ljudsku prirodu karakterizira *homo mobilis*, ili možda bolje *homo erans*.

TRADITIONAL VALUES AND THE POSSIBILITY OF USING THE CURRENT CRISIS TO OPEN A NEW PARADIGM FOR INTERPERSONAL RELATIONS: FROM COMPETITION TO COOPERATION

Now that one fifth of the 21st century has passed, we can look back on past expectations, visions and hope, and on the reality of what took place during these two decades. There are many causes that affect the growing burden of anxiety and depression, which we notice if it spreads as a state of mind that currently prevails and reflects changes as a result of the appearance of the “black swan” and predictable consequences. Last year, even the European associations for combating depression chose the theme of “Depression between virtual and real worlds” to be elaborated during the month of October which is dedicated to the fight against depression. The topic proved to be prophetic.

When organizing lectures on this topic, listeners of radio and TV shows most often express concern by asking how to prepare themselves for the long “dark period” of autumn and winter when socializing is not recommended and even banned, and when aggressive behaviors due to anxiety, tension, irritability, and lack of relieving activities are predicted. Activities in the form of friendly socializing and friendly closeness from the sphere of common social games serve to relieve, entertain, and contain anxiety.

On the other hand, the notion of warmth in human relations, empathy, the forgotten notion of the hearth is becoming more and more pronounced. Sherry Turkle (2012), a psychologist and anthropologist at MIT, commented that today people are left without a hearth. Like Ulysses, modern man is like a migratory bird without a hearth, but always looking for it. She states that after *homo habilis*, *erectus*, and *sapiens*, our current human nature is characterized by *homo mobilis*, or perhaps better *homo erans*.

Razmišljajući o sudbini našeg aktualnog razumijevanja profesionalnog identiteta u području skrbi za mentalno zdravlje u eri nove prisutnosti digitalnog doba sa svojom umjetnom inteligencijom i nepredvidljivošću dalnjeg razvoja čovječanstva u sljedećih desetak i više godina, mi kao djelatnici u području skrbi za mentalno zdravlje trebamo razmišljati o promjenama naše civilizacije, bilo da radimo s pacijentima – individualno ili grupno, ili na nama samima – psihijatrima, psiholozima, socijalnim radnicima i drugim članovima terapijskog tima. Kao grupni analitičar dijelim mišljenje mnogih kolega iz navedenih područja da je grupni *setting* ambijent za opstanak, razvoj i napredak ljudskog bića. Suvremena fluidnost identiteta i rodnih uloga, tzv. "likvidni identitet", značajno je pod utjecajem virtualnog svijeta i društvenih mreža. S druge strane, rad licem-u-lice u individualnom i grupnom *setting-u* daju nam osjećaj društvenog identiteta. U literaturi se tako majstorski opisuju slučajevi izgubljene ili spriječene društvene povezanosti, npr. Pirandellov „Pokojni Mattia Pascal“, kada se absolutna sloboda anonimnosti pretvara u kavez, ili Buzzatijeva „Tatarska puštinja“, kada usamljeni časnik ostaje zatvoren u svojoj paranoidnoj izolaciji. Ne bismo smjeli zaboraviti ni „Sliku Doriane Graya“ Oscara Wilea, gdje su društveni i intimni identiteti disociirani, pokazujući razliku između lažnog i pravog selfa. Ili Don Quijote, koji je živio u svom razumijevanju svijeta s kojim je bio okružen, itd.

Razmišljajući o sadašnjoj krzi uzrokovanoj pandemijom Luisa Brunori (12), psihologinja i grupna analitičarka navodi da živimo usred zaista posebne situacije. S jedne strane smo ustrašeni, ali s druge strane pruža nam se prigoda da ponovo razmislimo o zajedničkom življenju. Navodi da situacija prouzročena koronavirusom predstavlja pravu priliku da razmislimo o načinu suživota i odnosa, bilo u odnosu na zahtjeve koje postavlja, ali i na resurse koje je razvila. Jasnije se pokazalo da pripadamo globalnom društvu i da nam o tome govori sadašnje iskustvo.

Considering the fate of our current understanding of professional identity in mental health care in the era of the new presence of the digital age, with its artificial intelligence and unpredictability of further development of mankind in the next ten years or more, we as mental health care workers need to think about civilization, whether we work with patients – individually or in groups, or on ourselves – psychiatrists, psychologists, social workers and other members of the therapy team. As a group analyst, I share the opinion of many colleagues from these fields that the group setting is an environment for the survival, development, and progress of the human being. The contemporary fluidity of identities and gender roles, the so-called "liquid identity", is significantly influenced by the virtual world and social networks. On the other hand, face-to-face work in individual and group settings give us a sense of social identity. There are masterful literary descriptions of cases of lost or prevented social connection, e.g. Pirandello's "The late Mattia Pascal", when absolute freedom of anonymity turns into a cage, or Buzzati's "Tatar Desert", when a lone officer remains locked in his paranoid isolation. We should not forget Oscar Wilde's "Portrait of Dorian Gray", where social and intimate identities are dissociated, showing the difference between a false and a real self. Or Don Quixote, who lived in his understanding of the world he was surrounded by, and so on.

Reflecting on the current crisis caused by the pandemic, Luisa Brunori (2020), a psychologist and group analyst, states that we live in the middle of a truly special situation. On the one hand we are scared, but on the other hand we are given the opportunity to rethink our lives together. She states that the situation caused by the coronavirus represents a real opportunity to think about our mode of coexistence and relationships, both in relation to the demands it sets but also to the resources it has developed. It has become clear that we belong to a global society and that our current experience tells us about it. The crisis will be overcome to the extent that we will know how to transform it into an opportunity to correct

Kriza će se prevladati u onoj mjeri u kojoj ćemo ju znati transformirati u prigodu da korigiramo ono što na svijetu ne funkcioniра za samu zemlju, za njezino stanovništvo i za ljudska bića. Uočila se prijetnja ljudskoj egzistenciji, što je aktiviralo volju vrste da se toj prijetnji odupre. Raširila se psihička patnja osoba koje su razvile depresivne načine u oblku paranoidnih doživljavanja koja su možda i realna u jednoj stvarnosti koja je prožeta progostvenom atmosferom prepoznavajući u drugima potencijalne uzročnike. Autorica smatra da se sada pruža prilika da se neoliberalni model gubitnik-dobitnik/dobitnik-gubitnik transformira u pravcu rješenja dobitnik/dobitnik na bazi odgovornosti koju svatko od nas treba preuzeti, referirajući se na aktualnu pandemijsku prijetnju i prigodu da se kao svijet suočimo s boljim rješenjima. Ili, kako profesor Marcello Viola (13) navodi u kontekstu novih izazova aktualne pandemije, treba evoluirati iz modela kompetitivnosti prema modelu kooperacije. Ideja stalnog rasta na svim poljima više nije održiva.

Iznoseći iskustva i razmišljanja koja se u ovom vremenu nude kao izraz vlastitih i tuđih iskustava, strahova i nuda, razmjena tih iskustava u širokom spektru različitih saznanja i kultura mogla bi nam otvoriti put prema novim paradigmama ljudskog identiteta i međuljudskih odnosa.

what does not work in the world for the country itself, for its population, and for human beings. A threat to human existence has been observed, which activated the will of the species to resist that threat.

The psychological suffering of people who have developed depression symptoms in the form of paranoid experiences has spread, which may be real in one reality that is permeated with a persecutory atmosphere, recognizing potential causes in others. The author (Brunori) believes that there is now an opportunity provided where the neo-liberal lose-win/win-lose model could be transformed into a solution of win/win on the basis of the responsibility that each of us must take, referring to the current pandemic threat and the opportunity to, as a population, find better solutions. Or, as psychiatrist Marcello Viola (2020) states in the context of the new challenges of the current pandemic, there is a need to evolve from a model of competitiveness to a model of cooperation. The idea of constant growth in all fields is no longer sustainable.

By presenting experiences and thoughts that are offered at this time as an expression of our own and others' experiences, fears, and hopes, the exchange of these experiences in a wide range of different knowledge and cultures could open the way to new paradigms of human identity and interpersonal and interethnic relationships.

LITERATURA / REFERENCES

1. Qiu J, Shen B, Zhao M et al. A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General Psychiatry* 2020; 33: e100213 (doi:10.1136/gpsych-2020-100213).
2. Hutchinson S. Group analytic identity: Constructing identity in the age of the smartphone. *Psihoterapija* 2019; 33(1): 3-183.
3. Urlić I. Taking into consideration the new realities. *Psihoterapija* 2019; 33(1): 3.
4. Britvić D. Grupna analiza u vrijeme pandemije bolesti COVID-19. *Psihoterapija* 2020; 34(1): 148-69.
5. Brkić M. Grupna terapija u vrijeme pandemije bolesti izazvane novim koronavirusom (SARS-COV-2). *Psihoterapija* 2020; 34(1): 120-47.
6. Fonda P. Krivnja i osjećaj krivnje u analitičkom radu. *Psihoterapija (Croat – internet)* 2016; 30(2): 157-75.
7. Korlević K. Transhumana agenda: Posljednje stoljeće homo sapiens-a. Predavanje na Bug Future Show. You-Tube, 2019.
8. Duić N. COVID-19, climate change and energy transition. Lecture, webinar Rijeka, University of Rijeka, Oct. 22, 2020.
9. Meštrović A. A multilayer network approach for fake news detections during the COVID-19 crisis. Lecture, webinar Rijeka, University of Rijeka, Oct. 22, 2020.
10. Lenac K. Blockchain solutions for postpandemic society. Lecture, webinar Rijeka, University of Rijeka, Oct. 22, 2020.
11. Brunori L. Dalla crisi all'occasione, dal soggetto alla polis e ritorno. Predavanje, Sveučilište u Bologni, 2020.
12. Turkle S. *Alone Together: Why we expect more from technology and less from each other*. New York: Basic Books, 2012.
13. Viola M. Osobna komunikacija, 2020.

Razglednica „Pozdrav iz Vrapča“

/ Picture Postcard „Greetings from Vrapče“

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UVOD

Rázglednica - im. ž. G rázglednicē; mn. N rázglednice, G rázglednícā (poštanska karta sa slikom grada, krajolika, spomenika i sl. koja se šalje obično s kakva putovanja). Lijep navod o razglednicama dao je Zvonimir Milčec u svojoj knjizi *Pozdrav iz Zagreba* gdje razglednicu opisuje kao „mali format velike ljubavi prema gradu“ (1). Razglednice se mogu razvrstati prema motivima pa tako postoje razglednice s motivima povijesnih građevina, motivima prirode, narodnih nošnji itd. Razglednica je zapravo pismeni oblik komunikacije, njezin nastanak vežemo uz razvoj prometa, a potom i poštanske službe. Način komunikacije slanjem razglednica postaje strahovito popularan krajem 20. stoljeća kada se dnevno u svijetu pošiljalo 4 milijuna primjeraka. Prve razglednice tiskane su 1869. godine u Beču. Vremenom, razvoj fotografije i reprodukcijske tehnike uvelike su umnožile proizvodnju i upotrebu razglednica stoga danas imaju uporabnu svrhu i kao suvenir i predmet zbirki. Zanimljivo je njihovo proučavanje putem kojeg dobivamo uvid o razvoju tiskarskih tehniki, a prikazani crteži i fotografije odražavaju umjetničke mogućnosti i ukuse određenih sredina. Razglednice nam služe kao autentični dokumenti pojedinog povijesnog razdoblja, umjetničkog, društvenog, kulturnog, a temeljem prikaza na njima moguće je obnoviti razrušene povijesne spomenike, imati često podatke koji su zaista važni povjesničarima i arhitektima (štukature na zgradama, original-

INTRODUCTION

Picture postcard – “a card with a picture of a city, countryside, monument, etc., usually sent when travelling.” Zvonimir Milčec provides a good description of picture postcards in his book *Greetings from Zagreb*: “a great love for a city in a small format” (1). Postcards can be classified thematically: there are postcards with pictures of historical buildings, scenes of nature, folk costumes, etc. The postcard is actually a written form of communication, and its inception is tied to the development of transportation and postal services. Communication via postcards became immensely popular at the end of the 20th century, when 4 million postcards were sent daily worldwide. The first postcards were printed in 1869 in Vienna. Over time, developments in photography and reproductive methods helped increase production and spread the use of postcards, which is why today they also function as souvenirs and collectibles. Their analysis also provides insight into the developments of printing methods, while their drawings and photographs reflect artistic abilities and tastes of particular places. Postcards serve as authentic documents of historical periods and their artistic, social, and cultural characteristics, and their images can help in the restoration of ruined historical monuments since they often contain data that are important for historians and architects (such as stuccoes, original colours of buildings and monuments, etc., something we witnessed in the aftermath

ne boje građevina i spomenika itd. čemu smo svjedoci nakon Domovinskog rata i nedavnog potresa u Zagrebu). Proučavanjem i sakupljanjem razglednica (deltiologija) čuvamo kako svoju tako i svjetsku povijesnu, kulturnu i spomeničku baštinu (2).

RAZGLEDNICA BOLNICE VRAPČE

Razglednica Psihijatrijske bolnice Vrapče u Zagrebu u naravi je fotografija slike glavne zgrade Psihijatrijske bolnice Vrapče, današnje Klinike za psihijatriju Vrapče, akademskog slikara Zoltana Gabora. Prikazuje glavnu zgradu bolnice Vrapče, izgrađenu davne 1879. godine (sl. 1). Na poleđini razglednice piše: ZOLTAN GABOR: «Bolnica 1879» gvaš-lazura, te OFFSET TISAK «ZRINSKI» ČAKOVEC (sl. 2). Dimenzija razglednice je 15 x 10 cm. Godina tiskanja razglednice nije navedena.

Malim istraživanjem doznali smo da je ova razglednica bila tiskana 1979. godine, povodom 100-te obljetnice Bolnice Vrapče te je inicijalno poslužila kao pozivnica. Ova slika Bolnice Vrapče objavljena je i u monografiji koja je tom prigodom tiskana (3) ali i u još nekim kasnijim publikacijama (4). Puno godina kasnije ova razglednica ukrasila je i poster autora Zdravka Pecotića i Mire Štengl-Martinjak, a koji je bio prikazan na 1. hrvatskom kongresu o aterosklerozi s međunarodnim sudjelovanjem na Brijunima od 30. rujna do 3. listopada 1997. godine (5).

Zoltan Gabor rođen je 31. ožujka 1922. godine u Dolnjoj Lendavi. Nakon završenog redovitog studija Odjela za likovnu umjetnost Odsjeka za slikarstvo Akademije likovnih umjetnosti u Zagrebu, pohađao je „specijalku“ na Odjelu za slikarstvo (studij tadašnje „specijalke“ odgovara današnjem poslijediplomskom studiju). Diplomirao je 1951. godine u klasi Marijana Detonija (6). U svom bogatom životu radio je kao profesor likovnog odgoja, pripremao budu-

of the Homeland War and the recent earthquake in Zagreb). The collection and research of postcards (deltiology) helps us preserve our own and worldwide historical, cultural, and monumental heritage (2).

VRAPČE HOSPITAL POSTCARD

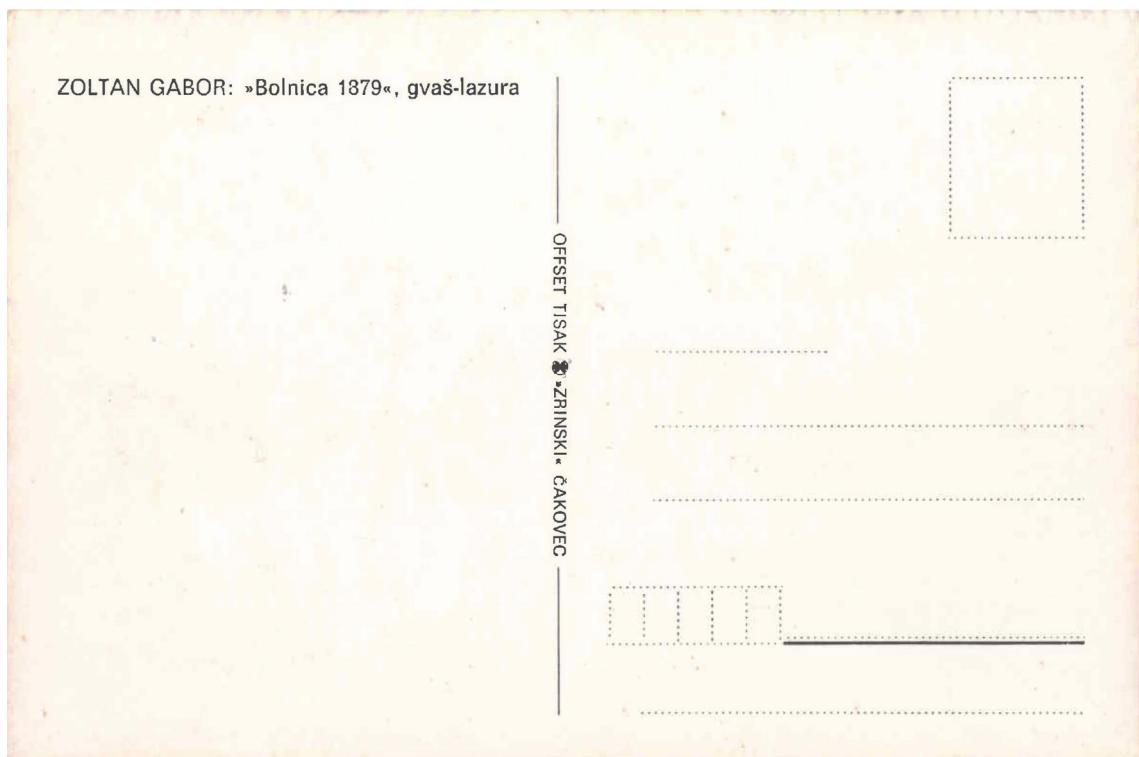
The postcard of the Psychiatric Hospital Vrapče in Zagreb is, in fact, a photograph of the main building of the Psychiatric Hospital Vrapče, today's University Department of Psychiatry Vrapče, taken by the painter Zoltan Gabor. The photograph shows the main building of the Vrapče hospital, built in 1879 (Figure 1). On the back, the following is written: ZOLTAN GABOR: "Hospital 1879" gouache-lacquer, OFFSET TISAK "ZRINSKI" ČAKOVEC (Figure 2). The postcard's dimensions are 15 x 10 cm. The year of printing is not stated.

Our research showed that the postcard was printed in 1979, on the occasion of the 100th anniversary of the Vrapče hospital, and initially served as an invitation. This picture of the Vrapče hospital was also published in a monograph that was printed on the same occasion (3), as well as in some other subsequent publications (4). Many years later, the same postcard was used as decoration for a poster by Zdravko Pecotić and Mira Štengl-Martinjak shown at the 1st international Croatian congress on atherosclerosis, held on Brijuni from 30 September to 3 October 1997 (5).

Zoltan Gabor was born on 31 March 1922 in Dolnja Lendava. After graduating from the Art Section of the Department of Painting at the Academy of Art in Zagreb, he specialized at the Department of Painting (the specialization study corresponded to today's postgraduate study). He graduated in 1951 from the class of Marijan Detoni (6). He worked as an art teacher, prepared future students for the enrolment exam at the Academy of Applied Arts, and al-



SLIKA 1. Razglednica Psihijatrijske bolnice Vrapče, prednja strana
FIGURE 1. The postcard of the Psychiatric Hospital Vrapče, front



SLIKA 2. Razglednica Psihijatrijske bolnice Vrapče, stražnja strana
FIGURE 2. The postcard of the Psychiatric Hospital Vrapče, back

N. Mimica, S. Spitzmüller: Picture Postcard „Greetings from Vrapče“. Soc. psihijat. Vol. 48 (2020) No. 4, p. 439-443.

će studente za prijamni ispit za Školu primijenjene umjetnosti, a za svoj likovni i obrazovni rad uvijek je ocjenjivan visokom ocjenom. Bio je stalni suradnik izdavačkih kuća „Naprijed“ i „Školske knjige“, imao samostalnu izložbu u Parizu 1953. godine, bio suradnik Zagrebačkog kazališta lutaka do 1961. godine. U Klinici za psihijatriju Vrapče radio je kao likovni terapeut na Općem odjelu od 1964. do 1988. godine (7). Preminuo je u Zagrebu 27. veljače 2010. godine.

PROMIŠLJANJA

Mnoge psihijatrijske institucije, tj. azili u svijetu, poglavito u Sjedinjenim Američkim državama imali su svoje razglednice koje su najčešće bile fotografije tih ustanova, bilo crno-bijele ili u boji (8). Nije nam poznato da je to bio slučaj na području Hrvatske. U pre-informatičko doba i u doba slabo razvijene telekomunikacije, tj. kada nije svatko u džepu imao mobitel, pisalo se puno više nego danas, s putovanja su se obavezno slale razglednice. Razglednice o kojima je ovdje riječ služile su korisnicima/štićenicima ustanova kao mogućnost komunikacije sa svojim bližnjima. Ljepota i monumentalnost mnogih tadašnjih azila ili sanatorija išla je u prilog destigmatizaciji psihijatrije i psihičkih bolesti, tim više što je tekst na poleđini razglednice svatko mogao pročitati te je ona zapravo bila otvorena poruka ne samo određenoj (adresiranoj) osobi, a svojim otvorenim sadržajem „odavala je i obiteljsku povijest“.

Zanimalo nas je jesu li i druge hrvatske psihijatrijske ustanove imale svoju razglednicu. U tom smislu smo pregledali postojeće monografije Neuropsihijatrijske bolnice «Dr. Ivan Barbot» iz Popovače (9), Psihijatrijske bolnice Rab (10), Bajnskih dvora (11), i kontaktirali kolege iz Psihijatrijske bolnice «Sv. Ivan» (prije Jankomir), Psihijatrijske bolnice Ugljan i Psihijatrijske bolnice Lopača. Nismo dobili podatak da je neka od navedenih ustanova imala svoju

ways received high grades for his artistic and educational work. He was a constant associate of the “Naprijed” and “Školska knjiga” publishing houses, held an independent exhibition in Paris in 1953, and was an associate of the Zagreb puppet theatre until 1961. From 1964 to 1988 he worked as an art therapist at the General department of the Psychiatric Hospital Vrapče (7). He died in Zagreb on 27 February 2010.

CONSIDERATIONS

Numerous psychiatric institutions or asylums around the world, but mainly in the United States of America, had their own postcards which mainly contained photographs of those institutions, whether in black-and-white or in colour (8). There are no records of such practice on the territory of Croatia. In the pre-information age of poorly developed communication, when cell phones were not so widespread, people wrote much more than today and always sent postcards from their trips. The postcards we are concerned with here offered the patients at the institutions the ability to communicate with their loved ones. The beauty of such asylums or sanatoriums is that they contributed to the destigmatisation of psychiatry and psychiatric diseases, even more so because anyone could read the text on the back of the postcards, which meant that it served more as an open message not intended only for a particular addressee, whose open content “revealed the family history”.

We were interested to find out whether other Croatian psychiatric hospitals also had their own postcards. We studied the existing monographs of the Neuropsychiatric Hospital “Dr. Ivan Barbot” in Popovača (9), Psychiatric Hospital Rab (10), and Bajnski dvori (11), and contacted our colleagues at the Psychiatric Hospital “Sv. Ivan” (formerly Jankomir), Psychiatric Hospital Ugljan, and the Psychiatric Hospital Lopača. We found no evidence that any of

razglednicu, izuzev razglednice Bajnskih dvora. Međutim, ta razglednica potjeće iz doba kada je ovaj dvorac služio kao klimatsko lječilište za infektivne bolesnike.

ZAKLJUČAK

Iako ne znamo koliko je bolesnika poslalo vrapčansku razglednicu i nažalost nemamo neki primjerak upotrijebljene razglednice, možemo pretpostaviti da je ova razglednica bila u upotrebi i otputovala u mnoge krajeve Hrvatske, bivše Jugoslavije, Europe pa i svijeta. Ova jedina, koliko je nama poznato, razglednica jedne hrvatske psihijatrijske ustanove u isto je vrijeme dokument jednog vremena i umjetnički izraz, a sasvim sigurno je posebna, neobičnija i „hrabrija“ od ostalih razglednica tog vremena, upravo zbog mjesta iz kojeg je bila poslana.

ZAHVALA

Hvala prof. dr. sc. Dragici Kozarić Kovačić i dr. Miri Štengl-Martinjak na usmenim podatcima povezanim s povijesnim kontekstom nastanka ove razglednice.

LITERATURA / REFERENCES

1. Milčec Z. Pozdrav iz Zagreba. Zagreb: Mladost, 1987.
2. Puljar S. Putujuće slike: razglednice - kulturnoantropološki dokumenti. Nar umjet 1997; 34(2): 153-65.
3. Turčin R, Lipovac M, Matijaca B i sur. (ur). Psihijatrijska bolnica Vrapče 1879-1979. Zagreb: Psihijatrijska bolnica Vrapče, 1979.
4. Jukić V. Bolnica Vrapče kao nakladnik - stručnjaci bolnice kao autori knjiga povodom 136. obljetnice Bolnice Vrapče. Soc psihijat 2015; 43(3): 156-63.
5. Mimica N, Jukić V. Knjiga postera stručnjaka Psihijatrijske bolnice Vrapče 1978. – 2006. Zagreb: Psihijatrijska bolnica Vrapče, 2006, str. 158-9.
6. Biffel J, Seder Đ, Pejaković M, Šimat-Banov I, Tišljar Z, Turković V (ur). Akademija likovnih umjetnosti u Zagrebu 1907-1987, Monografija prigodom 80. godišnjice ALU u Zagrebu. Zagreb: ALU, 1987.
7. Brećić P, Ostojić D, Stijačić D, Jukić V. Od radne terapije i rekreacije do psihosocijalnih metoda liječenja i rehabilitacije psihijatrijskih bolesnika u bolnici „Vrapče“. Soc psihijat 2013; 41(3): 174-81.
8. Bogdan R, Marshall A. Views of the Asylum: Picture postcard depiction of institutions for people with mental disorders in the early 20th century. Visual Sociology 1997;12(1):4-27. doi: 10.1080/14725869708583772
9. Bamburač J (ur). Neuropsihijatrijska bolnica „Dr. Ivan Barbot“ u Popovači 1934.-1984. Popovača: Neuropsihijatrijska bolnica „Dr. Ivan Barbot“, 1984.
10. Šendula Jengić V, Hodak J (ur). Psihijatrijska bolnica Rab - 55+ godina rada za mentalno zdravlje. Rab: Psihijatrijska bolnica Rab, 2012.
11. Brajša P. Bajnski dvori – neobičan razvoj jedne obične psihijatrije. Varaždin: NIŠRO, 1986.

those institutions had their own postcards, except for Bajnski dvori. However, that postcard is from the period when the castle served as a clinic for infectious patients.

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CONCLUSION

Although we do not know how many patients sent a postcard from Vrapče and we do not have any examples of used postcards, we can assume that this postcard was in use and that it travelled to many other places in Croatia, former Yugoslavia, Europe, and even to the rest of the world. This sole example (as far as we know) of a postcard from a Croatian psychiatric institution is simultaneously a document of its time and an artistic expression, and it is certainly special, more unusual and “courageous” than other postcards of its time, precisely because of the place from which it was sent.

ACKNOWLEDGMENTS

We wish to thank Prof Dragica Kozarić Kovačić, PhD and Dr Mira Štengl-Martinjak for the data on the historical context of the postcard.

In memoriam

Pavo Filaković

(21. veljače 1949. – 29. prosinca 2020.)
(February 21, 1949 – December 29, 2020)



Pavo Filaković rođen je 21. veljače 1949. godine u Baranjskom Petrovom Selu gdje je završio niže razrede osnovne škole, a više razrede osnovne škole i gimnaziju završio je u Belom Manastiru. Na Medicinskom fakultetu Sveučilišta u Zagrebu diplomirao je 1973. godine. Njegova sklonost i interes prema psihijatriji mogli su se zamijetiti već u studentskim danima kad je kao student sudjelovao u terenskim epidemiološkim istraživanjima proširenosti psihijatrijskih poremećaja. Kao rođeni Baranjac radio je dvije godine u tada obaveznoj općoj medicini, u ambulantama širom Baranje i Medicinskom centru Vukovar te se već na samim počecima njegove liječničke karijere moglo uočiti da se radi o budućem vrsnom kliničaru. Specijalizaciju iz psihijatrije na Klinici za psihijatriju KBC-a Zagreb obavio je od 1979. do 1982. godine. Bio je uposlen u KBC-u Osijek od 1978. godine kao specijalizant, a potom od 1982. godine kao specijalist iz psihijatrije. Bio je pročelnik Kliničkog odjela biologiske psihijatrije s intenzivnom skrbi na Klinici za psihijatriju KB Osijek od 1988. do 2003. godine kad je postao

Pavo Filaković was born on February 21, 1949 in Petrovo Selo in the Baranja region, where he finished the early years of primary school, completing primary school and secondary school in Beli Manastir. He graduated from the University of Zagreb Medical school in 1973. His interest and propensity for psychiatry were already clear during his days a student, when he participated in field epidemiological studies on the prevalence of psychiatric disorders. As a person born in the Baranja region, he worked for two years as part of the mandatory general medical practice at the time in clinics throughout Baranja and in the Vukovar Medical Centre, and it was clear from the start of his medical career that he would be an excellent clinician. He earned his specialization in psychiatry at the Psychiatry Clinic of the Zagreb Clinical Hospital Centre between 1979 and 1982. He was employed at the Osijek Clinical Hospital Centre from 1978 as a resident and from 1982 as a specialist in psychiatry. He was the head of the Clinical Department for Biological Psychiatry with Intensive Care at the Psychiatry

predstojnik Klinike za psihijatriju KB Osijek. Na toj dužnosti ostao je do 2013. godine kad je nastavio karijeru kao nastavnik na Medicinskom, a nakon osnivanja Fakulteta za dentalnu medicinu do svoje smrti bio je nastavnik psihijatrije na tom fakultetu.

Iako se gotovo cijeli radni vijek bavio biologijskom psihijatrijom, njegovi začetci u psihijatriji su više vezani uz socijalnu psihijatriju pa je tako poslijediplomski studij iz socijalne psihijatrije na Medicinskom fakultetu Sveučilišta u Zagrebu pohađao 1982-1983. godine. Magistrirao je 1987. godine, a doktorirao 1995. na Medicinskom fakultetu Sveučilišta u Zagrebu. Područja istraživanja kako magisterija tako i doktorata bila su iz područja biologijske psihijatrije. Ipak, interes prema socijalnoj psihijatriji i socijalnopatološkim procesima i pojavama ga je kasnije odveo prema bavljenju interdisciplinarnim područjem – forenzičkom psihijatrijom. Naziv primarius stekao je 1993. godine. Subspecijalizacija iz biologijske psihijatrije na Klinici za psihijatriju KB Osijek priznata mu je 2003. godine. Doprinos razvoju psihijatrije dao je organizacijom i sudjelovanjem na brojnim domaćim i međunarodnim stručnim i znanstvenim skupovima kao aktivni sudionik i pozvani predavač.

Prof. Pavo Filaković bio je izuzetno posvećen znanstvenom radu. Objavio je ukupno 88 stručnih i znanstvenih članaka. Pedeset osam članaka objavio je u međunarodno indeksiranim publikacijama, a na kontinuitet njegovog znanstvenog interesa ukazuje i podatak da je 24 znanstvena i stručna rada objavio poslije posljednjeg izbora u znanstveno nastavna zvanja. Sudjelovao je u izvedbi 2 domaća znanstveno-istraživačka projekta i dva međunarodna projekta. Od 2007. do 2012. godine bio je voditelj projekta „Mehanizam nastanka metaboličkog sindroma induciran antipsihoticima“ i suradnik na projektu „Strategija izgradnje akademskog okružja za poticanje moralnog razvoja“. Bio je mentor 5 doktorskih radova, 2

Clinic of the Osijek Clinical Hospital from 1988 to 2003, when he became the head of the Psychiatry Clinic of the Osijek Clinical Hospital. He remained at this position until 2013, when he continued his career as an educator at the Medical School, and after the foundation of the Dental Medicine Faculty he worked there as a teacher of psychiatry until his death.

Although he spent almost the whole of his career working on biological psychiatry, the beginning of his career was focused more on social psychiatry, and he attended postgraduate courses from social psychiatry at the University of Zagreb Medical school in 1982 and 1983. He earned his master's degree in 1987 and his doctorate in 1995 at the University of Zagreb Medical School. The research topics both in his master's and doctorate theses were from the field of biological psychiatry. However, his interest towards social psychiatry and sociopathological processes and phenomena later led him to work in an interdisciplinary field – forensic psychiatry. He earned the title of chief physician in 1993 and subspecialization in biological psychiatry at the Psychiatry Clinic of the Osijek Clinical Hospital in 2003. He contributed to the development of psychiatry by organizing and participating in numerous Croatian and international professional and scientific conferences as an active participant and invited lecturer.

Prof. Pavo Filaković was extremely dedicated to scientific work. He published a total of 88 professional and scientific papers. Fifty-eight of these were published in internationally indexed publications, and the continuity of his scientific work is clear from the fact that he published 24 professional and scientific papers after his last appointment to a scientific-teaching grade. He also participated in the implementation of two Croatian research projects and two international projects. Between 2007 and 2012, he was project leader on the “Mechanism for the Development of Metabolic Syndrome Induced by Antipsychotics” project and participated in

magisterska rada te više studentskih diplomskih radova.

Kao istraživač i kasnije glavni istraživač, sudjelovao je u većem broju stručnih projekata farmakoloških kliničkih ispitivanja lijekova. U svom radu je uvijek iskazivao pedantnost i visoku sposobnost kliničkog zapažanja te je u više navrata prijavljivao nuspojave lijekova u ovim studijama, davao primjedbe i prijedloge za poboljšanje dizajna studija zbog čega su ga i organizatori istraživanja doživljavali kao vrsnog, poštenog i objektivnog kliničara.

Nastavničku karijeru prof. Pavo Filaković započeo je 1988. godine kao voditelj vježbi iz psihijatrije na Studiju medicine Medicinskog fakulteta Sveučilišta u Zagrebu. Nakon osnutka Medicinskog fakulteta u Osijeku 1998. godine sudjelovao je u nastavi iz psihijatrije na Katedri za psihijatriju i psihološku medicinu. Bio je asistent od 1998. do 2000. godine, habilitaciju za docenta imao je 2000. godine na Medicinskom fakultetu Sveučilišta «J. J. Strossmayer» u Osijeku. U zvanje izvanrednog profesora izabran je 2004. godine, a u zvanje redovitog profesora 2008. godine na Medicinskom fakultetu u Osijeku. Od 2013. godine bio je redoviti profesor u trajnom zvanju na Medicinskom fakultetu u Osijeku. Od 2002. godine bio je pročelnik Katedre za psihijatriju i psihološku medicinu na Medicinskom fakultetu Sveučilišta "Josip Juraj Strossmayer" u Osijeku. Bio je nositelj nastave iz više predmeta na Integriranom studiju medicine, Studiju sestrinstva, poslijediplomskom studiju te na Sveučilištu u Zadru. U dva mandata, od 2005. do 2009. godine bio je dekan Medicinskog fakulteta u Osijeku čime se posebno ponosio. Također je obnašao i dužnost prodekana za suradnju s nastavnim bazama. U njegovom znanstveno nastavnom djelovanju svakako je potrebno istaknuti uređivanje i koautorstvo prvog osječkog udžbenika psihijatrije iz 2013. godine. Njegova ljudska osobina osjećaja zahvalnosti prema učiteljima sadržana je i u riječi urednika ovog udžbenika gdje profesor

the "Strategy for the Development of an Academic Environment for the Encouragement of Moral Development" project. He mentored 5 doctorate theses, 2 master's theses, and numerous graduate theses.

As a researcher and later as head researcher, he participated in numerous projects on pharmacological clinical drug trials. In his work, he always demonstrated conscientiousness and highly developed clinical observation skills, reporting medication side-effects on multiple occasions during these studies and providing comments and suggestions to improve the design of the studies, which is why the study organizers considered him an excellent, fair, and objective clinician.

Prof. Pavo Filaković began his teaching career in 1988 by holding a psychiatry exercises course at the University of Zagreb Medical School. After the founding of the Medical School in Osijek in 1998, he participated in teaching courses at the Department for Psychiatry and Psychological Medicine. He was a teaching assistant from 1998 to 2000 and passed his habilitation for an assistant professorship in 2000 at the "J. J. Strossmayer" University Medical School in Osijek. He became an associate professor at the Osijek Medical School in 2004 and a full professor in 2008. Since 2013, he was a full professor with tenure at the Osijek Medical School. He was the head of the Department for Psychiatry and Psychological Medicine at the "J. J. Strossmayer" University Medical School in Osijek since 2002. He taught multiple courses at the Integrated Medical School, Nursing School, held postgraduate courses, and taught at the University of Zadar. For two terms, from 2005 to 2009, he was the dean of the Osijek Medical School, which he was especially proud of. He also performed the duties of the vice deanship for cooperation with other teaching bases. With regard to his scientific and educational work, it is certainly necessary to emphasize his work in editing and coauthoring the first Osijek

Filaković kaže: „Knjigu smo napisali kako bi vratili dug našim učiteljima prijenosom znanja i vještina iz psihijatrije na naše učenike“. Ono što je krasilo pisanje prof. Filakovića jest jezgrovitost i jasnoća njegove misli. Te osobine je naslijedio od svog oca Matije Filakovića, šokačkog seljaka i pučkog književnika.

Prof. Pavo Filaković je svoju privrženost radu na području psihijatrije pokazivao i sudjelovanjem u radu brojnih stručnih psihijatrijskih društava. Bio je član Hrvatskog psihijatrijskog društva, potom član Upravnog odbora Hrvatskog društva za kliničku psihijatriju, dopredsjednik Hrvatskog psihofarmakološkog društva, član Hrvatskog društva za forenzičku psihijatriju.

Bio je član Akademije medicinskih znanosti Hrvatske od 1997. godine te član Hrvatskog liječničkog zbora gdje je također bio vrlo aktivan kao član Povjerenstva za liječničku etiku i deontologiju i predsjednik suda časti podružnice Osijek. Prof. Filaković se stavio na raspolaganje i Ministarstvu zdravstva – bio je član Povjerenstva za psihijatriju Ministarstva zdravstva RH, potom član Središnjeg etičkog povjerenstva Ministarstva zdravstva 2006.-2008. godine te član povjerenstva za zaštitu osoba s duševnim smetnjama 2011.-2012. godine. Za svoj predani stručni i znanstveni rad dobio je niz priznanja od kojih treba izdvojiti Povelju hrvatskog liječničkog zbora 2005. godine, Priznanje Hrvatskog zavoda za mentalno zdravlje za doprinos u razvoju psihijatrije u Hrvatskoj 2008. godine, Nagradu „Ladislav Rakovac“ 2009. godine, Priznanje Hrvatskog društva za zaštitu i unaprjeđenje mentalnog zdravlja Hrvatskog liječničkog zbora povodom 1. Hrvatskog kongresa o prevenciji i rehabilitaciji u psihijatriji u Sv. Martinu na Muri 2010. godine.

Profesora Pavu Filakovića pozajem od svog djetinjstva budući da smo obojica rođeni u istom mjestu te su nas zbog toga često kolege i suradnici znali u šali nazivati „oni Baranji“. Veže nas veliko prijateljstvo naših roditelja, ali

psychiatry handbook from 2013. His humane virtue of gratitude towards his students is also embodied in the editor's foreword in this handbook, where professor Filaković says: "We have written this book to pay back our debt to our teachers by transferring psychiatric knowledge and skills to our students". The writing of Prof. Filaković was always graced by succinctness and clarity of thought. He inherited this from his father, Matija Filaković, a farmer and folk writer of the Šokci people.

Prof. Pavo Filaković also demonstrated his dedication to work in the field of psychiatry by participating in the work of numerous professional psychiatric societies. He was a member of the Croatian Psychiatric Association, a member of the Board of the Croatian Society for Clinical Psychiatry, vice president of the Croatian Psychopharmaceutical Society, and a member of the Croatian Society for Forensic Psychiatry.

He was a member of the Croatian Academy of Medical Sciences since 1997 and a member of the Croatian Medical Association, where he was also a very active member of the Committee for Medical Ethics and Deontology and the president of the chancery of the Osijek branch. Prof. Filaković also offered his services to the Ministry of Health – he was a member of the Psychiatry Committee of the Ministry of Health of the Republic of Croatia, a member of the Central Ethics Committee of the Ministry of Health between 2006 and 2008, and a member of the committee for the protection of persons with mental disorders between 2011 and 2012. He received numerous awards for his dedicated professional and scientific work, among which we must especially mention the Award of the Croatian Medical Association, the Award of the Croatian Institute for Mental Health for Contributions in Developing Psychiatry in Croatia in 2008, the "Ladislav Rakovac" Award in 2009, and the Award of the Croatian Society for the Protection and Improvement of Mental health of the Croatian Medical Association as part of

naši putevi su se ipak značajnije susreli nakon mog završetka studija. Profesor Filaković me je u našim tadašnjim druženjima zainteresirao za područje psihijatrije te sam na kraju i sam izabrao ovu specijalizaciju. Ono što mi je živo ostalo u sjećanju jest sredina osamdesetih godina prošlog stoljeća kada se osječka psihijatrija pod vodstvom profesora Nikole Mandića spremala na osamostaljenje, a za što su tada postojali veliki otpori kako u samom tadašnjem Odjelu neuropsihijatrije tako i u vodstvu bolnice. Profesor Filaković je tada bio glavni suradnik i podrška profesoru Nikoli Mandiću i snažni pobornik daljeg samostalnog razvoja psihijatrije. Sva naša tadašnja druženja i razgovori bili su u znaku ovog procesa. U tim začecima osječke samostalne psihijatrije kad su na Kliniku pristigli novi kolege specijalizanti i ja među njima, profesor Filaković je tada bio određena spona između starije generacije liječnika i skupine nas specijalizanata. Profesor Filaković je u tim prvim godinama klinike radio intenzivno na razvoju biologische psihijatrije, poticao mlade kolege da se uključe u znanstvenoistraživački rad te se svakodnevno trudio da osječka biologiska psihijatrija bude u korak sa zagrebačkom kojoj je tada na čelu bio veliki profesor Nenad Bohaček. Potrebno je reći da je profesor Filaković sa suradnicima na tadašnjem Odjelu biologiske psihijatrije provodio kod refrakternih duševnih poremećaja između ostalih terapijskih metoda i elektrokonvulzivnu terapiju što je tada na razini Hrvatske provodila još jedino Klinika za psihijatriju KBC-a Zagreb. Početkom ratnih zbivanja, dok je kod nekih još vladala nedoumica kako se postaviti u nadolazećim vremenima, profesor Filaković je imao jasne domoljubne stavove te je u suradnji s profesorom Vladom Jukićem kao predstavnikom Glavnog sanitetskog stožera RH radio na razvoju slavonske ratne psihijatrije, ali i sudjelovao u direktnoj pomoći braniteljima koji su odlazili ili se vraćali sa prvih crta bojišnice. Tijekom rata aktivno je sudjelovao u edukaciji časnika i dočasnika Hrvatske vojske na blago-

the 1st Croatian Congress on prevention and Rehabilitation in Psychiatry in Sv. Martin na Muri in 2010.

I knew Professor Pavo Filaković since childhood: we were both born in the same place, and colleagues would often jokingly call us "those guys from Baranja". We were bound by the great friendship that existed between our parents, but our paths intertwined more tightly only after I finished my studies. It was then that Professor Filaković piqued my interest in psychiatry during the time we spent together, to the point where I chose to pursue that specialization in medicine. I vividly remember the mid-eighties, when psychiatry in Osijek was preparing for independence under the leadership of Professor Nikola Mandić, which was met with great resistance at the time both from the Neuropsychiatry Department and the hospital leadership. Professor Filaković was the main ally and supporter of Professor Nikola Mandić at the time, and a strong adherent of the further independent development of psychiatry. All our conversations at the time were marked by this process. In these beginnings of independent psychiatry in Osijek, when new colleagues undergoing psychiatry residency arrived at the Clinic, and I among them, Professor Filaković acted as a bridge between the older generation of physicians and us residents. During these first years of the new clinic, Professor Filaković worked intensely on the development of biological psychiatry, encouraged younger colleagues to take part in scientific research, and constantly worked on making biological psychiatry in Osijek become an equal to that in Zagreb, which was led by the great Professor Nenad Bohaček at the time. It should be noted that Professor Filaković and his colleagues at what was the Department of Biological Psychiatry at the time conducted, among other therapies, electroconvulsive therapy for refractory mental disorders, as the only place this therapy was applied in Croatia other than

vremenom prepoznavanju duševnih smetnji kod hrvatskih vojnika i održavao zapažena predavanja za djelatnike tadašnje Operativne zone Osijek. U poratnim godinama bio je jedan od organizatora u pružanju psihiatrijske pomoći prognanicima i izbjeglicama iz BiH u kampova Čepin i Gašinci. Posebno se sjećam njegovih zahtjeva pri dolasku u privremene domove izbjeglica da se ponašamo u skladu s njihovim običajima. Profesor Filaković je iza sebe ostavio jednu od najuspješnijih i najrazvijenijih klinika KBC-a Osijek, ostavio je skupinu kolega koji danas vode Kliniku i Katedru za psihiatriju i psihološku medicinu kao i mlade vrijedne psihiatre čije vrijeme tek dolazi, ali koji već sada vrlo kvalitetno rade na daljem razvoju Klinike i Katedre za psihiatriju.

Profesor Filaković je svojim naglim i neočekivanim odlaskom ostavio veliku prazninu u hrvatskoj te posebno slavonskoj psihiatriji. Iza sebe je ostavio suprugu Vesnu, kćerke Ivanu i Anu, sina Mateja te unuke Evu i Ingu na koje je bio posebno ponosan. Pamtit ćemo ga po njegovoj skromnosti, jednostavnosti i dobroti, a posebno će ga se sjećati njegovi pacijenti o kojima je skrbio do svoje smrti.

Neka mu je laka hrvatska zemlja koju je toliko volio i branio. Vječna mu hvala i slava!

Ivan Požgain

in the Psychiatry clinic of the Zagreb Clinical Hospital Centre. At the start of the Homeland War, while some were still unsure how to align themselves in the coming times, Professor Filaković took a clear patriotic position and, together with Professor Vlado Jukić as the representative of the Main Medical Corps Headquarters of the Republic of Croatia, worked on developing war psychiatry in the Slavonia region while also participating in direct aid to soldiers leaving for or returning to the front. During the war, he actively participated in the education of officers and non-commissioned officers of the Croatian Army in timely recognition of mental disorders in Croatian soldiers and held notable lectures for the members of the Osijek Army Operations Zone. In the post-war period, he was one of the organizers of psychiatric aid to refugees from Bosnia and Herzegovina in the Čepin and Gašnica camps. I clearly remember his demand that we act according to the customs of the refugees arriving to our temporary housing. Professor Filaković leaves behind him one of the most successful and most developed clinics of the Osijek Clinical Hospital Centre and a group of young, diligent colleagues leading the Clinic and the Department of Psychiatry and Psychological Medicine, who are yet to come into their prime but are already doing fine work on the further development of the Clinic and the Department of Psychiatry.

The sudden and unexpected passing of Professor Filaković has left a great void in Croatian and especially Slavonian psychiatry. He leaves behind his wife Vesna, his daughters Ivana and Ana, son Matija, and granddaughters Eva and Inga, whom he was especially proud of. We will remember him for his modesty, simplicity, and goodness, and he will be especially remembered by his patients, whom he cared for until his death.

May the Croatian earth he loved and defended so dearly rest lightly upon him. Glory and gratitude eternal be to him!

Ivan Požgain

Kongresi u 2021. godini

/Congresses in 2021

Svi kongresi odvijat će se *online*. Neki su planirani su da se održavaju i na uobičajeni način i virtualno. Kod tih je navedeno i mjesto održavanja.

Society for Neuroscience Global Connectome

11. - 13. siječnja 2021.

3rd European Autism Congress

Pariz, 10. - 11. veljače 2021.

4th International Conference on Clinical Psychology and Psychopathology

Beč, 10. - 11. veljače 2021.

American Psychoanalytic Association National Meeting

12. - 28. veljače 2021.

8th International Conference on Depression, Anxiety and Stress Management

London, 15. - 16. veljače 2021.

14. tjedan psihologije u Hrvatskoj

15. - 21. veljače 2021.

Congress of the European Society for Sexual Medicine

19. - 20. veljače 2021.

CINP Virtual World Congress

26. - 28. veljače 2021.

ECNP Virtual Workshop for Early Career Scientists in Europe

3. - 5. ožujka 2021.

ECNP New Frontiers in Digital Health Meeting Virtual

8. - 9. ožujka 2021.

20th WPA World Congress of Psychiatry

10. - 13. ožujka 2021.

32nd Annual Meeting American Neuropsychiatric Association

17. - 21. ožujka 2021.

10th European Conference on Clinical Neuroimaging

Ženeva, 18. - 19. ožujka 2021.

Virtual Annual Anxiety and Depression Conference

18. - 19. ožujka 2021.

IX. hrvatski kongres o psihofarmakoterapiji

18. - 19. ožujka 2021.

29th Danubian Psychiatric Symposium: Psychiatry, Medicine and Society

Zagreb, 19. - 20. ožujka 2021.

ECNP School of Child and Adolescent Neuropsychopharmacology

24. - 26. ožujka 2021.

International Neuroscience Winter Conference

Sölden, 6. - 10. travnja 2021.

<p>Virtual Conference The Intersection of Gender, Sexuality and Our Current Crises: The Psychological Impact of Race, Politics, Economics and COVID 9. - 10. travnja 2021.</p> <p>29th European Congress of Psychiatry 10. - 13. travnja 2021.</p> <p>Congress of the Schizophrenia International Research Society 17. - 21. travnja 2021.</p> <p>International Conference on Psychotherapy nad Counseling Istanbul, 26. - 27. travnja 2021.</p> <p>10th International Congress of Cognitive Psychotherapy Rim, 13. - 15. svibnja 2021.</p> <p>23rd Annual Conference of the International Society for Bipolar Disorders 13. - 15. svibnja 2021.</p> <p>28th Annual International „Stress and Behavior“ Neuroscience and Biopsychiatry Conference St. Petersburg 16. - 19. svibnja 2021.</p> <p>60th International Neuropsychiatric Congress Pula, 27. - 30. svibnja 2021.</p> <p>Annual Meeting of the American Psychiatric Association svibanj 2021.</p> <p>International Conference on Psychological Counseling and Psychotherapy Guilin, 1. - 3. lipnja 2021.</p> <p>ESTSS Virtual Conference „Trauma and Mental Health during the Global Pandemic“ 16. - 18. lipnja 2021.</p> <p>World Congress for Psychotherapy 24. - 27. lipnja 2021.</p>	<p>Alzheimer Association International Conference Amsterdam, 26. - 30. lipnja 2021.</p> <p>19th International Congress of European Society for Child and Adolescent Psychiatry Maastricht, 27. - 29. lipnja 2021.</p> <p>15th World Congress of Biological Psychiatry Beč, 27. - 30. lipnja 2021.</p> <p>ECNP School of Neuropsychopharmacology 30. lipnja - 2. srpnja 2021.</p> <p>International Congress of Addictology Pariz, lipanj 2021.</p> <p>41st STAR Conference Haifa, srpanj 2021.</p> <p>Meeting of the European Brain and Behaviour Society Lozana, 4. - 7. rujna 2021.</p> <p>European Association for Behavioural and Cognitive Therapies Belfast, 8. - 11. rujna 2021.</p> <p>110th American Psychoanalytic Association Annual Meeting Chicago, 17. - 19. rujna 2021.</p> <p>8th European Conference on Schizophrenia Research Berlin, 23. - 25. rujna 2021.</p> <p>34th ECNP Congress Lisabon, 2. - 5. listopada 2021.</p> <p>International Conference on Dual Disorders Hag, 7. - 9. listopada 2021.</p> <p>28. godišnja konferencija hrvatskih psihologa Šibenik, studeni 2021.</p> <p>4th International Brain Stimulation Conference Kyoto, 6. - 10. prosinca 2021.</p>	<p>451</p>
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4. Numerical journal data

The data that can be found in the original or in any of the bibliographic database should be written in Arabic numerals, in the following order: year, volume, issue, part, supplement, pages. Issue number is entered in parentheses and it is required to enter it starting from 1. In case the issue of the Journal cannot be recognized (e.g. when the issues are bonded), that data may be omitted. The page numbers are written from first to last.

E.g.

Kingdon DG, Aschroft K, Bhandari B, Gleeson S, Warikoo N, Symons Metal. Schizophrenia and borderline personality disorder: similarities and differences in the experience of auditory hallucinations, paranoia and childhood trauma. *J Nerv Ment Dis* 2010; 10(6): 399-403.

5. Book issue

Book issue is indicated by the ordinary number and the abbreviation "Ed". In case the book has more than one volume, use the abbreviation "Vol".

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Millon T. Brief History of Psychopathology. In: Blaney PH, Millon T (eds.) *Oxford Textbook of Psychopathology*. New York: Oxford University Press, 2009.

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Book pages are marked with "pages" only if a part of the book is being quoted:

E. g.

Mimica N. Delirij. U: Begić D, Jukić V, Medved V. (ur.). Psihijatrija. Zagreb: Medicinska naklada, 2015, pages: 84-86.

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