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Psihološka otpornost i zadovoljstvo životom: Učinci sagorijevanja i posttraumatskog stresa u radnom okruženju pandemije COVID-19

/ Psychological Resilience and Life Satisfaction: Effects of Burnout and Post-Traumatic Stress in the Working Environment of the COVID-19 Pandemic

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Cilj rada bio je ispitati učinke učestalog izlaganja kriznim situacijama u pandemiji na psihičko zdravlje medicinskih sestara/tehničara s naglaskom na simptome sagorijevanja i posttraumatskog stresa te razine psihološke otpornosti na zadovoljstvo životom. U istraživanju, provedenom na Odjelu za zdravstvene studije Sveučilišta u Splitu u Hrvatskoj, sudjelovalo je 125 medicinskih sestara/tehničara. Razina sindroma sagorijevanja ispitana je upitnikom intenziteta sagorijevanja na poslu, simptomi posttraumatskog stresa procijenjeni su posttraumatskim upitnikom za poremećaj stresa, psihološka otpornost procijenjena je ljestvicom za kratku otpornost, za procjenu općeg zadovoljstva životom korištena je ljestvica zadovoljstva životom. Nakon dvogodišnjeg rada tijekom pandemije COVID-19 otprilike 30 % medicinskih sestara/tehničara prijavilo je simptome posttraumatskog stresnog poremećaja i visok stupanj sagorijevanja. Simptomi sagorijevanja i posttraumatskog stresa nisu se pokazali povezanima sa zadovoljstvom životom. Međutim, psihološka otpornost je pozitivno povezana sa zadovoljstvom životom, čak i nakon kontrole učinka sagorijevanja i posttraumatskog stresa. Pandemija COVID-19 je velik izazov za zdravstvene sustave diljem svijeta s visokim stopama sagorijevanja i simptoma PTSP-a među zdravstvenim radnicima. Važnost psihološke otpornosti naglašava se kao čimbenik u promicanju psihičkog zdravlja među zdravstvenim radnicima.

/ The aim of this study was to examine the effects of prolonged exposure to emergency situations during the pandemic on the mental health of nurses/technicians, focusing on burnout and post-traumatic stress symptoms, and the effects of psychological resilience levels on their overall life satisfaction. A total of 125 nurses/technicians participated in the study conducted at the Department of Health Studies of the University of Split in Croatia. The burnout syndrome level was examined using the Burnout Intensity Questionnaire, the post-traumatic stress symptoms were assessed using the

Posttraumatic Stress Disorder Checklist, psychological resilience was assessed using the Brief Resilience Scale, while overall life satisfaction was measured using the Life Satisfaction Scale. After working for two years amid the COVID-19 pandemic, approximately 30% of nurses/technicians reported symptoms of post-traumatic stress disorder and a high level of burnout. Neither burnout nor posttraumatic stress symptoms were found to be associated with life satisfaction. However, psychological resilience was positively associated with life satisfaction, even after controlling for the effects of burnout and post-traumatic stress. The COVID-19 pandemic has placed an immense burden on healthcare systems worldwide, with high rates of burnout and PTSD symptoms among healthcare professionals. The importance of psychological resilience is emphasized as a factor in promoting mental health among healthcare professionals.

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UVOD

Novi koronavirus (engl. *SARS-corona-virus-2*, SARS-Cov-2), koji uzrokuje bolest (engl. *Coronavirus disease*, COVID-19) pojavio se u prosincu 2019. u Wuhanu, Kina (1). Brzo širenje potaknulo je Svjetsku zdravstvenu organizaciju da proglasi pandemiju 11. ožujka 2020. (2). Brzo širenje virusa i provođenje društvenih restrikcija potaknuli su opsežna istraživanja o utjecaju pandemije na mentalno zdravlje pojedinaca otkrivajući značajan porast anksioznosti, depresija, psihoza (3-6), kao i simptome posttraumatskog stresnog poremećaja (5, 7).

Tijekom pandemije COVID-19 zdravstveni djelatnici, posebno medicinske sestre/tehničari, suočili su se s izazovima koje je kriza donijela te postali iznimno podložni tjelesnim i psihičkim problemima (6). Ovi izazovi dodatno su otežani različitim čimbenicima stresa i rizicima koji su povećali mogućnost pojave psihičkih

INTRODUCTION

The new coronavirus (*SARS-coronavirus-2*, SARS-CoV-2) which causes the coronavirus disease (COVID-19) emerged in December 2019 in Wuhan, China (1). Its rapid spread led the World Health Organization to declare a pandemic on March 11, 2020 (2). The rapid spread of the virus and implementation of social restrictions prompted extensive research on the impact of the pandemic on the mental health of individuals, revealing a significant increase in anxiety, depression, psychosis (3-6), as well as post-traumatic stress disorder symptoms (5,7).

During the COVID-19 pandemic, healthcare professionals, particularly nurses/technicians, grappled with challenges brought about by the crisis, making them particularly susceptible to both physical and mental health issues (6). These challenges were exacerbated by various

poremećaja među zdravstvenim radnicima. Ti su čimbenici uključivali razdoblje karantene, društvenu izolaciju, brigu o prijenosu virusa na obitelj, nedostatak osobne zaštitne opreme, radni stres, prekomjerne radne obveze, fizički i mentalni umor, brigu o bolesnim kolegama, stigmatizaciju, zabrinutost za dobrobit obitelji, poremećaje spavanja i neizvjesnost u vezi s trajanjem pandemije (8-10). Također, zbog nedostatka medicinskog osoblja zdravstveni radnici bili su prisiljeni na prekovremeni rad ili rad izvan vlastitih stručnih područja, što je povećalo razinu njihovog stresa. S produljenim trajanjem pandemije teret na zdravstvenim djelatnicima kontinuirano je rastao, što je rezultiralo psihološkim posljedicama kao što su posttraumatski stres, anksioznost, depresija ili sindrom sagorijevanja (11). Web-anketa provedena u Sjedinjenim Američkim Državama tijekom vrhunca prijmova u bolnice istaknula je opseg ovih simptoma/problema/pojava, pri čemu je 57 % ispitanih medicinskih sestara pokazivalo simptome akutnog stresa, 48 % znakove depresije, a 33 % simptome anksioznosti (8). Istraživanja provedena u Kini i Italiji potvrdila su ove rezultate, ukazujući na to da su se zdravstveni djelatnici suočavali s nizom izazova vezanih za psihičko zdravlje, uključujući povećane razine stresa, povećane tjelesne tegobe, depresiju i nesanicu (12-15).

Produljeno izlaganje stresnim uvjetima može pogoršati osjećaje nedostatka kontrole nad radom i nesigurnosti te dovesti do sindroma sagorijevanja. Sindrom sagorijevanja karakteriziraju povećana emocionalna iscrpljenost, depersonalizacija i smanjen osjećaj osobnog postignuća (16). Ovaj je sindrom blisko povezan sa smanjenom radnom učinkovitošću (10) te je primijećen među zdravstvenim radnicima, posebno medicinskim sestrama/tehničarima. Primjerice, psihološki i stručni učinci pružanja zdravstvene skrbi tijekom izbijanja teškog akutnog respiratornog sindroma (engl. *Severe acute respiratory syndrome*, SARS) 2003. godine

stressors and risk factors that increased the likelihood of mental disorders among healthcare professionals. These stressors included quarantine, social isolation, concerns about virus transmission to loved ones, inadequate personal protective equipment, workplace stress, excessive workloads, physical and mental fatigue, caring for sick colleagues, stigmatization, family well-being worries, sleep disturbances and uncertainty regarding the duration of the pandemic (8-10). Furthermore, due to a shortage of medical professionals, some healthcare professionals were compelled to work overtime or outside their areas of expertise, adding to their stress levels. As the pandemic persisted, the burden placed on healthcare professionals continued to increase, leading to psychological consequences such as post-traumatic stress, anxiety, depression or burnout syndrome (11). A web-based survey conducted in the United States during the peak of hospital admissions highlighted the extent of these symptoms/problems/occurrences, whereby 57% of surveyed nurses exhibited acute stress symptoms, 48% showed symptoms of depression, and 33% displayed symptoms of anxiety (8). Studies conducted in China and Italy supported these findings, indicating that healthcare professionals faced a spectrum of mental health challenges, including heightened stress levels, increased physical ailments, depression and insomnia (12-15).

Prolonged exposure to stressful conditions can exacerbate feelings of work-related lack of control and insecurity, potentially leading to burnout syndrome. The burnout syndrome is characterized by heightened emotional exhaustion, depersonalization and a diminished sense of personal achievement (16). This syndrome was closely linked to reduced work performance (10) and has been observed among healthcare professionals, particularly nurses/technicians. For instance, the psychological and professional effects of providing health-

u Torontu postali su očiti otprilike dvije godine (13-26 mjeseci) nakon završetka epidemije pri čemu su zdravstveni radnici pokazivali značajno povišene razine sindroma sagorijevanja, psihološkog stresa i posttraumatskog stresnog poremećaja (3). Prethodna istraživanja također su ukazivala da je postotak zdravstvenih radnika u jedinicama intenzivne njege, koji su pokazivali simptome posttraumatskog stresnog poremećaja (PTSP) tijekom pandemije COVID-19, varirao od 10 % do otprilike 30 % (13). Osim znakova koji su povezani s iscrpljenošću kao što su anksioznost, depresija ili drugi tjelesni simptomi, sindrom sagorijevanja povezan je i s povećanjem dana bolovanja (11,17).

Međutim, nisu sve osobe izložene kriznim situacijama razvile takve simptome. U takvim okolnostima, psihološka otpornost ima značajnu ulogu kao zaštitni čimbenik (18,19). Psihološka otpornost opisuje se kao sposobnost pojedinca da se prilagodi raznim traumatičnim događajima i značajnim stresorima života, smanjujući konačni utjecaj traumatičnih iskustava i vjerojatnost razvoja poremećaja poput posttraumatskog stresnog poremećaja (18-20). Istraživanja provedena tijekom pandemije COVID-19 pokazala su da veća psihološka otpornost ublažava negativni utjecaj stresa na poslu, depresije i anksioznosti, sprječava narušavanje psihološkog zdravlja medicinskih sestara/tehničara te povećava ugodne emocije, zadovoljstvo životom i subjektivni osjećaj blagostanja među zdravstvenim radnicima (20). Na primjer, istraživanje provedeno u talijanskoj regiji Veneto, koja je pretrpjela najveći udar u prvom valu pandemije COVID-19, pokazalo je pozitivne posredne učinke psihološke otpornosti i strategija suočavanja sa sekundarnom traumatizacijom zdravstvenih radnika koji su bili izloženi pacijentima oboljelima od COVID-19 (21). Ova istraživanja ističu ključnu ulogu psihološke otpornosti u ublažavanju simptoma sagorijevanja među pojedincima angažiranima

care during the outbreak of severe acute respiratory syndrome (SARS) in 2003 in Toronto became evident approximately two years (13-26 months) after the epidemic had ended, with healthcare professionals displaying significantly elevated levels of burnout syndrome, psychological stress and post-traumatic stress disorder during that period (3). Previous research has also indicated that the proportion of healthcare professionals in intensive care units displaying symptoms of post-traumatic stress disorder (PTSD) during the COVID-19 pandemic ranged from 10% to approximately 30% (13). In addition to exhaustion-related symptoms such as anxiety, depression or other physical manifestations, burnout has been associated with an increased rate of sick leave (11,17).

However, not all individuals exposed to emergency situations develop these symptoms. Under such circumstances, psychological resilience plays a significant role as a protective factor (18, 19). Psychological resilience refers to an individual's capacity to adapt to various traumatic events and significant life stressors, ultimately reducing the impact of traumatic events and the likelihood of developing disorders such as post-traumatic stress disorder (18-20). Studies conducted during the COVID-19 pandemic have shown that greater psychological resilience mitigated the negative impact of stress at work, depression and anxiety, prevented the impairment of nurses'/technicians' psychological health and increased positive affect, life satisfaction and subjective well-being among healthcare professionals (20). For example, a study conducted in the Italian region of Veneto, which was most affected in the first wave of the COVID-19 pandemic, found positive mediating effects of psychological resilience and coping strategies on secondary traumatization in healthcare professionals exposed to patients with COVID-19 (21). These studies underscore the crucial role of psycho-

u hitnim medicinskim intervencijama visoke razine stresa tijekom pandemije (22). Autori ističu da pandemija stavlja pojedince u iznimno zahtjevne situacije, posebno u radno-zdravstvenom okruženju gdje se briga o pacijentima smatra ključnom. Stoga, potiču na temeljito istraživanje psihološke otpornosti, posebno u izazovnim okolnostima, budući da se ističe kao izuzetno bitan čimbenik u smanjenju razine sindroma sagorijevanja i unaprjeđenju općeg funkcioniranja.

CILJ ISTRAŽIVANJA

U ovom istraživanju osnovni cilj bio je istražiti rasprostranjenost sindroma sagorijevanja, simptoma posttraumatskog stresa te razine zadovoljstva životom i psihološke otpornosti među medicinskim sestrama/tehničarima koji su pružali skrb zaraženim pacijentima COVID-19 nakon dvije godine od početka pandemije. Također, istraživači su željeli ispitati povezanost sindroma sagorijevanja i simptoma posttraumatskog stresa s razinom psihološke otpornosti i općeg zadovoljstva životom nakon dugotrajnog rada u uvjetima COVID-19. Pretpostavilo se da će zadovoljstvo životom biti više izraženo kod ispitanika koji su izrazili višu razinu psihološke otpornosti prema stupnju sindroma sagorijevanja i simptomima posttraumatskog stresa.

METODA

Sudionici i postupak

Uzorak je obuhvaćao 125 bolničkih medicinskih sestara/tehničara (89 % ženskog spola; srednja dob=35,1; SD=10,1), koji žive i rade u Hrvatskoj. Istraživanje je provedeno u okviru kolegija „Intervencije u kriznim situacijama u radu medicinskih sestara/tehničara", koji organizira Sveučilišni odjel zdravstvenih studija Sveučilišta u Splitu u Hrvatskoj. Sudionici su

logical resilience when it comes to mitigating burnout symptoms among individuals engaged in high-stress emergency healthcare interventions during the pandemic (22). The authors assert that during the pandemic individuals faced extremely challenging situations, particularly within the work-health environment where patient care is paramount. Consequently, they advocate a thorough investigation into psychological resilience, particularly in such challenging circumstances, given that it has shown to be a highly influential factor when it comes to reducing burnout levels and enhancing overall functioning.

THE AIM OF THE STUDY

The primary aim of the present study was to examine the prevalence of burnout syndrome, post-traumatic stress symptoms and levels of life satisfaction and psychological resilience among nurses/technicians caring for COVID-19 patients, two years after the start of the pandemic. Furthermore, the researchers focused on investigating the correlation between burnout syndrome and post-traumatic stress symptoms, and the levels of psychological resilience and overall life satisfaction after two years of working under COVID-19 conditions. It was anticipated that life satisfaction would be more pronounced in participants who expressed a higher level of psychological resilience regarding the degree of burnout and post-traumatic stress symptoms.

METHOD

Participants and Procedure

The sample consisted of 125 hospital nurses/technicians (89% female; mean age = 35.1; SD=10.1), residing and working in Croatia. The study was carried out within the framework of the course "Crisis Interventions in the Work of

ispunili upitnike dobrih psihometrijskih svojstava kojima se procjenjuje njihova trenutna razina sindroma sagorijevanja, simptoma posttraumatskog stresa, psihološke otpornosti i zadovoljstva životom. Sudjelovanje u istraživanju bilo je potpuno anonimno i dobrovoljno, a sudionici su dali pisanu suglasnost. U analize su uključeni samo potpuno ispunjeni upitnici. Prikupljanje podataka odvijalo se u veljači 2022. godine, nakon dva vrhunca vala pandemije COVID-19. Etička odobrenja za ovo istraživanje dao je Etički odbor Zavoda za zdravstvene studije u Splitu.

Instrumenti

Prikupljene su opće demografske informacije, jedinice zdravstva i pitanja povezana s COVID-19 na radnom mjestu, uključujući duljinu rada s pacijentima zaraženima COVID-19. Razina sindroma sagorijevanja ispitana je Upitnikom intenziteta sagorijevanja na poslu (*The Workplace Burnout Intensity Questionnaire*) kojim se mjeri intenzitet različitih simptoma povezanih sa sindromom profesionalnog sagorijevanja (23). Upitnik sadrži 18 izjava koje ispituju kognitivne, bihevioralne i emocionalne znakove sindroma sagorijevanja na trostupanjskoj Likertovoj ljestvici. Ukupni rezultat kreće se od 18 do 54 i izražava kao zbroj svih odgovora. Prisutnost određenog ponašanja ocjenjuje se na ljestvici od 1 (rijetke i manje izražene simptome sagorijevanja) do 3 (uvijek prisutno ponašanje s većom izraženošću simptoma). Ispitanici s rezultatom od 18 do 25 ne pokazuju simptome sagorijevanja već samo izolirane znakove stresa, a ispitanici s rezultatom od 26 do 33 imaju simptome početnog sagorijevanja, što ukazuje na ozbiljne znakove upozorenja zbog trajne izloženosti stresu. Ispitanici s rezultatom od 34 do 54 pokazuju visoki stupanj sagorijevanja na poslu, što zahtijeva intervenciju (23). Ovaj upitnik je prethodno primijenjen s koeficijentom po-

Nurses/Technicians", organized by the University Department of Health Studies at the University of Split, Croatia. The participants completed questionnaires with good psychometric properties assessing their current level of burnout, posttraumatic stress symptoms, psychological resilience and life satisfaction. Participation in the study was entirely anonymous and voluntary, with participants providing written consent. Only fully completed questionnaires were included in subsequent analyses. Data collection took place in February 2022, following two peak waves of the COVID-19 pandemic. Ethical approvals for this study were granted by the Ethics Committee of the Department of Health Studies in Split.

Instruments

General information regarding demographics, healthcare units and work-related COVID-19 questions, including the duration of work with COVID-19 patients, was collected. The levels of burnout were examined using the Workplace Burnout Intensity Questionnaire in order to assess the intensity of the various symptoms associated with the professional burnout syndrome (23). The questionnaire consists of 18 statements examining cognitive, behavioral and emotional signs of the burnout syndrome on a 3-point Likert scale. The total score ranges from 18 to 54 and it is expressed as the sum of all answers. The presence of specific behaviors is assessed on a scale from 1 (rare and less pronounced symptoms of burnout) to 3 (always present behavior with higher expression of symptoms). Participants with a score between 18 and 25 do not show burnout symptoms, only isolated signs of stress, while participants with a score between 26 and 33 display symptoms of initial burnout, indicating serious warning signs due to prolonged exposure to stress. Participants with a score between 34 and 54 exhibit a high degree of burnout at

uzdanosti (Cronbach alfa koeficijent) od 0,89 (24), dok je u ovom istraživanju koeficijent pouzdanosti bio 0,92.

Simptomi posttraumatskog stresa procijenjeni su posttraumatskim upitnikom za poremećaj stresa (*Post-Traumatic Stress Disorder Checklist: Civilian Scale*, PCL-5) (25), prevedenim na hrvatski (26), sastavljenim od 20 pitanja samoprocjene simptoma posttraumatskog stresa, na petostupanjskoj Likertovoj ljestvici. PCL-5 daje ukupnu ocjenu ozbiljnosti simptoma (raspon: 0-80), koja se može dobiti zbrajanjem rezultata za svaku od 20 čestica. Rezultat koji je viši od 33 ukazuje na vjerojatnost PTSP-a (27) pa su sudionici koji su postizali ovaj rezultat u ovom istraživanju kategorizirani kao osobe s visokim razinama PTSP-a. Prethodno provedeno istraživanje ukazalo je da PCL-5 pokazuje dobre psihometrijske karakteristike i pouzdanost na uzorku hrvatskih ispitanika (Cronbach alfa koeficijent = 0,95) (25), dok je u ovom istraživanju Cronbach alfa koeficijent iznosio 0,96.

Psihološka otpornost procijenjena je ljestvicom za kratku otpornost (*Brief Resilience Scale*, BRS) (28), koja je prilagođena i prevedena verzija na hrvatski (29), a mjeri sposobnost suočavanja s krizom ili brzi povratak na prethodno stanje. Upitnik se sastoji od 6 čestica na petostupanjskoj Likertovoj ljestvici. Ukupni rezultat formira se kao aritmetička sredina odgovora svih 6 čestica. Rezultat od 1 do 2,99 pokazuje nisku razinu psihološke otpornosti, 3 do 4,30 normalnu psihološku otpornost, a rezultat 4,31 do 5 pokazuje visoku razinu psihološke otpornosti. Izvorni BRS testiran je na različitim uzorcima kako bi se procijenila njegova psihometrijska kvaliteta. Faktorska analiza je pokazala da je BRS unidimenzionalan upitnik te da se 55-67 % varijance može objasniti ovim faktorom. Cronbach alfa koeficijent faktora bio je između 0,80 i 0,91, a pouzdanost test-retest bila je 0,69 za jedan mjesec, 0,62 za tri mjeseca. Valjanost je testirana na različite načine i

work, requiring intervention (23). This questionnaire was previously utilized with a reliability coefficient (Cronbach's alpha coefficient) of 0.89 (24), while in this study, the reliability coefficient amounted to 0.92.

Symptoms of post-traumatic stress were assessed using the Post-Traumatic Stress Disorder Checklist: Civilian Scale (PCL-5) (25), translated into Croatian (26), consisting of 20 items aimed at self-reporting the symptoms of post-traumatic stress, on a 5-point Likert scale. The PCL-5 yields a total symptom severity score (range: 0–80), which can be obtained by summing the scores for each of the 20 items. A score higher than 33 indicates the likelihood of PTSD (27), so participants who obtained this score in this study were categorized as individuals with high levels of PTSD. A previous study indicated that the PCL-5 presented good reliability and psychometric properties in the Croatian sample (Cronbach's alpha coefficient = 0.95) (25), while in this study, the Cronbach's alpha coefficient amounted to 0.96.

Psychological resilience was assessed using the Brief Resilience Scale (BRS) (28), which was adapted and translated into Croatian (29), and which examines the ability to cope with a crisis or to quickly recover to the previous state. The instrument consists of 6 items on a 5-point Likert scale. The total score is formed as the arithmetic mean of the answers to all 6 items. A result ranging from 1 to 2.99 indicates a low level of psychological resilience, a result from 3 to 4.30 indicates normal psychological resilience, while a result ranging from 4.31 to 5 indicates a high level of psychological resilience. The original BRS was tested on different samples in order to assess its psychometric quality. Factor analysis showed that the BRS is a unidimensional questionnaire and 55-67% of the variance could be explained by this factor. Cronbach's alpha coefficient of the factor amounted to between 0.80 and 0.91, and

potvrđena (30). Cronbach alfa koeficijent za hrvatsku verziju cijele ljestvice bio je 0,82 (29), dok je u ovom istraživanju Cronbach alfa koeficijent bio 0,77.

Za procjenu općeg zadovoljstva životom korištena je ljestvica zadovoljstva životom (*Satisfaction with Life Scale*, SWLS) (31). Ova se ljestvica sastoji od 5 čestica koje se ocjenjuju na sedmostupanjskoj Likertovoj ljestvici. Ukupni rezultat na ljestvici kreće se u rasponu od 5 do 35. Rezultat između 5-9 pokazuje jako nezadovoljstvo životom; 10-14 nezadovoljstvo životom, 15-19 uglavnom zadovoljstvo, 20 neutralno, 21-25 uglavnom zadovoljstvo, 26-30 zadovoljstvo i 31-35 jako zadovoljstvo životom. Rezultati na SWLS-u pokazali su pouzdanost, visoku unutarnju konzistentnost te sposobnost razlikovanja skupina s pretpostavljeno različitim subjektivnim stanjem. Nadalje, ova mjerna ljestvica dokazala se kao učinkovita i jednostavna za korištenje (31). Cronbach alfa koeficijent interne konzistentnosti iznosio je 0,87, dok je pouzdanost mjerenja putem test-retest metode iznosila 0,82 (32). U ovom istraživanju je Cronbach alfa koeficijent iznosio 0,91.

REZULTATI

Tablica 1 prikazuje opisne podatke medicinskih sestara/tehničara. Aritmetička sredina i standardna devijacija korišteni su za prikaz prosječnih vrijednosti. Oko dvije trećine (66,4 %) medicinskih sestara/tehničara radilo je s pacijentima zaraženima COVID-om do godinu dana, dok je 23,2 % radilo u toj ulozi od 12 do 18 mjeseci, a 10,4 % duže od 18 mjeseci. Većina medicinskih sestara/tehničara bila je dio zdravstvenog tima (58,4 %), uglavnom radeći u kliničkim okruženjima (67,2 %). Što se tiče obrazovanja, 26,4 % završilo je srednju školu, 63,2 % imalo je diplomu prvostupnika, 9,6 % posjedovalo je magisterij, a manje od 1 % steklo je doktorat.

test-retest reliability was 0.69 for one month, and 0.62 for three months. Validity was tested using different methods and thus confirmed (30). Cronbach's alpha coefficient for the Croatian version of the entire scale amounted to 0.82 (26), while in this study, Cronbach's alpha coefficient was 0.77.

Finally, the Satisfaction with Life Scale (SWLS) was used in order to measure overall life satisfaction (31). This scale consists of 5 items assessed on a 7-point Likert scale. The total score ranges from 5 to 35. A score in the range 5-9 indicates extreme life dissatisfaction; 10-14 life dissatisfaction, 15-19 slight dissatisfaction, 20 neutral, 21-25 slight satisfaction, 26-30 satisfaction, and 31-35 extreme life satisfaction. The SWLS results have shown to be reliable, with high internal consistency and capability of differentiating groups of presumed different subjective well-being levels. Furthermore, this measuring scale proved to be efficient and easy to use (31). Cronbach's alpha coefficient of internal consistency amounted to 0.87, while measurement reliability when using the test-retest method amounted to 0.82 (32). In this study, the Cronbach's alpha coefficient was 0.91.

RESULTS

The descriptive data among nurses/technicians are presented in Table 1. Arithmetic mean and standard deviation were used to present the average values. Around two-thirds (66.4%) of nurses/technicians worked with COVID-infected patients for up to one year, while 23.2% held that role for 12 to 18 months, and 10.4% for more than 18 months. The majority of nurses/technicians were part of a healthcare team (58.4%), mostly working in clinical settings (67.2%). With regard to education, 26.4% completed high school, 63.2% had a bachelor's degree, 9.6% held a master's degree, and less than 1% obtained a doctorate.

TABLICA 1. Opće informacije i deskriptivni podatci među medicinskim sestrama/tehničarima
TABLE 1. General information and descriptive data among nurses

	N (Total)	M (SD)	Min–Max		
Dob / Age	125	35,1 (10,1)	20–63		
				N	**%**
Spol / Gender					
Male				14	11,2
Female				111	88,8
Stručna sprema / Education					
Srednja škola/High school				33	26,4
Viša škola ili Preddiplomski / Bachelor's degree				79	63,2
Visoka stručna sprema ili magistar struke / Master´s degree				12	9,6
Doktorat/Doctoral degree				1	0,8
Ustrojstvena jedinica rada / Work unit					
Klinika / Clinic				84	67,2
Zavod/Institute				30	24,0
Odjel/Department				11	8,8
Radna uloga / Work role					
Medicinska sestra / Nurse				73	58,4
Medicinska sestra voditelj tima / Nurse leader				34	27,2
Glavna medicinska sestra / Head nurse				18	14,4
Rad s COVID-19 pacijentima /Work with COVID-19 patients					
0-6 mjeseci / months				42	33,6
6-12 mjeseci /months				41	32,8
12-18 mjeseci / months				29	23,2
18-24 mjeseca / months				11	8,8
> 24 mjeseca / months				2	1,6

Bilješke: M=srednja vrijednost; SD=standardna devijacija
/ Notes: M=mean; SD=standard deviation

Rasprostranjenost sindroma sagorijevanja, simptoma posttraumatskog stresa, zadovoljstvo životom i psihološke otpornosti među medicinskim sestrama/tehničarima

Tablica 2 prikazuje opisne podatke sindroma sagorijevanja, posttraumatskog stresa, zadovoljstvo životom i psihološke otpornosti. 39,2 % sudionika susrelo se s blagim simptomima, dok je 26,4 % izvijestilo o značajnim simptomima sindroma sagorijevanja. Također,

Prevalence of burnout syndrome, post-traumatic stress symptoms, life satisfaction and psychological resilience among nurses/ technicians

Table 2 shows descriptive data relating to the burnout syndrome, posttraumatic stress, life satisfaction and psychological resilience. A total of 39.2% of participants experienced mild symptoms, while 26.4% reported experiencing significant burnout symptoms. Additionally, 29.6% of participants noted high levels of

TABLICA 2. Deskriptivna statistika (n=125)
TABLE 2. Descriptive statistics (n=125)

	M	SD	Min–Max
Sagorijevanje / Burnout	28,9	7.7	18–53
Simptomi PTSP-a / PTSD symptoms	37,3	25.2	17–84
Zadovoljstvo životom / Life satisfaction	21,9	6.4	7–35
Psihološka otpornost / Resilience	16,1	2.4	9,17–22,67

Bilješke: Sagorijevanje = Upitnik o intenzitetu sagorijevanja na radnom mjestu; PTSP = Ljestvica za procjenu posttraumatskog stresnog poremećaja: Civilna ljestvica (PCL-C); Zadovoljstvo životom = Ljestvica zadovoljstva životom (SWLS); Psihološka otpornost = Kratka ljestvica otpornosti; M=srednja vrijednost;SD = standardna devijacija
/ Notes: Burnout= The Workplace Burnout Intensity Questionnaire; Posttraumatic symptoms (PTSD)= Posttraumatic Stress Disorder Checklist: Civilian Scale (PCL-C); Life satisfaction= Satisfaction with life scale (SWLS); Resilience= Brief Resilience Scale; M=mean; SD=standard deviation.

29,6 % sudionika primijetilo je visoke razine simptoma posttraumatskog stresa. Što se tiče zadovoljstva životom, 28 % sudionika izrazilo je dobru ili neutralnu razinu, dok je 26,4 % pokazalo određeni stupanj nezadovoljstva svojim životom. Što se tiče psihološke otpornosti, 30,4 % je pokazivalo visoke razine otpornosti, 43,2 % normalne razine, a 26,4 % niske razine otpornosti (tablica 3).

post-traumatic stress symptoms. In terms of life satisfaction, 28% of participants expressed either good or neutral levels, while 26.4% indicated some degree of dissatisfaction with their life. With regard to psychological resilience, 30.4% of participants exhibited high levels of resilience, 43.2% exhibited normal levels, while 26.4% exhibited low levels of resilience (Table 3).

TABLICA 3. Raspodjela sudionika prema razini sagorijevanja, simptoma posttraumatskog stresa, otpornosti i zadovoljstva životom
TABLE 3. Distribution of participants accroding to the levels of burnout, post-traumatic symptoms, resilience and life satisfaction

Varijable / Variables	N	%
Psihološka otpornost / Resilience		
Nisko / Low	33	26,4
Normalno / Normal	54	43,2
Visoko / High	38	30,4
Zadovoljstvo životom / Life satisfaction		
Nezadovoljan / Dissatisfied	1	0,8
Djelomično nezadovoljan / Somewhat dissatisfied	14	11,2
Neutralan / Neutral	33	26,4
Zadovoljan / Satisfied	35	28,0
Jako zadovoljan / Very satisfied	7	5,6
Sagorijevanje / Burnout		
Nema simptoma / No symptoms	43	34,4
Blagi simptomi / Mild symptoms	49	39,2
Teški simptomi / Severe symptoms	33	26,4
PTSP simptomi / PTSD symptoms		
Ne /No	88	70,4
Da / Yes	37	29,6

Bilješke: M=srednja vrijednost; SD=standardna devijacija
/ Notes: M=mean; SD=standard deviation

Učinak razine sindroma sagorijevanja i simptoma posttraumatskog stresa na zadovoljstvo životom medicinskih sestara/tehničara nakon dvije godine rada u uvjetima pandemije COVID-19

Izračunata je Pearsonova korelacija s ciljem istraživanja povezanosti između prediktora uključujući sindrom sagorijevanja, simptoma PTSP-a i psihološku otpornost, te kriterija, zadovoljstvo životom. Zatim su provedene hijerarhijske linearne regresije kako bi se ispitao udio varijance koju sindrom sagorijevanja i simptomi posttraumatskog stresa imaju na zadovoljstvo životom. Sindrom sagorijevanja i simptomi posttraumatskog stresa uneseni su istovremeno u regresijski model u prvom koraku, dok je u drugom koraku psihološka otpornost unesena kao prediktor radi ispitivanja njezinog utjecaja na zadovoljstvo životom. Za svaki prediktor u regresijama prikazani su standardizirani regresijski koeficijent (β), promjena u R^2 te veličina učinka f^2. Prema Cohenovoj klasifikaciji, vrijednosti f^2 iznad 0,15 označavaju srednje, a iznad 0,35 velike veličine učinka (33,34).

Pearsonova korelacija je pokazala visoku povezanost između varijabli (dodatni materijal 1). Rezultati hijerarhijske analize ukazali su da ni sindrom sagorijevanja ni simptomi posttraumatskog stresa nisu pokazali povezanost sa zadovoljstvom životom (tablica 4). Međutim,

Effects of burnout syndrome levels and post-traumatic stress symptoms on life satisfaction of nurses/technicians after two years of working under the conditions of the COVID-19 pandemic

Pearson correlation was calculated in order to explore the correlation between predictors, including the burnout syndrome, PTSD symptoms and psychological resilience, and the criterion of life satisfaction. Hierarchical linear regressions were computed to assess the impact of variance accounted for by burnout and posttraumatic stress symptoms on life satisfaction. Burnout and posttraumatic stress symptoms were entered simultaneously in the regression model in the first step, while in the second step, psychological resilience was entered as a predictor in order to examine its effects on life satisfaction. The standardized regression coefficient (β), change in R^2, and effect size f^2 were reported for each predictor in the regressions. Following Cohen's classification, f^2 values above 0.15 signify medium effect sizes, while those above 0.35 indicate large effect sizes (33, 34).

Pearson correlation showed that there is a high correlation between the variables (Supplementary material 1). The results of hierarchical analysis indicated that neither burnout syndrome nor posttraumatic stress symptoms had a distinct connection with life satisfaction (Table 4). Nevertheless, at the second step it

DODATNI MATERIJAL 1. Pearsonova korelacija zadovoljstva životom sa sindromom sagorijevanja, simptoma PTSP-a i psihološke otpornosti
SUPPLEMENTARY MATERIAL 1. Pearson's correlation of life satisfaction with the burnout syndrome, PTSD symptoms, and resilience

	Kriteriji / Criterion
	Zadovoljstvo životom / Life satisfaction
Prediktori / Predictors	
Sagorijevanje / Burnout	-0,258**
Simptomi PTSP / PTSD symptoms	-0,234**
Psihološka otpornost / Resilience	0,379**

Bilješke: **Korelacija je značajna na razini od 0,01 (dvosmjerni test); PTSP= Posttraumatski Stresni Poremećaj
*/ Notes:*** Correlation is significant at the 0.01 level (2-tailed); PTSD= Posttraumatic Stress Disorder

TABLICA 4. Hijerarhijski linearni regresijski modeli sagorijevanja, posttraumatske simptomatologije i otpornosti na zadovoljstvo životom
TABLE 4. Linear regressions of burnout, post-traumatic symptomatology, and resilience on life satisfaction

Prediktori / Predictors										
	Sagorijevanje / Burnout			Simptomi PTSP / PTSD symptoms			Psihološka otpornost / Resilience			
Kriterij / Criterion										
KORAK 1 / STEP 1	β	ΔR^2	f^2	β	ΔR^2	f^2				
Zadovoljstvo životom / Life satisfaction	-0,186	0,024	0,03	-0,132	0,012	0,01				
KORAK 2 / STEP 2	β	ΔR^2	f^2	β	ΔR^2	f^2	β	ΔR^2	f^2	Ukupni R^2 / Total R^2
Zadovoljstvo životom/ Life satisfaction	-0,173	0,024	0,03	-0,138	0,012	0,01	0,239**	0,057	0,07	0,136

*Bilješke/Notes: * p < 0,05, ** p < 0,01, *** p < 0,001*

u drugom koraku primijećeno je da psihološka otpornost ima pozitivan i značajan učinak na zadovoljstvo životom (β = 0,239; p < 0,01), neovisno o utjecaju sindroma sagorijevanja i simptoma posttraumatskog stresa. Stoga su medicinske sestre/tehničari s višim razinama psihološke otpornosti pokazale veće zadovoljstvo životom.

RASPRAVA

Preliminarni rezultati istraživanja ističu važnu ulogu utjecaja sindroma sagorijevanja, simptoma posttraumatskog stresa i psihološke otpornosti na opće zadovoljstvo životom među hrvatskim medicinskim sestrama/tehničarima koji su radili s pacijentima zaraženima COVID-19 tijekom dvije godine nakon početnog vala pandemije. Medicinske sestre/tehničari posebno su bili suočeni sa značajnim psihološkim izazovima tijekom pandemije. Učestala izloženost zahtjevima i stresorima povezanim s brigom o pacijentima zaraženima COVID-19 dovela je do pojave ovih negativnih simptoma.

Ovo istraživanje ukazuje da je nakon dvije godine rada tijekom pandemije COVID-19 otprilike 30 % medicinskih sestara/tehničara prijavilo simptome povezane s PTSP-om i sindromom sagorijevanja. Najveći postotak medicinskih sestara/tehničara doživio je blage simptome (39,2 %), dok je 29,6 % prijavilo visoku razi-

was observed that psychological resilience had a positive and significant effect on life satisfaction (β = 0.239; p < 0.01), regardless of the impact of burnout syndrome and posttraumatic stress symptoms. Therefore, nurses/technicians with higher levels of psychological resilience displayed greater life satisfaction.

DISCUSSION

The preliminary findings of the study highlight the important role of the impact of burnout syndrome, post-traumatic stress symptoms and psychological resilience when it comes to determining the overall life satisfaction among Croatian nurses/technicians who worked with COVID-19 patients for two years following the initial pandemic wave. Nurses/technicians in particular faced significant psychological challenges during the pandemic. Prolonged exposure to the demands and stressors associated with caring for COVID-19 patients has led to the emergence of these negative symptoms.

The results of this study indicate that after two years of working amidst the COVID-19 pandemic, approximately 30% of nurses/technicians reported symptoms associated with post-traumatic stress disorder (PTSD) and burnout syndrome. The highest percentage of nurses/technicians experienced mild symptoms (39.2%), while 29.6% reported high levels of posttrau-

nu posttraumatskih simptoma, a 26,4 % visoke simptome sagorijevanja. Ovi rezultati su u skladu sa sistematskim istraživanjem koje je prijavilo stopu sagorijevanja od 34,4 % među zdravstvenim radnicima tijekom pandemije (35) i 34,1 % za medicinske sestre/tehničare (36). Međutim, važno je napomenuti da je učestalost obilježja PTSP-a u našem istraživanju bila značajno viša (20,7 %), kao i stope sagorijevanja u drugoj meta-analizi koja je uključivala podatke iz 49 zemalja, gdje je ukupna prevalencija simptoma sagorijevanja među medicinskim sestrama/tehničarima iznosila 11,23 % (37). Učestalost simptoma posttraumatskog stresa i sindroma sagorijevanja među medicinskim sestrama/tehničarima ima važan utjecaj na njihovo osobno stanje/zdravlje i stručnu učinkovitost.

Što se tiče psihološke otpornosti rezultati su pokazali da unatoč izazovima značajni postotak medicinskih sestara//tehničara pokazuje otpornost u suočavanju s poteškoćama, što je moglo poslužiti kao zaštitni faktor. Psihološka otpornost, definirana kao proces pozitivne prilagodbe stresnim situacijama, ima ključnu ulogu u ublažavanju negativnog utjecaja pandemije COVID-19 na zdravstvene radnike (38). Istraživanja koja su ispitivala razine otpornosti među medicinskim sestrama/tehničarima tijekom pandemije otkrila su da je 43,2 % imalo normalne razine otpornosti, dok je 30,4 % pokazivalo visoku otpornost. Prethodna istraživanja pokazala su umjerenu razinu otpornosti među medicinskim sestrama/tehničarima tijekom pandemije COVID-19 (39,40). Primjerice, istraživanje provedeno u Ujedinjenom Kraljevstvu otkrilo je umjerenu razinu psihološke otpornosti među medicinskim sestrama/tehničarima tijekom pandemije (41). Slično tome, istraživanje provedeno u Španjolskoj prijavilo je umjerenu razinu psihološke otpornosti među svim zdravstvenim radnicima (42). Ta istraživanja potvrđuju rezultate ovog istraživanja i upućuju na to da medicinske sestre/tehničari

matic symptoms, and 26.4% experienced high burnout symptoms. These results are consistent with a systematic review the results of which reported a burnout rate of 34.4% among healthcare professionals during the pandemic (35), and 34.1% among nurses/technicians (36). It is, however, worth noting that the prevalence of PTSD features in our study was significantly higher compared to the systematic review (20.7%), as well as the burnout rates reported in another meta-analysis that included data from 49 countries, where the overall prevalence of burnout symptoms among nurses/technicians amounted to 11.23% (37). The prevalence of post-traumatic stress symptoms and burnout syndrome among nurses/technicians has important implications for their personal well-being/health and their professional efficacy.

As regards psychological resilience, the findings have shown that despite the challenges, a significant proportion of nurses/technicians displayed resilience when facing difficulties, which may have served as a protective factor. Psychological resilience, defined as the process of positive adaptation to stressful situations, plays a crucial role in mitigating the negative impact of the COVID-19 pandemic on healthcare professionals (38). Studies examining the resilience levels among nurses/technicians during the pandemic found that 43.2% had normal levels of resilience, while 30.4% exhibited high resilience. Previous studies have reported moderate levels of resilience among nurses/technicians during the COVID-19 pandemic (39, 40). For instance, a study conducted in the United Kingdom found that nurses/technicians exhibited moderate levels of psychological resilience during the pandemic (41). Similarly, a study conducted in Spain reported moderate levels of psychological resilience among all healthcare professionals (42). These studies collectively support the findings of this study and indicate that nurses/technicians tend to display moderate levels of psychological resilience when fac-

obično pokazuju umjerenu razinu psihološke otpornosti u situaciji pandemije. Međutim, 26,4 % medicinskih sestara/tehničara pokazalo je nisku psihološku otpornost, što upućuje na potencijalnu ranjivost psihičkog zdravlja.

Važno je napomenuti da su medicinske sestre/tehničari s visokim razinama psihološke otpornosti iskazali veće zadovoljstvo životom ističući važnost otpornosti u održavanju psihičkog zdravlja. Istovremeno su brojna istraživanja također otkrila pozitivnu povezanost između psihološke otpornosti medicinskih sestara/tehničara i zadovoljstva poslom ukazujući da su više razine otpornosti povezane s većim cjelokupnim zadovoljstvom životom (43-45). Osim toga, istraživanja provedena prije izbijanja COVID-19 pokazala su dosljednu pozitivnu povezanost između otpornosti i zadovoljstva poslom kod medicinskih sestara/tehničara (46,47) sugerirajući da psihološka otpornost, osim što pomaže medicinskim sestrama/tehničarima da učinkovito svladaju izazove na poslu, pridonosi i njihovom psihičkom zdravlju i općem blagostanju.

Psihološka otpornost omogućuje pojedincima da se vrate na razinu funkcioniranja kakva je bila prije traumatičnih iskustava. Iako stres može negativno utjecati na psihološku otpornost, smatra se univerzalnim čimbenikom koji osigurava radnu učinkovitost,bez obzira na prisutnost pandemije (48). Otporni medicinski djelatnici mogu se učinkovito nositi s izazovima na radnom mjestu i imaju sposobnost oporavka nakon neuspjeha te zadržavanja pozitivnog stava (49). Prethodnim istraživanjima uočeno je nekoliko čimbenika povezanih s unaprijeđenom otpornošću tijekom kriza, uključujući optimizam, društvenu podršku, izbjegavanje preopterećenja informacijama te održavanje komunikacije (50). Ti čimbenici mogu pomoći pojedincima u suočavanju s izazovima koje postavlja pandemija COVID-19. Također, osjećaj kontrole zdravstvenih djelatnika u kriznim situacijama ključan je za poticanje

ing the pandemic. However, 26.4% of nurses/technicians exhibited low psychological resilience, suggesting potential vulnerability when it comes to their mental health.

It should be noted that nurses/technicians with high levels of psychological resilience displayed higher life satisfaction, underscoring the significance of resilience in the maintenance of mental health. Numerous studies have also revealed a positive correlation between psychological resilience among nurses/technicians and their job satisfaction, indicating a link between higher levels of resilience and greater overall life satisfaction (43-45). Additionally, studies conducted prior to the COVID-19 outbreak have consistently shown a positive correlation between resilience and job satisfaction among nurses/technicians (46, 47), suggesting that psychological resilience not only helps nurses/technicians to effectively navigate their work challenges, but also contributes to their mental health and overall well-being.

Psychological resilience enables individuals to restore their well-being to the levels prior to the traumatic experiences. Although stress can negatively impact psychological resilience, it is considered to be a universal factor that ensures work performance, regardless of the presence of a pandemic (48). Resilient medical professionals can effectively cope with workplace challenges and possess the ability to bounce back from setbacks and maintain a positive outlook (49). Previous studies have identified several factors associated with enhanced resilience during crises, including optimism, social support, avoidance of information overload and maintaining communication (50). These factors can help individuals cope with the challenges posed by the COVID-19 pandemic. Furthermore, the sense of control that healthcare professionals have in crisis situations is pivotal for fostering resilience. Understanding that the disease can be controlled through preventive measures and the implementation of personal protec-

otpornosti. Razumijevanje da se bolest može kontrolirati preventivnim mjerama i provedbom osobnih zaštitnih mjera pri kontaktu sa zaraženim pacijentima može povećati osjećaj kontrole kao i njihovu otpornost (51). Tijekom epidemije SARS-a, medicinske sestre/tehničari koji su zadržali pozitivan stav prema zaštiti od infekcija i opremi za kontrolu infekcija pokazali su niže razine anksioznosti, negativnog raspoloženja i emocionalnog umora (52). To ukazuje na važnost usađivanja pozitivnog mentaliteta i pružanja zdravstvenim radnicima potrebnu podršku kako bi učinkovito upravljali svojim strahovima i tjeskobama. Nadalje, osobe s višim razinama otpornosti obično pokazuju manju razdražljivost, smanjene reakcije na okolišne podražaje, poboljšane međuljudske odnose, te manje simptoma depresije (53). Jačanje psihološke otpornosti među zdravstvenim radnicima može ne samo poboljšati njihovo mentalno blagostanje, već i pozitivno utjecati na njihovu cjelokupnu radnu učinkovitost i skrb o pacijentima.

Ovo istraživanje ima nekoliko ograničenja. Prije svega, većina uzoraka sastojala se uglavnom od ženskih sudionika, a istraživanje je uglavnom usmjereno na zdravstvene djelatnike s određenih područja u Hrvatskoj, što možda ne odražava potpuno iskustvo zdravstvenih djelatnika u drugim dijelovima Hrvatske, kao i šire, u globalnom kontekstu. Stoga se širina ovih rezultata može ograničiti. Međutim, istraživanje je omogućilo uvid u preliminarne dokaze o učincima sindroma sagorijevanja i simptoma povezanih s posttraumatskim stresom u suočavanju s iznimno stresnom situacijom poput COVID-19. Još važnije, istraživanje je istaknulo psihološku otpornost kao iznimno važan faktor koji treba uzeti u obzir u tim situacijama. Drugo, presječno istraživanja ograničava mogućnost utvrđivanja uzročnih veza između ovih varijabli pa su longitudinalne studije poželjnije za utvrđivanje ovakvih veza. Na kraju, razlike u stopama sindroma sagorijetion measures when in contact with infected patients can increase the sense of control and resilience among healthcare professionals (51). During the SARS epidemic, nurses/technicians who maintained a positive attitude towards protection against infection and infection control equipment exhibited lower levels of anxiety, negative moods and emotional fatigue (52). This highlights the importance of instilling a positive mindset and providing healthcare professionals with the necessary support in order to be able to manage their fears and anxieties effectively. Additionally, individuals with higher levels of resilience tend to display lower irritability, reduced reactions to environmental stimuli, improved interpersonal relationships and fewer symptoms of depression (53). Strengthening psychological resilience among healthcare professionals can not only enhance their mental well-being, but can also positively impact their overall work performance and patient care.

There are several limitations to this study. Firstly, the majority of the sample consisted primarily of female participants, and it primarily focused on healthcare professionals from specific regions in Croatia, which may not fully reflect the experiences of healthcare professionals in other parts of Croatia and beyond, in a global context. The breadth of these results can, therefore, be limited. On the other hand, the study has enabled an insight into the preliminary evidence regarding the effects of burnout and posttraumatic stress-related symptoms when facing a highly stressful situation such as COVID-19. More importantly, the study highlighted psychological resilience as a particularly important factor which needs to be taken into account in these situations. Secondly, the cross-sectional nature of this study limits the ability to determine causal relationships between these variables, so longitudinal studies are more preferable when it comes to determining such connections. Finally, differences in burnout syndrome and posttraumatic stress disorder rates that

vanja i posttraumatskog stresnog poremećaja koje se mogu pripisati različitim čimbenicima, uključujući društvena očekivanja, stresore na radnom mjestu i ranjivosti specifične za spol, nisu istražene u ovom radu pa se stoga preporučuju dodatna istraživanja. Na primjer, istraživanje uloge pojedinačnih karakteristika, poput optimizma, samo-efikasnost i strategija suočavanja moglo bi pružiti vrijedne uvide u to kako unaprijediti otpornost i promicati bolje ishode psihičkog zdravlja. Nadalje, utjecaj organizacijskih čimbenika, poput podrške vodstva, upravljanja radnim opterećenjem i pristupa resursima za mentalno zdravlje, zahtijeva daljnje istraživanje. Što se tiče intervencija, buduća istraživanja mogu se usredotočiti na razvoj i evaluaciju programa utemeljenih na pokazateljima koji ciljaju jedinstvene psihološke izazove s kojima se suočavaju zdravstveni radnici tijekom kriznih vremena. Cilj ovih intervencija trebalo bi biti jačanje psihološke otpornosti, pružanje učinkovitih strategija suočavanja te promicanje psihičkog zdravlja. Studije dugoročnog praćenja mogu procijeniti održivost i učinkovitost tih intervencija u poboljšanju ishoda mentalnog zdravlja za zdravstvene radnike.

Važno je također razmotriti širi kontekst zdravstvenih sustava i politika u podršci mentalnom zdravlju zdravstvenih djelatnika. Dovoljan broj osoblja, upravljanje radnim opterećenjem i pozitivno radno okruženje imaju ključnu ulogu u sprječavanju sindroma sagorijevanja te pospješivanju psihičkog zdravlja osoblja. Zagovaranje promjena politika i organizacijskih reformi koje prioritetno podržavaju mentalno zdravlje zdravstvenih djelatnika trebalo bi se uzeti u obzir kao dio sveobuhvatnog pristupa.

ZAKLJUČAK

Istraživanje produljenih posljedica pandemije COVID-19 te isticanje utjecaja sindroma sagorijevanja i simptoma posttraumatskog stresa

may be attributed to various factors, including societal expectations, occupational stressors, and gender-specific vulnerabilities, are not explored in this paper, therefore further research into the topic is recommended. For instance, investigating the role of individual traits, such as optimism, self-efficacy and coping strategies, could provide valuable insights into how to enhance resilience and promote better mental health outcomes. Additionally, the impact of organizational factors, such as leadership support, workload management and access to mental health resources, warrants further investigation. In terms of interventions, future research may also focus on developing and evaluating indicator-based programs that target the unique psychological challenges faced by healthcare professionals during times of crisis. The aim of these interventions should be to enhance psychological resilience, provide effective coping strategies and promote psychological well-being. Long-term follow-up studies can be used to assess the sustainability and effectiveness of these interventions in improving mental health outcomes for healthcare professionals.

It is also important to consider the broader context of healthcare systems and policies when it comes to supporting the mental health of healthcare professionals. Sufficient staffing, workload management and supportive work environments play a crucial role in preventing burnout syndrome and supporting the psychological well-being of the personnel. Advocating policy changes and organizational reforms that prioritize mental health support for healthcare professionals should be taken into consideration as part of a comprehensive approach.

CONCLUSION

Investigating the prolonged consequences of the COVID-19 pandemic and emphasizing the impact of burnout syndrome and post-traumatic stress symptoms in determining mental

na određivanje psihičkog zdravlja može dodatno pomoći u otkrivanju potencijalnih mehanizama prevencije i poboljšanja općeg tjelesnog i psihičkog zdravlja zdravstvenih stručnjaka. Posebno je istaknuta povezanost psihološke otpornosti na povećanje zadovoljstva životom. Stoga bi bilo od iznimne važnosti implementirati strategije javnog zdravstva koje unaprjeđuju i podržavaju otpornost i psihičko zdravlje zdravstvenih stručnjaka kako bi se u budućnosti ublažile negativne posljedice na psihičko zdravlje masovnih traumatičnih događaja poput pandemije.

well-being may help further detect the potential underlying mechanisms of prevention and enhancement of the overall physical and mental health of healthcare professionals. Special emphasis was put on the connection between psychological resilience and increased life satisfaction. It would, therefore, be of particular importance to implement public health strategies that enhance and support resilience and mental health of healthcare professionals, in order to mitigate the negative consequences that mass traumatic events such as a pandemic could have on mental health in the future.

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Uloga depresije u razvoju blagog kognitivnog poremećaja

/ The Role of Depression in the Development of Mild Cognitive Impairment

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Blagi kognitivni poremećaj (BKP) smatra se stanjem između zdravog starenja i demencije, različitih etioloških čimbenika, kliničkih prezentacija i progresivnosti profila. Cilj rada je dati cjelovit pregled spoznaja o ulozi depresije u razvoju BKP-a. Značajna povezanost depresije s incidencijom BKP-a potvrđena je u većini istraživanja. Depresija može biti rizični čimbenik za razvoj BKP-a. Povezanost depresije i BKP-a ostvaruje se i zajedničkim čimbenicima – vaskularnim lezijama, patologijom Alzheimerove demencije (AD), genetskom vezom. Depresivni simptomi i promjene bijele tvari mogu imati aditivni ili sinergistički učinak za razvoj BKP-a. Rizični čimbenici za incidenciju BKP-a u depresivnih osoba su starija životna dob, kumulativni depresivni simptomi, dulje trajanje depresije, veći intenzitet depresivnih simptoma, niska, ali i visoka zastupljenost patologije AD-a, sinergistička aditivna interakcija nedostatka tjelesne aktivnosti i poteškoća spavanja, depresije i anksioznosti, muški rod, niži stupanj formalnog obrazovanja, aktualno posjedovanje recepta za korištenje antidepresiva. Zaštitni čimbenici koji pospješuju reverziju u uredno kognitivno funkcioniranje u depresivnih osoba su mlađa dob, neamnestički BKP, manji intenzitet depresivnih simptoma ili pak smanjenje depresivnih simptoma.

/ Mild cognitive impairment (MCI) is understood as a condition between normal aging and dementia, with different etiological factors, clinical presentations and progression profiles. The aim of this paper was to provide a comprehensive overview of the role of depression in the development of MCI. Most studies have confirmed that there is a significant connection between depression and the incidence of MCI. Depression can be a risk factor for the development of MCI. The connection between depression and MCI is achieved through common factors such as vascular lesions, Alzheimer's disease pathology and genetic links. Depressive symptoms and changes in white matter may have an additive or synergistic effect on the development of MCI. Risk factors for the incidence of MCI in individuals with depression include older age, cumulative depressive symptoms, longer duration of depression, higher severity of depressive symptoms, low, but also high burden of Alzheimer's pathology, synergistic additive interaction of lack of physical activity and sleep difficulties, depression and anxiety, male gender, lower level of formal education and current prescription of antidepressants. Protective factors that promote the reversion to normal cognitive functioning in depressed individuals include younger age, non-amnestic MCI, lower severity of depressive symptoms or a reduction in depressive symptoms.

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UVOD

Blagi kognitivni poremećaj, BKP (engl. *mild cognitive impairment*), klinički je koncept koji su Petersen i suradnici 1997. godine definirali kao stanje između zdravog starenja i demencije (1). Prevalencija u općoj populaciji varira u istraživanjima od 0,8 do 11,1 % (2). BKP raste s dobi te zahvaća 15-20 % populacije starije od 60 godina (1). Značajnim dijelom je riječ o incipijentnoj demenciji (3) što potvrđuju neuropatološka istraživanja koja su pronašla dokaze patologije Alzheimerove demencije (AD) i godinama prije pojave kliničkih simptoma (5). Svoje začetke BKP ima u 1962. godini, kada je Kral (6) opisao razlike između nedeteriorirajućih i deteriorirajućih smetnji pamćenja. BKP obilježavaju subjektivne teškoće pamćenja, objektivno oštećenje kognitivnih funkcija uobičajeno procijenjeno neuropsihologijskim testovima, odsutnost drugih kognitivnih poremećaja uz očuvano svakodnevno funkcioniranje, očuvano generalno kognitivno funkcioniranje i odsutnost demencije (7). Koncept se razvio od svojih početaka (8). U klasifikacijama MKB-11 (9) i DSM-5 (10) konceptualiziran je kao blagi neurokognitivni poremećaj (9).

BKP može zahvaćati oštećenje jednog ili pak više aspekata kognitivnog funkcioniranja. Razlikuju se podtipovi i ovisno o tome je li oštećeno pamćenje, što se naziva amnestičkim BKP-om, ili su oštećene druge kognitivne funkcije, što se naziva neamnestičkim BKP-om. Nadalje se može dijeliti na različite podtipove ovisno o kliničkoj prezentaciji, npr. BKP povezan s AD-om. Dijagnoza se postavlja nizom kliničkih i dijagnostičkih postupaka koji uključuju ispitivanje anamneze, procjenu kognitivnog funkcioniranja, funkcionalnog statusa, utjecaja lijekova, neuroloških ili psihijatrijskih abnormalnosti, i laboratorijsko testiranje (11). BKP je heterogeni sindrom s različitim etiološkim čimbenicima, kliničkim prezentacijama i progresivnosti. Navedeno rezultira postojanjem različitih kombinacija kriterija za BKP (12). Za

INTRODUCTION

Mild cognitive impairment (MCI) is a clinical concept defined by Petersen et al. in 1997 as a state between healthy aging and dementia (1). Studies have shown that its prevalence in the general population varies from 0.8% to 11.1% (2). The prevalence of MCI increases with age, affecting 15-20% of the population over 60 years old (1). For the most part, these data refer to incipient dementia (3), which is confirmed by the results of neuropathological research indicating signs of Alzheimer's disease (AD) pathology years before the appearance of clinical symptoms (5). The origins of MCI date back to 1962 when Kral (6) described the differences between non-deteriorating and deteriorating memory impairments. MCI is characterized by subjective memory complaints, objective impairment of cognitive functions usually assessed through neuropsychological tests, the absence of other cognitive disorders with preserved daily functioning, preserved general cognitive functioning and the absence of dementia (7). The concept has evolved since its inception (8). In the ICD-11 (9) and DSM-5 classification systems (10), it is conceptualized as mild neurocognitive disorder (9).

MCI can affect the impairment of one or more aspects of cognitive functioning. It can be divided into subtypes depending on whether memory is impaired, which is referred to as amnestic MCI, or if other cognitive functions are impaired, known as non-amnestic MCI. Furthermore, it can be categorized into different subtypes based on clinical presentation, e.g. MCI associated with AD. The diagnosis involves a series of clinical and diagnostic procedures, including taking medical history, assessing cognitive functioning, functional status, medication effects, neurological or psychiatric abnormalities, and laboratory testing (11). MCI is a heterogeneous syndrome with various etiological factors, clinical presentations and progression, leading to different combinations of MCI criteria (12). Clinical guidelines for selecting neuropsychological tests are required

procjenu BKP-a potrebne su kliničke smjernice za odabir neuropsihologijskih testova (13). Sugerirani su degenerativni, vaskularni, traumatski, infektivni, ali i psihijatrijski etiološki čimbenici BKP-a (14). Razvijaju se dijagnostičke metode za razlikovanje različitih vrsta BKP-a i metode liječenja. Učinak farmakoterapije i psihoterapije na liječenje BKP-a nije jednoznačno razjašnjen (3, 15,16).

Jedan od sugeriranih psihijatrijskih etioloških čimbenika BKP je depresija. **Depresija** je naziv za niz depresivnih poremećaja, primarno obilježenih sniženim raspoloženjem ili anhedonijom, ali i negativnim samovrednovanjem, poremećajem spavanja i apetita, značajno smanjenom funkcionalnosti, u trajanju od dva tjedna i više (8). Smanjenje kognitivne učinkovitosti jedno je od ključnih obilježja depresivnih poremećaja. Ispitivanje odnosa kognicije i depresije predmet je istraživanja posljednjih četrdesetak godina, prvotno usmjerenih na sadržaj misli i obilježja obrade informacija, a potom na razumijevanje kognitivnih deficita. Veliki depresivni poremećaj u odraslih nerijetko se manifestira kognitivnim oštećenjem, blagim deficitima pamćenja, brzine procesuiranja i izvršnih funkcija (17), ali i oštećenjem vizuospacijalnih sposobnosti (18), oslabjelom pažnjom i koncentracijom (19). Depresija u starijoj dobi obilježena je većom vjerojatnošću disfunkcije izvršnih funkcija i usko povezanog oštećenja adaptivnog funkcioniranja (17,20,21), kao i obilnijim somatskim komorbiditetom, varijabilnim terapijskim učinkom (22-25). Neka istraživanja navode da povezanosti između komponenata izvršne disfunkcije i funkcionalne nesposobnosti ne ovise o depresiji, već o vaskularnim rizičnim čimbenicima (26).

Dok neki autori navode da je 26 % osoba s BKP-om depresivno (27), drugi izvještavaju o čak 63,3 % depresivnih u populaciji s BKP-om (28). Brojna istraživanja ukazuju na povezanost BKP-a i depresije (27-32), ali njihov vremenski tijek javljanja, kauzalnost, kao i me-

for MCI assessment (13). Proposed etiological factors for MCI include degenerative, vascular, traumatic, infectious and psychiatric factors (14). Diagnostic methods are being developed to differentiate between various types of MCI and treatment methods. The impact of pharmacotherapy and psychotherapy on MCI treatment has not been definitively clarified (3, 15, 16).

One of the suggested psychiatric etiological factors of MCI is depression. **Depression** refers to a range of depressive disorders, primarily characterized by low mood or anhedonia, as well as negative self-evaluation, sleep and appetite disturbances, significantly reduced functionality, which can all last for two weeks or more (8). Reduced cognitive efficiency is one of the key features of depressive disorders. Research on the connection between cognition and depression has been ongoing for the past forty years, initially focusing on thought content and information processing characteristics, and later on understanding the cognitive deficits. Major depressive disorder in adults often manifests with cognitive impairment, mild memory deficits, as well as processing speed and executive function deficits (17), in addition to impairments in visuospatial abilities (18), reduced attention and concentration (19). Depression in older age is characterized by a higher likelihood of executive function dysfunction and closely related adaptive functioning impairment (17, 20, 21), as well as a greater somatic comorbidity and variable therapeutic response (22-25). Some studies suggest that the correlation between components of executive dysfunction and functional impairment is not dependent on depression, but on vascular risk factors (26).

While some authors report that 26% of individuals with MCI are depressed (27), others report results as high as 63.3% of depressed individuals among the population suffering from MCI (28). Numerous studies indicate that there is a link between MCI and depression (27-32), but the timing of their occurrence, causality and underlying correlation mechanisms have not been sufficiently clarified. Brain imaging studies were mostly

hanizmi u osnovi međuodnosa nisu dovoljno razjašnjeni. Istraživanja oslikavanja mozga uglavnom su odvojeno ispitivala depresivne skupine (33-35) i one s BKP (36-37). Zajedničke strukturne promjene i za depresiju i za BKP su smanjenje volumena u brojnim moždanim regijama: insuli, gornjem temporalnom girusu, donjem frontalnom girusu, amigdali, hipokampusu i talamusu (38). Pretpostavlja se da je smanjenje volumena u insuli i gornjem temporalnom girusu odraz komunikacijskih deficita i deprivacije od kognitivno i socijalno-stimulirajućih aktivnosti, rizičnih čimbenika i za depresiju i za BKP. Depresivne osobe s BKP-om imaju abnormalnu moždanu aktivnost u odnosu na nedepresivne osobe s BKP-om (39). Moguće je da depresivni simptomi smanjuju kapacitet kognitivnog funkcioniranja i povećavaju rizik od razvoja BKP-a (40), ali i da BKP povećava rizik od depresivnih simptoma (41).

Slabo postignuće na kognitivnim testovima snažan je prediktor progresije BKP-a u AD, prema nekim istraživanjima snažniji i od biomarkera (42-44). Neuropsihologijska procjena važan je alat procjene BKP-a, a neki autori sugeriraju da može identificirati one koji će razviti BKP i prije pojave prvih simptoma (9).

Psihodijagnostika je grana kliničke psihologije koja se bavi praktičnim i metodološkim pitanjima dijagnostike i psihološke procjene (45). U kliničkoj psihologijskoj praksi koriste se intervju, dijagnostička opservacija, upitnici i projektivne tehnike sa svrhom dijagnostike uzroka poremećaja i preporuke tretmana (45). Razvijeni su i validirani psihologijski mjerni instrumenti za diferencijalnu dijagnostičku procjenu, te projektivne tehnike (46). Klinička neuropsihologija se bavi bihevioralnom ekspresijom disfunkcije mozga (47) koja se manifestira u tri funkcionalna sustava: kogniciji, emocijama i izvršnim funkcijama (47). Kognitivne funkcije Lezak (48) dijeli na receptivne funkcije, pamćenje i učenje, mišljenje i ekspresivne funkcije.

used to examine depressive groups (33-35) and those with MCI (36-37) separately. Common structural changes in both depression and MCI include reduced volume in various brain regions: insula, superior temporal gyrus, inferior frontal gyrus, amygdala, hippocampus and thalamus (38). It is assumed that volume reduction in the insula and superior temporal gyrus reflects communication deficits and deprivation of cognitively and socially stimulating activities, risk factors for both depression and MCI. Depressed individuals with MCI exhibit abnormal brain activity compared to non-depressed individuals with MCI (39). It is possible that depressive symptoms reduce cognitive functioning capacity and increase the risk of MCI (40), but also that MCI increases the risk of depressive symptoms (41).

Poor results on cognitive tests represent a strong predictor of MCI progression to AD, even stronger than biomarkers according to some studies (42-44). Neuropsychological assessment is an important tool for evaluating MCI, and some authors suggest that it can help identify those individuals who will develop MCI even before the appearance of the first symptoms (9).

Psychodiagnostics is a branch of clinical psychology that deals with practical and methodological issues concerning diagnostics and psychological assessment (45). In clinical psychological practice, interviews, diagnostic observation, questionnaires and projective techniques are used to diagnose the causes of disorders and recommend treatments (45). Psychometric instruments for differential diagnostic assessment and projective techniques have also been developed and validated (46). Clinical neuropsychology deals with the behavioral expression of brain dysfunction (47), which manifests in three functional systems: cognition, emotions, and executive functions (47). Lezak (48) divides cognitive functions into receptive functions, memory and learning, thinking and expressive functions.

Clinical neuropsychological assessment, rather than the sole results of neuropsychological tests,

Klinička neuropsihologijska procjena, a ne sami rezultati neuropsihologijskih testova, neophodna je za postavljanje dijagnoze BKP, jer se neuropsihologijski profili različitih poremećaja preklapaju, a postignuća na testovima ovise o brojnim čimbenicima koje kliničar uzima u obzir pri interpretaciji (9). Dijagnosticiranjem BPK-a otkrivaju se rana obilježja demencija i omogućuju potencijalno odgađanje progresije (49). Osobe s BKP-om vjerojatnije će razviti demenciju od osoba urednog kognitivnog funkcioniranja (10), a vjerojatnost raste ako se BKP javlja u komorbiditetu s depresijom (50). Osobe s komorbidnom depresijom i BKP u anamnezi čak su i po kognitivnom oporavku i remisiji depresije u većem riziku za razvoj demencije od depresivnih (51). Rizični i zaštitni čimbenici za BKP u osoba s depresijom malo su istraživani.

CILJ

Cilj ovog rada je dati pregled spoznaja o ulozi depresije u razvoju BKP-a:

1. Ustanoviti jesu li dosadašnja istraživanja pokazala povezanost depresije i incidencije BKP-a;
2. Saznati na koji se način u dosadašnjim istraživanjima depresija objašnjava kao rizični čimbenik za BKP;
3. Dati pregled do sada istraživanih rizičnih i zaštitnih čimbenika koji se nalaze u podlozi odnosa depresije i BKP-a.

METODE

Pretraživanjem elektronskih znanstvenih baza podataka *Pubmed, Web of Science, Science Direct, PsychInfo, Scopus* i OVID prikupljeni su radovi objavljeni zaključno s 9.5.2022, prema ključnim riječima: depresija, depresivni poremećaj, disruptivni poremećaj disregulacije raspoloženja, veliki depresivni poremećaj, velika depresija, velika depresivna epizoda, depresivna

is essential for diagnosing MCI because neuropsychological profiles of different disorders tend to overlap, and test scores depend on numerous factors that clinicians take into account when interpreting them (9). Diagnosing MCI reveals early signs of dementia and allows for potential delay in progression (49). Individuals with MCI are more likely to develop dementia than those with normal cognitive functioning (10), and the likelihood increases if MCI co-occurs with depression (50). Even in cognitive recovery and remission of depression, individuals with a history of comorbid depression and MCI are at a greater risk of developing dementia than those with depression alone (51). Risk and protective factors for MCI in individuals with depression have not been extensively researched.

OBJECTIVE

The objective of this paper is to provide an overview of the knowledge gained with regard to the role of depression in the development of MCI:

1. To determine whether previous research has shown a correlation between depression and the incidence of MCI.
2. To understand how depression is explained as a risk factor for MCI in previous research.
3. To provide an overview of the risk and protective factors underlying the connection between depression and MCI that have been researched so far.

METHODS

By reviewing the electronic scientific databases such as Pubmed, Web of Science, Science Direct, PsychInfo, Scopus and OVID, papers published up to May 9, 2022, were collected using the following keywords in English: depression, depressive disorder, disruptive mood dysregulation disorder, major depressive disorder, major depression, major depressive episode, depres-

epizoda, distimija, perzistentni depresivni poremećaj, premensturalni disforični poremećaj i blagi kognitivni poremećaj, na engleskom jeziku. Uključena su istraživanja koja su ispitivala povezanost depresivnih poremećaja, ali i (sub) kliničkih depresivnih simptoma s BKP-om. Termin depresija koristi se kao općeniti termin, a detaljnije će se opisati klinička skupina. S obzirom da je blagi neurokognitivni poremećaj usko povezan s BKP-om uključena su i istraživanja koja su ispitivala odnos blagog neurokognitivnog poremećaja i depresije. Zbog kliničke i metodološke heterogenosti nije provedena meta-analiza, već je prikazan pregledni članak narativne forme. Obuhvaćena su istraživanja na svim uzorcima neovisno o dobi, rodu, dobi javljanja i trajanju depresivnog poremećaja. Isključeni su radovi koji nisu na engleskom ili hrvatskom jeziku, studije slučaja, sekundarna istraživanja, radovi čije su metode saznavanja isključivo nepsihologijske obrade (slikovni prikazi mozga, biomarkeri), te istraživanja koja su ispitivala skupine osoba s komorbidnim poremećajima.

REZULTATI

Pretraživanjem baza podataka pronađeno je ukupno 12404 radova, od kojih je iz daljnje obrade uklonjen 4071 duplikat pa je u daljnju selekciju ušlo 8333 radova. Dio radova isključen je prema kriterijima nakon pregleda na razini naslova i sažetka, a dio nakon čitanja rada. U konačnici su odabrana 33 istraživanja.

Povezanost depresije i incidencije BKP

Značajna povezanost depresije s incidencijom BKP-a potvrđena je u većini longitudinalnih istraživanja koja su pratila depresivne osobe urednog kognitivnog funkcioniranja do BKP-a, u rasponu od OR =1,7, 95 %, CI, 1,1-2,8 do OR=16,16, 95 %, 1,12-2,32 (tablica 1).

sive episode, dysthymia, persistent depressive disorder, premenstrual dysphoric disorder and mild cognitive impairment. Studies that examined the connection of depressive disorders and (sub)clinical depressive symptoms with MCI were included. The term "depression" is used as a general term, and the clinical group will be described in more detail. Since mild neurocognitive impairment is closely associated with MCI, studies examining the connection between mild neurocognitive impairment and depression were also included. Due to clinical and methodological heterogeneity, a meta-analysis was not conducted and a narrative review article was presented instead. Studies that covered all samples regardless of age, gender, age of onset and duration of depressive disorder were included. Studies not published in English or Croatian, case studies, secondary research, studies with exclusively non-psychological methods (brain imaging, biomarkers), and studies that examined groups with comorbid disorders were excluded.

RESULTS

A total of 12,404 papers were found through database searches, of which 4,071 duplicates were removed, leaving 8,333 papers available for further selection. Some papers were excluded based on criteria after reviewing their titles and abstract reviews, while others were excluded after reading the full text. In the end, 33 studies were selected.

Connection between depression and the incidence of MCI

A significant connection between depression and the incidence of MCI was confirmed in most longitudinal studies that monitored individuals with depression and normal cognitive functioning to MCI, with odds ratios ranging from 1.7 (95% CI, 1.1-2.8) to 16.16 (95% CI, 1.12-2.32) (Table 1). Out of the 33 studies that

TABLICA 1. Pregled istraživanja longitudinalnog nacrta koja su ispitivala kognitivno funkcioniranje depresivnih osoba
TABLE 1. A review of longitudinal design studies investigating the cognitive functioning of individuals with depression

Prezime autora i godina istraživanja / Author's surname and year of research	Uzorak / Sample	Interval praćenja / Monitoring interval Kontrola A) AD patologije B) vaskularnih rizičnih čimbenika C) gena / Control variable A) AD pathology B) vascular risk factors C) genes	Procjena depresije / Assessment of depression	Procjena BKP-a / Assessment of MCI	Rezultati Prevalencija BKP-a Povezanost depresije i BKP / Results Prevalence of MCI Connection between depression and MCI	Mehanizam u osnovi povezanosti depresije i BKP-a / The mechanism underlying the connection between depression and MCI				
						Različiti meh. rane i kasne depresije / Different mechanisms of early and late depression	Depresija kao rizični čimbenik BKP-a / Depression as a risk factor for MCI	Vaskularne lezije i depresija / Vascular lesions and depression	DEP I BKP posljedica AD patologije / Depression and MCI consequence of AD pathology	Genetska povezanost / Genetic link	DEP i BKP nisu povezani / Depression and MCI are not connected
Adler, Chwalek, & Jajcevic, (2004); (96)	N=27, M dobi ± SD: 73,4 ± 6.5 g). >60 g pacijenata gerontopsihijatrijske klinike s dg. depresivnog poremećaja (MKB-10), N (DEP+BKP)=15 N(DEP)=12 / N=27, M age ± SD: 73.4 ± 6.5 y. >60 y patients of gerontho-psychiatric clinic with diagnosed depressive disorder (ICD-10), N(DEP+MCI)=15 N(DEP)=12	6 mj.; uredne rutinske lab.pretrage, EKG, EEG i CT ili MRI bez psihotropnih lijekova posljednji tjedan, bez komorbiditeta / 6 months; regular routine lab tests, EKG, EEG, and CT or MRI without psychotropic drugs in the last week, without comorbidities	Hamiltonova ljestvica depresije (HAM-D) / Hamilton depression rating scale (HAM-D)	Strukturirani intervju za dijagnozu demencije Alzheimerovog tipa, multiinfarktnu demenciju i druge demencije prema MKB-10 i DSM-III-R (SIDAM), Barthelov indeks i Ljestvica instrumentalnih aktivnosti IADL, <46 bodova na Strukturiranom intervjuu SISCO / SIDAM – Structured Interview for the diagnosis of Dementia of the Alzheimer type, Multi-infarct dementia and dementias of other aetiology according to ICD-10 and DSM-III-R (SIDAM), Barthel index, The Lawton instrumental activities of daily living (IADL) scale, <46 points on Structured Interview SISCO	Od 15 pacijenata s BKP-om u inicijalnoj procjeni, 12 ima i nakon 6 mjeseci. Svih 12 urednog kognitivnog funkcioniranja nakon 6 mjeseci ima uredno kognitivno funkcioniranje. Oporavak kognitivnog funkcioniranje može trajati dulje nego oporavak od depresije. Nije ustanovljena povezanost težine depresije i BKP, niti povezanost težine depresije i remisije od BKP-a. / Out of 15 patients initially assessed with MCI, 12 still have MCI after 6 months. All 12 of these patients with normal cognitive functioning, after 6 months still have normal cognitive functioning. Recovery of cognitive functioning may take longer than recovery from depression. There is no established connection between the severity of depression and MCI, or between the severity of depression and remission from MCI.						✓
Almeida et al. (2016); (29)	Kohortno istraživanje, N=3113 muškaraca , M dobi=77.1 ± 3.6 g, 3 skupine: uredno kognitivno funkcioniranje (UKF), BKP, DEM / A cohort study, N=3113 men, M age=77.1 ± 3.6 y, 3 groups: normal cognitive functioning (NCF), MCI, DEM	5 godina, / 5 years,	Gerijatrijska ljestvica depresije (GDS) ≥7 / Geriatric Depression Scale (GDS) ≥7	≥24 bodova na MMSE; TICS (Telefonski intervjuu kognitivnog statusa, Knopman i sur., 2010), 27-31 bodova / ≥24 points on MMSE; TICS (Telephone Interview for Cognitive Status , Knopman et al.., 2010), scores amount to 27-31	11,6 % sudionika je razvilo BKP. Aktualni klin. znač. depr. simptomi povezani su s pov. rizikom od BKP-a (RR = 2,59, 95 % CI = 1,57–4,27) . Povijest klinički značajnih depresivnih simptoma u anamnezi nije povezana s povećanim rizikom od javljanja BKP-a. / 11.6% of participants developed MCI. Current clinically significant depressive symptoms are associated with an increased risk of MCI (RR = 2.59, 95% CI = 1.57–4.27). A history of clinically significant depressive symptoms in the anamnesis is not associated with an increased risk of MCI.	✓	**X**				
Barnes et al. (2006), (27)	Populacijsko prospektivno istraživanje, sudionici *the Cardiovascular Health Study Cognition Study;* N(UKF)=2220 M= 74 godine / Population Prospective Study,*the Cardiovascular Health Study Cognition Study participants;* N(NCF)=2220 M= 74 y	6 godina, B / 6 years, B	Ljestvica depresije Centra za epidemiološke studije (CES-D); 3-7 blagi, >=8 umjereni i teški dep. simptomi. / Center for Epidemiologic Studies Depression Scale (CES-D); 3-7 mild, >=8 moderate and severe depressive symptoms	Pojedinci koji nisu zadovoljili kriterije za demenciju ali imaju deficit kognitivnih funkcija u odnosu na prvo mjerenje Neuropsihologijka baterija / Individuals who do not meet the criteria for dementia but have cognitive function deficits compared to the initial neuropsychological assessment battery	13 % sudionika je razvilo BKP. Depresivni simptomi u prvoj točki mjerenja povezani su s povećanim rizikom od BKP-a (10,0 %, 13,3 %, and 19,7 %, za one bez depresivnih simptoma, s blagim, odnosno umjerenim ili teškim depresivnim simptomima). Vaskularna bolest i depresija su međusobno neovisni rizični čimbenici za BKP. / 13% of participants developed MCI. Depressive symptoms at the first measurement point are associated with an increased risk of MCI (10.0%, 13.3%, and 19.7% for those without depressive symptoms, with mild or with moderate to severe depressive symptoms, respectively). Vascular disease and depression are muutally independent risk factors for MCI.		**?**	**X**	**?**		

Bhattarai, Oehlert, Multon, i Sumerall, (2019) (130)	Retrospektivno kohortno istraživanje N=800 ratnih veterana s prosjekom dobi 64,57 godina (SD = 2,58) / Retrospective cohort study N=800 war veterans, M age= 64.57 y (SD = 2.58)		Dijagnoza MKB-9 preuzeta iz med. dokumentacije / ICD-9 diagnosis taken from medical documentation	Dijagnoza MKB-9 / ICD-9 diagnosis	7 % sudionika je dijagnosticirano demencijom ili drugom formom kognitivnog oštećenja / 7% of participants diagnosed with dementia or another form of cognitive impairment.	✓		
Burhanullah etl al. (2020), (97)	Populacijsko istraživanje N (UKF)= 470 65 godina i stariji / Population study N (NCF)= 470 65 years and older	M=5,73 godine / M=5.73 y	Inventar neuropsihijatrijskih simptoma (NPI). /The Neuropsychiatric Inventory, NPI.	Modificirani upitnik mini mental statusa (3MS) ili Upitnik kognitivnog propadanja za informanta, kognitivni testovi / Modified Mini-Mental State Test (3MS) or Cognitive Decline Questionnaire for Informants and cognitive tests	Ukupno opterećenje NPS-om bilo je povezano s longitudinalnim kognitivnim padom. Rezultat na NPI-**depresija nije bio** povezan s longitudinalnim padom ni na jednoj mjeri ishoda. /The total burden of NPS (Neuropsychiatric Symptoms) was associated with longitudinal cognitive decline. However, the score on the NPI-depression scale was not associated with longitudinal decline on any outcome measure.			✓
Chan et al. (2020), (87)	Populacijsko istraživanje, podaci derivirani iz BIOCARD studije; N (UKF)=216, M dobi = 57 godina / Population study, data derived from BIOCARD study; N (NCF)=216, M age= 57 y	20 godina, M= 12.7 godina, A analiza biomarkera AD (beta,(Aβ)1-42) , t-tau, and p-tau) iz cerebrospinalne tekućine / 20 y M= 12.7 y A Analysis of AD biomarkers (beta,(Aβ1-42), t-tau, and p-tau) in cerebrospinal fluid	Hamilton ljestvica depresije (HMD);>7 bodova, kao kontinuirana i dihotomizirana varijabla / Hamilton Depression Rating Scale, HMD;>7 points, as continuous and dichotomous variable	Smjernice Američkog nacionalnog instituta za starenje i Elzhemerovu bolest (NIA-AA) kognitivni pad u odnosu na prvo mjerenje na CDR i neuropsihologijskim testovima / Guidelines of the National Institute on Aging and the Alzheimer's Association (NIA-AA), cognitive decline compared to the first measurement on the Clinical Dementia Rating scale (CDR) and neuropsychological tests	Interakcija depresivnih simptoma i markera AD patologije: depresija je povezana s vremenom javljanja BKP-a kod pojedinaca s nisko zastupljenom AD patologijom (HR= 0,64; 95 %, 0,43–0,95; P= .026). / Interaction of depressive symptoms and AD pathology markers: Depression is associated with the time of onset of MCI in individuals with low burden of AD pathology (HR= 0.64 ; 95% CI 0.43–0.95; P= .026).	✓	X	
Chan et al. (2019), (86).	Populacijsko istraživanje, podaci derivirani iz *BIOCARD studije;* N(KF)=300 M dobi= 57,4 godina / Population study, BIOCARD study data; N(NCF)=300 M age= 57.4 y	20 godina, M= 2,5 godina A / 20 years, M= 2.5 y A	HMD>7 bodova, kao kontinuirana i dihotomizirana varijabla / HMD>7 points, as continuous and dichotomous variable	NIA-AA (Albert i sur., 2011), Klinička ljestvica za procjenu demencije (CDR). / NIA-AA (Albert i sur., 2011), Clinical Dementia Rating (CDR) Scale	23 % sudionika razvilo je BKP. Blagi depresivni simptomi prediktivni su za BKP unutar 7 godina (p = 0.043). Depresivni simptomi ne povećavaju rizik od BKP-a nakon 7 godina. Depresivni simptomi u srednjoj i starijoj dobi rizičan su čimbenik za BKP zbog AD patologije. / 23% of participants developed MCI. Mild depressive symptoms are predictive of MCI within 7 years (p = 0.043). Depressive symptoms do not increase the risk of MCI after 7 years. Depressive symptoms in middle and older age are a risk factor for MCI due to AD pathology.	✓	✓	
Dean et al. (2014), (77)	Populacijsko prospektivno istraživanje *The Oxford Project to Investigate Memory and Ageing (OPTIMA)* N(UKF)=126 / Population prospective study*The Oxford Project to Investigate Memory and Ageing (OPTIMA)* N(NCF)=126	20 godina; A / 20 years A	GDS 0-10 nema depresije; 11-20, blaga depresija; 21-30 teška depresija / GDS 0-10 no depression, 11-20 mild depression; 21-30 severe depression	Petersenovi kriteriji, Cambridgeova procjena poremećaja starijih (CAMDEX): Cambridgeova kognitivna procjena (CAMCOG, <13 bodova), MMSE > ili = 24 ; uredno adaptivno funkcioniranje / Petersen criteria, the Cambridge Examination for Disorders of the Elderly (CAMDEX): the Cambridge Cognitive Examination (CAMCOG, <13 points), MMSE > or = 24; normal adaptive functioning	39,7 % (N=50) razvilo BKP tijekom praćenja; Depresivni simptomi predvidjeli su vrijeme potrebno za BKP kod nenositelja APOE ε4; 1 SD porast depresivnih simptoma smanjuje vrijeme do BKP za 25,4 % (p = .0024, z = -5.6). / 39.7% (N=50) developed MCI during the follow-up period; Depressive symptoms predicted the time required for MCI in non-carriers of APOE ε4: A 1-standard deviation increase in depressive symptoms reduces the period to MCI by 25.4% (p = .0024, z = -5.6)	✓	X	

Dotson, Beydoun, i Zonderman, (2010), (76).	Prospektivno istraživanje, dio *the Baltimore Longitudinal Study of Aging (BLSA)*, N(UKF)= 1,239 (M dobi=55,5+- 18,8 g); / Prospective study, part of *the Baltimore Longitudinal Study of Aging (BLSA)*, N(NCF)= 1.239 (M age=55.5+- 18.8 y);	M= 23,0 godina, maksimalno 51 godina B / M= 23.0 years, max 51 y B	CES-D, >16 bodova. Upitnik broja i ozbiljnosti depresivnih epizoda u posljednjem tjednu / CES-D, >16 points. Questionnaire about the number and severity of depressive episodes in the last week.	Petersenovi kriteriji (Petersen, 2014); kognitivni pad u odnosu na prvo mjerenje na CDR / Petersen criteria (Petersen, 2014); Cognitive decline compared to the first measurement on CDR	7, 1 % (N=88) sudionika je razvilo BKP. Svaka depresivna epizoda povezana je s 14 % porasta rizika od demencije, ali ne i od BKP-a, HR (95 % CI) 1,02 (0,85–1,23) p=.811 / 7.1% (N=88) of participants developed MCI. Each depressive episode is associated with a 14% increase in the risk of dementia, but not of MCI, HR (95% CI) 1.02 (0.85–1.23), p=.811.					✓
Feng et al. (2017), (78).	Dio epidemiološkog istraživanja *the Singapore Longitudinal Aging Study (SLAS)* N=889, starost >55 godina / Part of epidemiological study - *the Singapore Longitudinal Aging Study (SLAS)* N=889, age >55 y	M = 45, 36 mjeseci (SD = 5.52). A (APOE genotip) B / M = 45.36 months (SD = 5.52). A (APOE genotype) B	GDS-15, >5 bodova / GDS-15, >5 points	Mini mental status test (MMSE), Montrealova ljestvica kognitivne procjene (MoCA); CDR = 0.5 / Mini mental status Exam (MME), the Montreal Cognitive Assessment (MoCA); CDR = 0.5	6,6 % sudionika je razvilo BKP. Depresivni simptomi povećali su vjerojatnost razvoja BKP-a neovisno o drugim poznatim rizičnim čimbenicima (dobi, stupnju obrazovanja, rodu, hipertenziji, DM, APOE genotipu): OR=2,56, 95 %, CI 1,17-5,60 / 6,6% developed MCI. Depressive symptoms increased the likelihood of developing MCI independently of other known risk factors (age, education level, gender, hypertension, diabetes mellitus, APOE genotype): OR=2.56, 95% CI 1.17-5.60.		✓	X	X	
Freire, Pondé, Liu, i Caron, (2017), (53).	Populacijsko prospektivno istraživanje , dio *the Montreal PopulationBased Epidemiological Study on Mental Health*. N= 352; M=60 + 3.16 godina / Population prospective study, part of *the Montreal Population Based Epidemiological Study on Mental Health*. N= 352; M=60 + 3.16 y	2 godine / 2 years	Kompozitni dijagnostički intervju (CIDI); Kesslerova ljestvica psihološkog distresa (K10) >9 ; Ljestvica Upravljanja stresom (CCHS 1.2). / Composite diagnostic interview (CIDI); the Kessler psychological distress scale (K10) >9 ; Stress menagement scale (CCHS 1.2).	MOCA	Nije pronađena povezanost depresije i kognitivnog oštećenja. / No connection was found between depression and cognitive impairment.					✓
Geda et al. (2014), (79).	N(UKF)= 1587 M dobi = 79.3 g(70.5-91) / N(NCF)= 1587 M age = 79.3 y (70.5-91)	Longitudinalni nacrt, praćeni do pojave BKP, M=5 g / Longitudinal design, monitored until the occurrence of MCI, M=5 years	NPI	Petersen i sur. (2004), tim stručnjaka / Petersen et al. (2004), team of experts	8,86 % razvilo BKP. Depresija je značajno povezana s incidencijom amnestičkog BKP-a (HR=1,63; 95 % CI=1,23–2,16), pri čemu je značajno povezana s incidencijom amnestičkog BKP (HR=1,74; 95 % CI=1,22–,.47), ali i drugi neuropsihijatrijski simptomi imaju jednaku ili i veću povezanost s incidencijom BKP: agitacija (HR=3,06; 95 % CI=1,89–4,93), apatija (HR=2,26; 95 % CI=1,49–3,41) , anksioznost (HR=1,87; 9 5% CI=1,28–2,73), iritabilnost (HR=1,84; 95 % CI=1.31–2,58). Euforija, dizinhibicija i smetnje spavanja povezani ss s incidencijom neamnestičkog BKP-a, a nisu povezani s incidencijom amnestičkog BKP-a. / 8.86% developed MCI. Depression is significantly associated with the incidence of amnestic MCI (HR=1.63; 95% CI=1.23–2.16), while it is also significantly associated with the incidence of amnestic MCI (HR=1.74; 95% CI=1.22–2.47). However, other neuropsychiatric symptoms have equal or greater connection with the incidence of MCI: agitation (HR=3.06; 95% CI=1.89–4.93), apathy (HR=2.26; 95% CI=1.49–3.41), anxiety (HR=1.87; 95% CI=1.28–2.73), irritability (HR=1.84; 95% CI=1.31–2.58). Euphoria, disinhibition, and sleep disturbances are associated with the incidence of non-amnestic MCI but not with the incidence of amnestic MCI.	?	?	?	?	

Goveas et al. (2011), (32)	prospektivno kohortno istraživanje (WHIMS); N(UKF)=6376 žena u menopauzi / Prospective cohort study (WHIMS); N(NCF)=6376 women in menopause	M= 5.4 godine (SD=1.6) B / M= 5.4 y (SD=1.6) B	Burnamov algoritam, CES-D Dijagnostički interviju nacionalnog instituta mentalnog zdravlja (DIS)- 2 čestice / Burnam algorithm, CES-D Diagnostic interview of NIMH (DIS) – 2 items	Petersenovi kriteriji (1992), Konzorcij za uspostavu registra za Alzheimerovu demenciju (CERAD) Modificirani MMSE (3 MS) / Petersen criteria (1992). The Consortium to Establish a Registry for Alzheimer's Disease (CERAD) The Modified Mini-Mental State Exam (MMSE) 3MS	Depresivni simptomi povezani su s povećanim rizikom od BKP (HR, 1,98; 95 %, 1,33–2,94). Depresivne sudionice imaju približno dvostruko veći rizik razvoja BKP ili demencije u odnosu na nedepresivne. Nedepresivne žene s depresijom u ranoj anamnezi imaju povećan rizik od demencije (HR=2,08; 95 % CI 1,15–3,78, p=0,02), ali ne i BKP (HR=1,03; 95 % CI 0,66–1,63, p=0,89). / Depressive symptoms are associated with an increased risk of MCI (HR, 1,98; 95%, 1,33–2,94). Depressive participants have approximately twice the risk of developing MCI or dementia compared to non-depressive participants. Non-depressive women with an early history of depression have an increased risk of dementia (HR=2,08; 95% CI 1,15–3,78, p=.02) but not of MCI (HR=1.03; 95% CI 0,66–1.63, p=.89).	?	X	?
Goveas, et al. (2012), (93).	prospektivno istraživanje (WHIMS); N=6998 žena u postmenopauzi raspoređenih po slučaju u eksperimentalnu skupinu hormonalne terapije i placebo skupinu, 65–79 g / Prospective study (WHIMS); N=6998 postmenopausal women randomly assigned to experimental group of hormonal therapy and placebo group 65–79 y	M= 7.5 godina / M= 7.5 y	Burnam algoritam CES-D (6 čestica) (DIS)- 2 čestice / Burnam algorithm CES-D (6 items), (DIS) – 2 items	Petersenovi kriteriji (1992) loš uspjeh na CERAD bateriji, uz očuvano svakodnevno funkcioniranje; Modificirani MMSE (3 MS) / Petersen criteria (1992) low performance on CERAD battery, with preserved everyday functioning; The Modified Mini-Mental State Exam (MMSE) 3MS	4,7 % žena (N=331) je razvilo BKP Uzimanje antidepresiva (SIPPS-i i triciklički antidepresivi) povezano je sa 70 % povećanog rizika od BKP-a (SIPPS;(HR), 1,78 [95 % CI, 1,01–3,13]; TCA: HR, 1,78 [95 % CI, 0,99–3,21]). Depresivni na antidepresivima (HR, 2,44 [95 % CI, 1,24–4,80]), nedepresivni na antidepresivima (HR, 1,79 (95 % CI, 1,13–2,85]) i depresivni koji ne uzimaju antidepresive (HR, 1.62 [95 % CI, 1,13–2,32]) imaju povećani rizik od BKP-a. / 4.7% of women (N=331) developed MCI. Taking antidepressants (SSRIs and tricyclic antidepressants) is associated with a 70% increased risk of MCI (SSRIs: HR 1.78 [95% CI, 1.01–3.13]; TCAs: HR 1.78 [95% CI, 0.99–3.21]). Depressive individuals on antidepressants (HR 2.44 [95 % CI, 1.24–4.80]), non-depressive individuals on antidepressants (HR 1.79 [95% CI, 1.13–2.85]), and depressive individuals not taking antidepressants (HR 1.62 [95% CI, 1.13–2.32]) have an increased risk of MCI.	✓		
Köhler, Thomas, Barnett, i O'Brien (2010), (73)	klinička skupina N(UKF)=67 sudionika s dg. velikog depresivnog poremećaja pacijenata dnevne psihijatrijske bolnice N(kontrolna)= 36; > 60 godina / Clinical group N(NCF)=67 participants of the day psychiatric hospital diagnosed with major depressive disorder N(control)= 36; > 60 y	Mjerenja 6 mjeseci, 18 mjeseci i 4 godine nakon prvog: bez somatskog komorbiditeta / Controls 6 months, 18 months and 4 years after first trial: without somatic comorbidities	DSM-IV (APA, 1994); Montgomeryjeva ljestvica za procjenu depresije (MADRS). / DSM-IV (APA, 1994); the Montgomery-Asberg Depression Rating Scale (MADRS)	Petersen i sur., 1999) > 1,5 SD na CAMCOG-u; <75 bodova (klinička) ili <80 (kontrolna). / Petersen et al., 1999) > 1.5 SD on CAMCOG <75 points (patients) or <80 points (control group).	Polovica sudionika razvila je BKP. Kognitivni deficiti persistiraju barem 4 godine nakon liječenja depresije. Početak depresije u starijoj životnoj dobi povezan je s izraženijim deficitima pamćenja i izvršnih funkcija. / Half of the participants developed MCI. Cognitive deficits persist for at least 4 years after the treatment of depression. Onset of depression in older age is associated with more pronounced memory and executive function deficits.	✓		
Köhler et al. (2010), (74)	Prospektivno kohortno istraživanje, dio *The Maastricht Ageing Study (MAAS)*; N(UKF)= 412 M (dob)= 69,4 (60,0–82,7) / Prospective cohort study, part of *The Maastricht Ageing Study (MAAS)*; N(NCF)= 412 M (age)= 69.4 (60.0–82.7)	6 godina A (APOE) / 6 years A (APOE)	Revidirana forma upitnika za depresivne simptome (SCL-90) 16-80 bodova; 4 kategorije sudionika po intenzitetu / Revised questionnaire for depressive symptoms (Symptom Checklist- SCL-90) 16-80 points, 4 categories of participants according to severity	CIND: rezultat <1,5 SD ispod norme testovima, rezultat 24 ili više na MMSE Neuropsihologijska procjena / CIND: result <1.5 SD below test norm, score 24 or higher at MMSE Neuropsychological assessment	Povezanost depresivnih simptoma i CIND (kognitivnog oštećenja, bez demencije) najvećaa je za one s perzistirajućim depresivnim simptomima (definiranim kao prisutni u inicijalnom mjerenju i barem jednom novom mjerenju). OR 1,00, 0,87, 0,69, i 2,98 za 4 grupe depresivnih simptoma (P=.05). Depresija i genotip APOE neovisno povećavaju rizik kognitivnog oštećenja. /The connection between depressive symptoms and CIND (Cognitive Impairment, No Dementia) is the highest for those with persistent depressive symptoms (defined as present at the initial assessment and at least one subsequent assessment). The odds ratios (OR) are 1.00, 0.87, 0.69, and 2.98 for the four groups of depressive symptoms (P=.05). Depression and APOE genotype independently increase the risk of cognitive impairment.	✓	X	

Krell-Roesch et al. (2021), (85)	Prospektivno kohortno istraživanje, dio *Mayo Clinic Study of Aging (MCSA)*; N(UKF)=3083 , M= 72,41 godina (SD= 9,72) / Prospective cohort study, part of *Mayo Clinic Study of Aging (MCSA)*; N(NCF)=3083 , M= 72.41 y (SD= 9.72)	M= 6,3 godine , A (apolipoprotein E (APOE) ε4 genotip) / M= 6.3 y A (apolipoprotein E (APOE) ε4 genotype)	NPI-Q Beckov inventar depresije (BDI–II) / NPI-Q Beck's Depression Inventory (BDI–II)	Revidirani kriteriji Mayo Clinic (Petersen, 2004; Winblad et al., 2004) Neuropsihologijska procjena / Mayo Clinic revised criteria (Petersen, 2004; Winblad et al., 2004) Neuropsychological assessment	19,4 % je razvilo BKP. Sinergistička aditivna interakcija nedostatka tjelesne aktivnosti i poteškoća spavanja (HR [95 % CI], 1,61 [1,07, 2,43]; p = .021), kliničke depresije (1,98 [1,34, 2,92]; p < .001) i klinički značajne anksioznosti (1,63 [1,11, 2,41]; p = .013), povezana je s povećanim rizikom od BKP-a. / 19.4% developed MCI. A synergistic additive interaction between lack of physical activity and sleep difficulties (HR [95% CI], 1.61 [1.07, 2.43]; p = .021), clinical depression (1.98 [1.34, 2.92]; p < .001), and clinically significant anxiety (1.63 [1.11, 2.41]; p = .013) is associated with an increased risk of MCI.	?	?	?		
Li, Meyer, i Thornby, (2001), (131).	Prospektivno istraživanje, N=250; N(UKF) =146 n (BKP)=19 n(demencija Alzheimerovog tipa DAT)=42 N(demencija vaskularnog tipa,VAD)=32 / Prospective study N=250; N(NCF) =146 n (MCI)=19 n(Dementia of the Alzheimer type DAT)=42 N(Vascular dementia, VAD)=32	M= 3,5 godina, / M= 3.5 y	HAM-D, >7 klinički značajni depresivni simptomi, grupirani u probleme sa spavanjem, i u depresivne probleme koji su povezani s motivacijom. / HAM-D, >7 Clinically significant depressive symptoms grouped into issues with sleep and depressive problems associated with motivation.	Petersen kriteriji, DSM-III / Petersen criteria, DSM-III	57,1 % je razvilo BKP VAD imaju najveću incidenciju javljanja novih depresivnih epizoda, a slijede ih osobe s DAT i BKP. Depresivni simptomi kod osoba s VAD-om i BKP-om su više perzistirajući i refraktorniji na antidepresive od pacijenata s DAT-om. Depresivni simptomi kod osoba s DAT-om su imali više spontanih remisija, bez potrebe za intenzivnim psihofarmacima. / 57,1% developed MCI. Individuals with VAD have the highest incidence of new depressive episodes, followed by individuals with DAT and MCI. Depressive symptoms in individuals with VAD and MCI are more persistent and refractory to antidepressants compared to patients with DAT. Depressive symptoms in individuals with DAT had more spontaneous remissions, without the need for intensive psychopharmacological treatment.		✓	✓		
Panza, et al. (2009), (84).	Podaci iz *the Italian Longitudinal Study on Aging*, N(UKF)= 2963 M (dob) = 71,9 (5,1) g / Data from *the Italian Longitudinal Study on Aging*, N(NCF)= 2963 M (age) = 71.9 (5.1) y	3,5g A / 3.5g A	GDS-30, 10-19 blaga depresija; 20-30 teška depresija / GDS-30, 10-19 mild depression; 20-30 severe depression	Modificirani Petersenovi kriteriji (subjektivne mnestičke smetnje nisu kriterij), MMSE; Epizodičko pamćenje: IADL / Modified Petersen criteria (subjective mnestic complaints are not a criterion) MMSE; Episodic memory: IADL	Depresivni simptomi u prvoj točki mjerenja su povezani s ubrzanim padom globalnog kognitivnog funkcioniranja i ubrzanim padom epizodičkog pamćenja, ali porast intenziteta depresivnih simptoma tijekom praćenja nije povezan s kognitivnim funkcioniranjem. Depresivni simptomi na početku predviđaju kognitivno oštećenje; dok kognitivno funkcioniranje na početku nije prediktivno za tijek depresivnih simptoma. Depresija s visokom razinom amiloida β (Aβ) 40:Aβ42, je povezana svećim oštećenjem pamćenjam, vizuospacijalnih sposobnosti i izvršnih funkcija, i moguća prodromalna manifestacija AD-a. / Depressive symptoms at the first measurement point are associated with a rapid decline in global cognitive functioning and a rapid decline in episodic memory, but an increase in the intensity of depressive symptoms during follow-up is not linked to cognitive functioning. Depressive symptoms at the beginning predict cognitive impairment, while cognitive functioning at the beginning is not predictive of the course of depressive symptoms. Depression with a high level of amyloid β (Aβ) 40:Aβ42 is associated with more significant impairment in memory, visuospatial abilities, and executive functions, and it may be a possible prodromal manifestation of Alzheimer's disease (AD).			✓		
Panza, et al. (2008), (90).	Prospektivno kohortno istraživanje, dio *the Italian Longitudinal Study on Aging*, N=2963, dob 65,84 g / Prospective cohort study, part of *the Italian Longitudinal Study on Aging*, N=2963, age 65.84 y	3,5 godine, B / 3.5 y, B	GDS-30, 10-19 blaga depresija; 20-30 teška depresija, dihotomizirana 10-30 bodova značajni depresivni simptomi, <10 bez značajnih depresivnih simptoma / GDS-30, 10-19 mild depression, 20-30 severe depression, dichotomised 10-30 points significant depressive symptoms, <10 no significant depressive symptoms	Modificirani Petersenovi kriteriji (subjektivne mnestičke smetnje nisu kriterij te su uključeni oni s nekognitivnih funkcionalnim oštećenjima), MMSE; Epizodičko pamćenje, IADL / Modified Petersen criteria (subjective mnestic complaints are not a criterion, and individuals with non-cognitive functional impairments are included), MMSE, episodic memory, IADL	8,23 % je razvilo BKP. Depresivni simptomi nisu povezani s incidencijom BKP-a. Sociodemografski i vaskularni čimbenici nisu modificirali odnos BKP-a i depresivnih simptoma. / 8.23% developed MCI. Depressive symptoms are not associated with the incidence of MCI. Sociodemographic and vascular factors did not modify the connection between MCI and depressive symptoms.		X		✓	

Pink et al. (2021), (54)	Prospektivno kohortno istraživanje, dio *Mayo Clinic Study of Aging (MCSA)*, N(UKF)=1440 M= 72,41 godina (SD= 9,72) / Prospective cohort study, part of *Mayo Clinic Study of Aging (MCSA)*, N(NCF)=1440 M= 72.41 y (SD= 9.72)	M= 5,5 godina A / M= 5.5 y A	BDI-II (≥13 klinička depresija) / BDI-II (≥13 clinical depression)	Revidirani kriteriji Mayo Clinic: (1) kognitivne smetnje (2) oštećenje 1 li više kognitivnih funkcija (3) uredno svakodnevno funkcioniranje 4) odsutnost demencije, CDR,Neuropsihologijska procjena / Mayo Clinic revised criteria: (1) cognitive complaints (2) damage to 1 or more cognitive functions (3) regular everyday functioning (4) absence of dementia, CDR,Neuropsychological assesssment	Kortikalno taloženje Aβ (PiB+) neovisno o depresiji je povećalo rizik od BKP-a. Postoji aditivna interakcija (PiB+) i anksioznosti, ali ne i depresivnosti. / Cortical Aβ deposition (PiB+) independent of depression increased the risk of MCI. There is an additive interaction of (PiB+) and anxiety, but not depression.			X	✓
Potvin et al. (2011), (89)	Prospektivno kohortno istraživanje, podaci iz *Enquˆete sur la santeˆ des aiˆne´s (ESA Study on Older Adults' Health), N(UKF)=1942 (MMSE >22), 65-96g* / Prospective cohort study, data from *Enquˆete sur la santeˆ des aiˆne´s (ESA Study on Older Adults' Health), N(NCF)=1942 (MMSE >22), 65-96y*	12 mjeseci (M= 12.5; SD= 1,4). B / 12 months (M= 12.5; SD= 1.4). B	Računalni upitnik (ESA-Q): pitanja bazirana na DSM-IV / Computerized questionnaire,(ESA-Q): questions based on DSM-IV	MMSE barem 2 boda ispod inicijalnog rezultata i 15. percentila ispod norme:a) amnestički BKP ukoliko je zbroj bodova na zadatku dosjećanja 3 riječi 0 ili 1; b) neamnestički: deficit izvan zadatka dosjećanja 3 riječi / MMSE: at least 2 points below the initial score and 15th percentile below the norm:a) Amnestic MCI if the sum of points on the three-words recall task is 0 or 1; b) Non-amnestic: Deficit outside the three- words recall task.	Incidencija BKP-a je neovisno o depresiji povezana s anksioznim poremećajem tijekom inicijalne procjene u muškaraca i anksioznih simptoma u žena. Depresivni poremećaji u muškaraca (OR=8,87, 95 %=2,13-36,96) i anksiozni simptomi u žena povezani su s incidencijom amnestičkog BKP, dok su anksiozni poremećaji u muškaraca povezani s incidencijom neamnestičkog BKP-a. / The incidence of MCI, independent of depression, is associated with anxiety disorder during the initial assessment in men and with anxiety symptoms in women. Depressive disorders in men (OR=8.87, 95% CI=2.13-36.96) and anxiety symptoms in women are associated with the incidence of amnestic MCI, while anxiety disorders in men are associated with the incidence of non-amnestic MCI	?	?	?	?	
Richard et al. (2013), (103)	Prospektivno populacijsko kohortno, dio *theWashington Heights– Inwood Columbia Aging Project (WHICAP)*, N= 1156, 65-74 g / Prospective population cohort study, part of *the Washington Heights– Inwood Columbia Aging Project (WHICAP)*, N= 1156, 65-74 y	M=5.4 godine, 1,1-10,1 godine / M=5.4 y, 1.1-10.1 y	CES-D – 10, ≥ 4	Petersenovi kriteriji / Petersen criteria	26,2 % razvilo BKP, 49,7 % (N=151) sudionika razvilo je amnestički BKP, i 50,3 % (N=153). Depresija nije povezana s incidencijom BKP-a niti podtipova BKP-a. / 26.2% developed MCI, 49.7% (N=151) of participants developed amnestic MCI, and 50.3% (N=153). Depression was not associated with the incidence of MCI or MCI subtypes.				✓
Spira et al. (2012), (83)	Prospektivno istraživanje, *the Study of Osteoporotic Fractures (SOF)*, N(UKF)=302, M dobi = 86,9 ± 2,1 / Prospective study, *the Study of Osteoporotic Fractures (SOF)*, N(NCF)=302, M age = 86.9 ± 2.1	5 godina / 5 y	GDS; >6 bodova / GDS; >6 points	Modificirani Petersenovi kriteriji; MMSE, neuropsihologijska procjena / Modified Petersen criteria; MMSE, neuropsychological assessment	70 % depresivnih razvilo BKP, u usporedbi s 37 % nedepresivnih Izraženi depresivni simptomi, su povezani s 3,7 puta većom vjerojatnošću od razvoja BKP-a tijekom naredni pet godina (odnosno više od 70 % smanjene vjerojatnosti urednog kognitivnog funkcioniranja u idućih 5 g). / 70% of those with depression developed MCI, compared to 37% of those without depression Significant depressive symptoms are associated with a 3.7 times higher likelihood of developing MCI over the next five years (i.e., more than a 70% reduction in the likelihood of normal cognitive functioning over the next 5 years).		?	?	

Stepaniuk, Ritchie, i Tuokko (2008), (82).	Populacijsko istraživanje, dio *the Canadian Study of Health and Aging (CSHA sudionici odabrani po slučaju), N=10263, <65 godina* / Population study, part of *the Canadian Study of Health and Aging (CSHA participants randomly selected), N=10263, <65 y*	5 godina / 5 y	Mjere NI, H iz Cambridgeove procjene mentalnih poremećaja starijih (CAMDEX) / Mesures of NI, section H of the Cambridge Mental Disorders of the Elderly Examination (CAMDEX)	Pad u generalnom kogn. f., ili oštećenje pamćenja u H/ Cambridgeovoj procjeni mentalnih poremećaja starijih (CAMDEX) / Decline in general cognitive functioning or memory impairment on H/ Cambridge Mental Disorders of the Elderly Examination (CAMDEX)	Depresija je (p=.041 OR 16,16 1,12-232,94) značajno doprinijela predikciji BKP (p= .013 OR 2,01 95 % CI 1,16-3,48). Oni s gubitkom interesa će gotovo 3 puta vjerojatnije imati BKP [OR] = 2,76. Promjene u ličnosti raspoloženju više od dvostruko češće kod BKP nego onih UKF (OR = 2,18 i 2,26). Depresija je dvostruko vjerojatnija u BKP skupini nego u UKF(OR = 2,01). / Depression (p=.041 OR 16.16 1.12-232.94) significantly contributed to the prediction of MCI (p= .013 OR 2.01 95% CI 1.16-3.48), with those experiencing a loss of interest being nearly three times more likely to have MCI [OR] =2.76. Changes in mood and personality were more than twice as common in the MCI group compared to those with normal cognitive functioning (OR=2.18 and OR=2.26). Depression was twice as likely in the MCI group compared to the normal cognitive functioning group (OR=2.01).			✓	
Sugarman, et al. (2018), (80).	Populacijsko istraživanje, dio *the NACCUD* N(UKF)=6763 / Population study, part of *the NACCUD* N(NCF)=6763	M = 5,71 godina, SD = 2,31), isključeni oni s neurološkim dijagnozama, A – APOE varijabla ISKLJUČENA IZ ANALIZE zbog 13% bez podatka / M = 5.71 y , SD = 2.31), those with neurological diagnosis excluded, A – APOE variable EXCLUDED FROM ANALYSIS due to 13% with no data	NPI-Q GDS-15	Kriteriji Winblad i sur. / Winblad et al. criteria	1,121 je razvilo BKP. Izraženiji depresivni simptomi su povezani s povećanim rizikom od incidencije BKP (B 0,17, 95 % CI [0,15,0,20] Wald Z 180,73 p< .001 Exp (B) 1,19). Smanjenje depresivnih simptoma je zašt. čimbenik za reverziju u uredno kognitivno funkcioniranje. / 1.121 individuals developed MCI. More pronounced depressive symptoms are associated with an increased risk of MCI incidence (B=0.17, 95% CI [0.15, 0.20], Wald Z=180.73, p<.001, Exp (B)=1.19). Reduction in depressive symptoms is a protective factor for reversion to normal cognitive functioning.	?			
Zeki Al Hazzouri, et al. (2014), (75).	Prospektivno kohortno istraživanje, dio *the Study of Osteoporotic Fractures (SOF),* N= 1293 M dobi =73 g / Prospective cohort study, part of *the Study of Osteoporotic Fractures (SOF),* N= 1293 M age=73 y	M= 12,2 godina B, upotreba antidepresiva / M= 12.2 y B, use of antidepressants	GDS–15; raspoređeni u kvartile. / GDS–15; assigned to quartils	Modificirani Petersenovi kriteriji MMSE Neuropsihologijska procjena / Modified Petersen criteria MMSE Neuropsychological assessment	23 % je razvilo BKP. Kumulativni depresivni simptomi tijekom 20 godina povezani su s većim rizikom od razvoja BKP. / 23% developed MCI. Cumulative depressive symptoms over 20 years are associated with a higher risk of developing MCI.	✓		
Rej et al. (2015), (55)	N=104, ≥ 65 godina u remisiji velike depresivne epizode po slučaju raspoređenih na donepezil i placebo; n = 36, kontrolna skupina / N=104, ≥ 65 y, in remission of major depressive episode randomly assigned to donepezil and placebo; n = 36, control group	2 godine / 2 y	Cjeloživotno trajanje depresije SCID/DSM-IV; akutni simptomi: HAM-D / Lifetime duration of depression SCID/DSM-IV; acute symptoms: Hamilton Depression Rating Scale (HAM-D)	MMSE; Neuropsihologijska baterija / MMSE; Neuropsychological battery	10 % je razvilo BKP. Niti SES niti psihosocijalni čimbenici nisu neovisni prediktori BKP-a (p > .05) / 10% developed MCI. Neither SES (Socioeconomic Status) nor psychosocial factors are independent predictors of MCI (p > .05).				✓

Gallagher, Kiss, Lanctot, i Herrmann, (2018) (64),	Podaci iz *the National Alzheimer's Coordinating Centre*; N(UKF) = 2655 >= 50 g / Data from *the National Alzheimer's Coordinating Centre*; N (NCF) = 2655 >= 50 y	M= 41,8 mjeseci / M= 41.8 months	Anamnestički podatak od depresiji unatrag dvije godine; DSM kriteriji, GDS / Anamnestic data of depression in the past two years; DSM criteria, GDS	MMSE CDR (>0,5), i deficit na kognitivnim testovima / MMSE CDR (>0,5), and deficit on cognitive tests	19,2 % razvilo BKP. Rizični čimbenici u depresivnih za razvoj BKP su starija dob, muški rod, niži stupanj formalnog obrazovanja, depresija unatrag 2 godine (HR 95% CI 1.41 (1,15 – 1,74), izraženiji depresivni simptomi1.05 (1,02 – 1,09). Za svaki bod na GDS, povećava se 5-10% vjerojatnost incidencije BKP. / 19.2% developed MCI. Risk factors for the development of MCI in individuals with depression include older age, male gender, lower level of formal education, depression in the past 2 years (HR 95% CI 1.41 (1.15 – 1.74), and more pronounced depressive symptoms 1.05 (1.02 – 1.09). For each point on the GDS (Geriatric Depression Scale), the likelihood of MCI incidence increases by 5-10%.	✓	✓	
Han et al. (2020), (95)	Podaci iz the *National Alzheimer's Coordinating Center (NACC)*, N(UKF)= 716 u dobi od 60 i više godina / Data from the *National Alzheimer's Coordinating Center (NACC)*, N (NCF)= 716 at the age of 60 years and older	M= 5 g , A Prisutnost alela e4 u APOE genotipu; Lijekovi unatrag 2 tjedna / M= 5 y , A The presence of the e4 allele in the APOE genotype; Medication taken in the past 2 weeks.	1) depresija unutar 2 godine 2) (NPI-Q) 3) GDS-15 , >6 bodova 4) klinički intervju; ili 5) klinička dijagnoza depresije / 1) depression within 2 years 2) (NPI-Q) 3) GDS-15, >6 points 4) clinical interview; ili 5) clinical diagnosis of depression	Petersen kriteriji (Petersen, 2004) / Petersen criteria	Od 464 sudionika koji su ikada uzimali antidepresive, 98 (21,2 %) je razvilo BKP nasuprot 105 (41,7 %) od 252 koji nikada nisu uzimali antidepresive. Podjednaki udio onih koji su ikada koristili i nikada koristili antidepresiv obole od demencije. Nekorisnici, unatoč dvostruko češćem BKP od korisnika, obole jednako često od demencije. / Out of 464 participants who had ever taken antidepressants, 98 (21.2%) developed MCI, compared to 105 (41.7%) out of 252 who had never taken antidepressants. An almost equal proportion of those who had at a point used antidepressants and those who had never used them develop dementia. Non-users, despite having twice the incidence of MCI compared to users, develop dementia just as frequently.			?
Sundermann, Katz, i Lipton, (2017) (81).	Kohortno istraživanje, dio the Einstein Aging Study, N= 572 žene (M dobi =78) and 345 muškaraca (M dobi =77) / Cohort study, part of the Einstein Aging Study, N= 572 women (M age =78) and 345 men (M age =77)	4.2 godine (1,0–14,6), Kontrolirano uzimanje antidepresiva / 4.2 y (1.0–14.6), Controlled use of antidepressants	GDS-15 0–2 niski 3-5 blagi simptomi 5–15 umjereni/teški / GDS-15 0–2 low 3-5 mild symptoms 5–15 moderate/severe	Petersen kriteriji: Objektivni deficit : ≤24 na the FCSRT-FR i/ili ≤5 na LOG WMS-R / Petersen criteria: Objective deficit: ≤24 on the FCSRT-FR and/or ≤5 on LOG WMS-R	99 žena i 64 muškaraca razvilo je amnestički BKP tijekom praćenja. Blagi depresivni simptomi, u usporedbi s niskima, povezani s dva puta većim rizikom od razvoja amnestičkog BKP u muškaraca, ali ne i žena. Umjereni/teški depresivni simptomi povezani su s dva puta većim rizikom od razvoja amnestičkog BKP-a u žena. / 99 women and 64 men developed amnestic MCI during the follow-up. Mild depressive symptoms, compared to low, were associated with a two-fold increased risk of developing amnestic MCI in men, but not in women. Moderate/severe depressive symptoms were associated with a two-fold increased risk of developing amnestic MCI in women.	?	?	
Leng, Diem, Stone, i Yaffe (2018), (94)	Istraživanje, dio *the Study of Osteoporotic Fractures*. N(UKF)= 1,234, M dobi (83,2 ± 2,9 godine), od kojih je 11 % uzimalo AD / Part of *the Study of Osteoporotic Fractures*. N(NCF)= 1.234, M age (83.2 ± 2.9 y), of which 11% have taken antidepressants	M=4.7 godina, Kontrolirano uzimanje antidepresiva / M=4.7 y Controlled use of antidepressants	GDS-15, teški depresivni simptomi >6 bodova / GDS-15, severe depressive symptoms >6 points	Modificirani Petersenevi kriteriji 3 MS neuropsihologijska baterija / Modified Petersen criteria Modified Mini-Mental State (3MS) examination Neuropsychological battery	38 % razvile su BKP ili demenciju. Korištenje (SIPPS) i trazodona, povezano je s najviše povećanim rizikom od javljanja BKP-a nakon 5 godina kod žena u poznoj zreloj dobi. Korisnici SIPPS-a imaju više nego dvostruku, a korisnici trazodona više nego trostruko veću vjerojatnost razvoja BKP-a ili demencije u usporedbi s nekorisnicima. Uzimanje tricikličkih i drugi antidepresva nije značajno povezano s kogn. funkcioniranjem. / 38% developed MCI or dementia. The use of SSRIs and trazodone is associated with the highest increased risk of developing MCI after five years in women in late middle age. SSRI users have more than a two-fold increased likelihood, while trazodone users have more than a three-fold increased likelihood of developing MCI or dementia compared to non-users. Taking tricyclics and other ADs is not significantly associated with cognitive functioning.			

Od 33 istraživanja koja su ispitala povezanost depresije i incidencije BKP, 8 ih nije pronašlo. Neka istraživanja ističu druge varijable povezane s incidencijom BKP, apatiju (52), visoku razinu psihološkog distresa i percepciju nesigurnosti u susjedstvu (53), kortikalno taloženje amiloida i anksioznost (54), opterećenost somatskim komorbiditetom kod osoba od ≥ 65 godina u remisiji velike depresivne epizode (55).

Mehanizmi putem kojih depresija sudjeluje u razvoju BKP-a

1. Depresija može koegzistirati s BKP-om koji će posredstvom patologije AD-a uvjetovati ponavljajuća oštećenja i atrofiju hipokampusa te progredirati u AD.
2. Depresija može biti i rizični čimbenik za BKP-a. Mlađa dob početka klinički značajne depresije i dulje trajanje neliječene depresije, odnosno rekurentne depresivne epizode djeluju kao kronični stres, povećavaju razinu kortizola, aktiviraju hipotalamus-hipofizno-nadbubrežnu os koja mijenja imunološki odgovor, te narušava kogniciju i raspoloženje. Nastaje poremećaj na molekularnoj razini, ekscitotoksičnost glutamata i povećana proizvodnja beta-amiloida Aß (56), što dovodi do atrofije hipokampusa (57). Depresija povećava pojedinčevu vulnerabilnost na neuralne gubitke, tzv. kognitivnu/moždanu rezervu (58,59) i pospješuje razvoj BKP-a. Osobe s produljenim ili ponavljanim depresivnim epizodama imaju manji volumen hipokampusa, frontalnih režnjeva, prefrontalnog orbitralnog korteksa i amigdale.
3. Nalazi nekih istraživanja ukazuju na moguću etiološku ulogu dubokih lezija bijele tvari u patogenezi depresije u zreloj životnoj dobi (60,61). Termin vaskularna depresija odnosi se na oblik depresije u

examined the connection between depression and the incidence of MCI, in 8 studies such a link was not found. Some studies highlighted other variables associated with MCI incidence, such as apathy (52), high levels of psychological distress and perceptions of neighborhood insecurity (53), cortical amyloid deposition and anxiety (54), the burden of somatic comorbidity in persons aged ≥ 65 years who were in remission from a major depressive episode (55).

Mechanisms through which depression is involved in MCI development

1. Depression can coexist with MCI, which through AD pathology leads to repeated hippocampal damage and atrophy, progressing to AD.
2. Depression can also be a risk factor for MCI. Younger age at the onset of clinically significant depression and longer untreated depression, i.e. recurrent depressive episodes, act as chronic stressors, increase cortisol levels, activate the hypothalamic-pituitary-adrenal axis which alters the immune response and impairs cognition and mood. This leads to molecular-level disturbances, excitotoxicity of glutamate and increased production of beta-amyloid Aß (56), resulting in hippocampal atrophy (57). Depression increases an individual's vulnerability to neural losses, the so-called cognitive/brain reserve (58, 59) and promotes the development of MCI. Individuals with prolonged or repeated depressive episodes have smaller volumes of the hippocampus, frontal lobes, prefrontal orbital cortex and amygdala.
3. Findings reported in some studies suggest a possible etiological role of deep white matter lesions in the pathogenesis of late-life depression (60, 61). The term "vascular depression" refers to a form of depression

starijoj životnoj dobi, nakon 65 godina, a dovodi se u vezu sa subkortikalnom bilateralnom ishemičnom bolesti malih krvnih žila bijele moždane tvari (62). Depresivni simptomi mogu biti klinička manifestacija vaskularnih lezija (patološke promjene bijele tvari i lezije bazalnih ganglija), koje ujedno dovode i do BKP s deficitima izvršnih funkcija (63), ali i povećati rizik za vaskularne bolesti povećavajući sklonost negativnim zdravstvenim ponašanjima (64,65). Brojna su istraživanja izvijestila o koegzistiranju depresivnih simptoma i vaskularnih bolesti (66), kao i da su osobe s komorbidnim vaskularnim bolestima i depresijom u većem riziku od pojavljivanja BKP-a (67).

4. Neuronski kompromis mogu dodatno pogoršati s depresijom povezane fiziološke promjene poput upale, hiperkortizolemije, povećanog oksidativnog stresa. Vaskularna depresija doprinosom patologiji hiperintenziteta bijele tvari u mozgu može umanjiti učinak kognitivne rezerve i uvjetovati brže javljanje BKP-a i demencije (68-70).
5. Uklazuje se na zajednički genetski uzrok depresije i BKP. Određene varijante presenilina povezane su s većom incidencijom kliničke depresije, a ujedno induciraju i patološke promjene koje rezultiraju BKP-om (71,72).

U tablici 1 navedeno je kojem od potencijalnih mehanizama pojedino istraživanje ide u prilog. Od istraživanja metodološki osmišljenih sa ciljem da ispitaju mehanizme najviše su empirijskog potkrepljenja dobili depresija kao rizični čimbenik BKP-a, značajan dio ide u prilog depresiji koja koegzistira s BKP-om pri čemu su oboje uvjetovani patologijom AD-a. Značajan dio ukazuje da su aktualni depresivni simptomi povezani, a klinički značajni depresivni simptomi u anamnezi nisu povezani s povećanim rizikom od BKP-a.

occurring in older age, after 65 years of age, and is associated with subcortical bilateral ischemic disease of small blood vessels of the cerebral white matter (62). Depressive symptoms can be a clinical manifestation of vascular lesions (pathological changes in white matter and basal ganglia lesions), which also lead to MCI with executive function deficits (63), and can increase the risk of vascular diseases by increasing the tendency towards negative health behaviors (64, 65). The results of numerous studies have shown that there is a coexistence of depressive symptoms and vascular diseases (66), as well as that people with comorbid vascular diseases and depression are at a higher risk of developing MCI (67).

4. Physiological changes associated with depression, such as inflammation, hypercortisolemia and increased oxidative stress, can further exacerbate the neuronal compromise. Vascular depression, through the pathology of white matter hyperintensities in the brain, may reduce the effect of cognitive reserve and lead to the faster onset of MCI and dementia (68-70).
5. A common genetic cause for both depression and MCI has been suggested. Certain presenilin variants are associated with a higher incidence of clinical depression, and at the same time induce pathological changes resulting in MCI (71,72).

Table 1 shows which potential mechanisms are supported in which respective study. In the studies methodologically designed to examine the mechanisms, depression as a risk factor for MCI received the most empirical support, with a significant portion supporting depression coexisting with MCI, whereby they are conditioned by AD pathology. A significant portion suggests that current depressive symptoms are associated with MCI, while clinically significant depressive symptoms in the medical history are not associated with an increased risk of MCI.

Rizični i zaštitni čimbenici u podlozi povezanosti depresije i BKP-a

Rizični čimbenici za incidenciju BKP-a u depresivnih osoba su starija životna dob (66, 73), kumulativni depresivni simptomi, dulje trajanje neliječene depresije (74,75), veći intenzitet depresivnih simptoma (27,32,66,73,75, 77-85), visoka (86), ali i niska zastupljenost patologije AD-a (77,87), sinergistička aditivna interakcija nedostatka tjelesne aktivnosti i poteškoća spavanja, kliničke depresije i klinički značajne anksioznosti (85), muški rod (66, 88,89), niži stupanj formalnog obrazovanja (32,66,84), aktualno posjedovanje recepta za korištenje antidepresiva (80,93,94). Istovremeno, korištenje antidepresiva definirano na temelju ikada prijavljene upotrebe pokazuje se zaštitnim čimbenikom smanjujući vjerojatnost BKP-a (95).

Zaštitni čimbenici koji utječu na povećanu vjerojatnost reverzije BKP-a u uredno kognitivno funkcioniranje u depresivnih osoba su mlađa dob, neamnestički podtip BKP-a, manji intenzitet depresivnih simptoma ili pak smanjenje depresivnih simptoma između mjerenja.

RASPRAVA

1. Od 33 istraživanja koja su ispitala povezanost depresije i incidencije BKP-a, 8 ih nije pronašlo tu povezanost. Kao moguća metodološka ograničenja navode se kratak interval između dviju točki mjerenja (53,78,89,96), niska specifičnost odabrane definicije depresivnih simptoma (28), ograničena procjena neuropsihijatrijskih simptoma, ograničene informacije o psihijatrijskoj povijesti i psihotropnim lijekovima, te nizak intenzitet neuropsihijatrijskih simptoma koji je mogao dovesti do nedostatka statističke snage za otkrivanje značajnih

Risk and protective factors underlying the connection between depression and MCI

Risk factors for the incidence of MCI in depressed individuals include older age (66, 73), cumulative depressive symptoms, longer duration of untreated depression (74, 75), higher severity of depressive symptoms (27, 32, 66, 73, 75, 77-85), high (86), but also low burden of AD pathology (77, 87), synergistic additive interaction of physical inactivity and sleep difficulties, clinical depression and clinically significant anxiety (85), male gender (66, 88, 89), lower level of formal education (32, 66, 84) and current prescriptions for antidepressant use (80, 93, 94). Simultaneously, the use of antidepressants defined on the basis of ever-reported use has shown to be a protective factor reducing the likelihood of MCI (95).

Protective factors influencing the increased likelihood of reversing MCI to normal cognitive functioning in depressed individuals include younger age, non-amnestic subtype of MCI, lower severity of depressive symptoms, or a reduction in depressive symptoms between measurements.

DISCUSSION

1. Out of the 33 studies that examined the connection between depression and the incidence of MCI, 8 of them did not find such a link. Possible methodological limitations cited include a short interval between two measurement points (53, 78, 89, 96), low specificity of the chosen definition of depressive symptoms (28), limited assessment of neuropsychiatric symptoms, limited information on psychiatric medical history and psychotropic medications, as well as a low severity of neuropsychiatric symptoms that could lead to a lack of statistical power to detect significant effects in the domain of depression (28, 97), exclusion of individuals

učinaka na domenu depresivnosti (28,97), isključivanje hospitalno liječenih osoba s depresijom (29), nedovoljno osjetljiv probirni instrument za procjenu BKP-a (28), isključivanje onih koji su tijekom praćenja razvili demenciju (76), osipanje sudionika i pristranost zdravog uzorka koji su u longitudinalnom istraživanju mogli smanjiti snagu detektiranja buduće povezanosti s depresijom (29).

Istraživanja koriste različite granične vrijednosti za značajno kognitivno oštećenje, što može dovesti do velikih razlika u procjeni prevalencije (98). Jak, Bondi i sur. (98) predlažu nove kriterije BKP-a, od najmanje dva rezultata 1 SD ispod normativnog očekivanja unutar kognitivne domene, koji su se dosad u istraživanjima pokazali slično prediktivni za incidenciju demencije kao Petersenovi kriteriji (1), ali uz manju sklonost lažno pozitivnim dijagnozama (99). Dok neka istraživanja izostavljaju kriterij subjektivnog oštećenja pamćenja, s obzirom na sugeriranu upitnu dodatnu prediktivnu vrijednost za konverziju u demenciju (99), nalazi drugih istraživanja ističu da subjektivne smetnje pamćenja djelomično posreduju u odnosu između depresije i kognicije (100). Leng, Diem, Storm i Yaffe (90) upozoravaju da je važno razlikovati kognitivne i nekognitivne (povezane sa somatskim komorbiditetom) teškoće u funkcioniranju. Kao dodatni kriterij za BKP uvjetovan patologijom AD-a predloženo je korištenje biomarkera (101).

Velik dio istraživanja prate kohorte s niskim razinama (sub)depresivnih simptoma, što umanjuje generalizaciju rezultata na teža depresivna stanja. Ipak, praćenjem i subkliničke razine depresivnosti povećava se vjerojatnost uočavanja mogućih uzročnih veza između subkliničke depresije i BKP (27,86,102). Depresija je povezana

hospitalized with depression (29), insufficiently sensitive screening instrument for MCI assessment (28), exclusion of those who developed dementia during the follow-ups (76), participant attrition and selection bias in the healthy sample that could have reduced the power to detect future associations with depression in longitudinal studies (29).

Studies use different cutoff values for significant cognitive impairment, which can lead to significant differences in prevalence estimates (98). Jak, Bondi et al. (98) propose new criteria for MCI, with at least two scores 1 standard deviation below normative expectations within a cognitive domain, which have been shown in research to be similarly predictive of dementia incidence as Petersen's criteria (1), but with a lower risk of false-positive diagnoses (99). While some studies omit the criterion of subjective memory impairment due to its suggested questionable additional predictive value for conversion to dementia (99), findings from other studies emphasize that subjective memory complaints partially mediate the conection between depression and cognition (100). Leng, Diem, Storm and Yaffe (90) warn that it is important to distinguish between cognitive and non-cognitive (associated with somatic comorbidities) difficulties in functioning. Using biomarkers has been proposed as an additional criterion for MCI conditioned by AD pathology (101).

A large portion of the research is followed by cohorts with low levels of (sub)depressive symptoms, which limits the generalization of results to more severe depressive conditions. However, monitoring the subclinical levels of depression as well increases the likelihood of detecting possible causal relationships between subclinical depression and MCI (27, 86, 102). Depression is associated with the prevalence of MCI and progression to dementia, but not with

s prevalencijom BKP i progresijom do demencije, ali ne i s incidencijom BKP-a, što ukazuje da prati BKP, ali mu ne prethodi i ide u prilog depresiji kao prodromalnom simptomu demencije koja ujedno uvjetuje i BKP (103). Prepoznata uloga anksioznosti u razvoju BKP-a (79,85), nadilazi okvire ovog rada.

2. Depresija može biti rizični čimbenik za razvoj BKP-a (27,66,73,75,77-85,93). Uzrokuje atrofiju hipokampusa, smanjuje kognitivnu/moždanu rezervu i pospješuje razvoj BKP-a. Kognitivna rezerva objašnjava individualne razlike u vulnerabilnosti na neuralne gubitke razlikama u neuralnoj redundantnosti (56). Dok je u kognitivnoj rezervi naglasak na efikasnosti i stilu procesuiranja informacija, s njom usko vezana moždana rezerva naglašava razlike u veličini mozga ili broju neurona (57). Kognitivne, društvene i tjelesne aktivnosti, uz veći volumen mozga i veću veličinu glave mogu povećati redundantnost i djelovati kao zaštitni kognitivni čimbenik. Depresija i BKP ujedno mogu imati zajednički uzrok, AD, vaskularne lezije ili genetski uzrok. Iako najveći broj istraživanja ide u prilog depresiji kao rizičnom čimbeniku BKP-a, nacrti većine istraživanja nisu omogućili ispitivanje mehanizma u podlozi povezanosti depresije i BKP-a. Broj istraživanja koja su potvrdila određene mehanizme ne treba promatrati u odnosu na ukupan broj postojećih istraživanja, jer nisu sva istraživanja uključila kontrolu istih kovarijabli. Od 8 istraživanja koja su kontrolirala pokazatelje patologije AD-a, trećina ide u prilog depresiji koja koegzistira s BKP-om pri čemu su oni uvjetovani patologijom AD-a, dok većina navodi da su depresija i patologija AD neovisni rizični čimbenici incidencije BKP-a. Sva su 4 istraživanja koja su kontrolirala vaskularne rizične čimbenike pokazala da su depresija i vaskularni rizični čimbenici međusobno neovisni prediktori incidencije

the incidence of MCI. This suggests that depression follows MCI, but does not precede it, supporting the idea that depression is a prodromal symptom of dementia which also conditions MCI (103). The recognized role of anxiety in the development of MCI (79, 85) goes beyond the scope of this work.

2. Depression can be a risk factor for the development of MCI (27, 66, 73, 75, 77-85, 93). It causes hippocampal atrophy, reduces cognitive/brain reserve and promotes the development of MCI. Cognitive reserve explains the individual differences in vulnerability to neural losses through differences in neural redundancy (56). While with cognitive reserve the emphasis is on efficiency and the information processing style, the closely related brain reserve highlights the differences in brain size or the number of neurons (57). Cognitive, social and physical activities, along with a larger brain volume and head size, can increase redundancy and act as protective cognitive factors. Depression and MCI may also share a common cause, such as AD, vascular lesions or genetic factors. Although most studies support the notion of depression being a risk factor for MCI, the designs of most studies did not allow for an examination of the underlying mechanism in the connection between depression and MCI. The number of studies confirming certain mechanisms should not be viewed in relation to the total number of existing studies, since not all studies included the control of the same covariables. Of the eight studies that controlled for indicators of AD pathology, one-third supported depression coexisting with MCI, with both being conditioned by AD pathology, while most stated that depression and AD pathology are independent risk factors for MCI incidence. All four studies that controlled for vascular risk factors have shown that depression and vascular risk factors are mutually independent predictors of MCI incidence. None of the exist-

BKP-a. Nijedno od postojećih istraživanja nije ispitalo mehanizam povezanosti depresije i BKP-a putem gena. Od manjeg broja istraživanja koji je to metodološki omogućio, značajan dio ukazuje da su aktualni klinički značajni depresivni simptomi, ali ne depresivni simptomi u anamnezi, povezani s povećanim rizikom od BKP-a, što ide u prilog depresiji kao prodromalnom simptomu demencije.

3. Depresivne osobe koje razviju BKP u odnosu na depresivne urednog kognitivnog funkcioniranja starije su životne dobi (66,73). Istraživanja koja su pratila kogniciju depresivnih do razvoja BKP-a uključila su u prosjeku osobe iznad 55 godina. Sa starenjem su povezane strukturne abnormalnosti poput lezija bijele tvari i subkortikalne volumerijske promjene (64), koje nisu mnogo istraživane u mlađim skupinama, a postojeća istraživanja dala su nekonzistentne rezultate (104). Tek je nekoliko istraživanja ispitalo kogniciju isključivo mlađih odraslih s dijagnozom velikog depresivnog poremećaja, u dobnom rasponu od 19 do 45 godina, od kojih je većina u toj skupini pronašla deficit izvršnih funkcija (105). Dok je dio istraživanja izvijestilo o oštećenjima verbalnog pamćenja, neka istraživanja nisu pronašla navedene deficite (106) navodeći da uzorak čine oni s blagim i umjereno teškim depresivnim simptomima. Smith i sur. (107) navode da deficiti izvršnih funkcija i verbalnog pamćenja perzistiraju i nakon remisije depresije kod mlađih odraslih. Mlađi odrasli s psihotičnom depresijom imaju veća oštećenja kognitivnih funkcija od onih s velikim depresivnim poremećajem (108) i obilježja neuropsihologijskih deficita sličnija osobama sa shizofrenijom (109). Težina depresije značajno je povezana s kognitivnim deficitima u mlađih odraslih (109), iako neki autori opovrgavaju tu povezanost (110).

ing studies examined the connection mechanism between depression and MCI through genes. Of the smaller number of studies that methodologically allowed for this, a significant portion indicates that current clinically significant depressive symptoms, but not depressive symptoms in the medical history, are associated with an increased risk of MCI, thus supporting depression as a prodromal symptom of dementia.

3. Depressed individuals who develop MCI, compared to depressed individuals with normal cognitive functioning, are of older age (66, 73). Studies that monitored the cognition of depressed individuals until the development of MCI typically included individuals above 55 years of age. Aging is associated with structural abnormalities such as white matter lesions and subcortical volumetric changes (64), which have not been extensively studied in younger groups, and existing research has yielded inconsistent results (104). Only a few studies have examined the cognition exclusively of younger adults diagnosed with major depressive disorder, ranging from 19 to 45 years of age, most of which found deficits in executive functions in this group (105). While some studies have reported impairments in verbal memory, others have not found these deficits (106), stating that the sample included those with mild to moderately severe depressive symptoms. Smith et al. (107) suggest that deficits in executive functions and verbal memory persist even after remission from depression in younger adults. Younger adults with psychotic depression have greater cognitive impairments than those with major depressive disorder (108), as well as signs of neuropsychological deficits similar to individuals with schizophrenia (109). The severity of depression is significantly associated with cognitive deficits in younger adults (109), although some authors dispute this association (110).

Dio istraživanja pokazuje da je povezanost depresivnih simptoma i BKP-a veća u skupini osoba visoke zastupljenosti patologije AD-a (86), a dok dio u skupini osoba niske zastupljenosti patologije AD-a (77, 87), što je sukladno zaključcima da je depresija ujedno pretkliničk biljeg AD-a, ali i rizični čimbenik za BKP. Tzv. *depresija povezana s amiloidom*, definirana prisutnošću depresivnih simptoma i visokim omjerom amiloid-β (Aβ) Aβ42 u plazmi, potencijalan je prodromalni simptom AD-a, koji ujedno uvjetuje amnestički BKP (111-114).

Često obilježje depresije je poremećena regulacija serotonina, važnog za uredno kognitivno funkcioniranje i za sintezu melatonina (115). Većina depresivnih osoba ima poremećaje cirkadijarnog ritma (116). Najrjeđe smetnje spavanja imaju depresivni (12,5 %), češće osobe s BKP-om (39,1 %), a najčešće osobe s komorbiditetom depresije i BKP-a (43,5 %), (91).

Većina istraživanja koja su ispitivala rod kao moderator povezanosti depresije i BKP navodi da će depresivni muškarci razviti BKP vjerojatnije od depresivnih žena (66,88,89). Niz je mogućih bioloških objašnjenja od kojih se ističu neuroprotektivan učinak estrogena u životinjskim modelima (117,118), vaskularna patologija u podlozi depresija muškaraca (119), iako su druga istraživanja navedeno opovrgnula (120), razlike u endokrinim i neurotransmiterskim sustavima (121), razlike u reaktivnosti hipotalamusno-hipofizno-nadbubrežne osi (122). Subklinička depresija povezana je s manjim medijalnim volumenom frontalnog režnja kod starijih muškaraca, ali ne i kod žena (123), što ukazuje da bi muškarci mogli biti osjetljiviji na moždane promjene povezane s blažom depresijom nego žene. Ističu se i sociološka objašnjenja. Muškarci su zbog društvenih očekivanja i rodne uloge manje od žena skloni priznati depresivne smetnje (119,124) što može rezultirati podcjenjivanjem njihovih simptoma (119).

Some studies show that the connection between depressive symptoms and MCI is stronger in the group of individuals with a high burden of AD pathology (86), while some other studies indicate that it is stronger in the group with a low burden of AD pathology (77, 87), which is consistent with the conclusion that depression is both a preclinical marker of AD and a risk factor for MCI. The so-called amyloid-associated depression, defined by the presence of depressive symptoms and a high ratio of amyloid-β (Aβ) Aβ42 in plasma, is a potential prodromal symptom of AD, which also conditions amnestic MCI (111-114).

A common feature of depression is a disrupted regulation of serotonin, which is important for normal cognitive functioning and melatonin synthesis (115). Most depressive individuals suffer from circadian rhythm disturbances (116). Depressive individuals have the least sleep disturbances (12.5%), followed by those with CI (39.1%), while the highest prevalence is among individuals with comorbid depression and MCI (43.5%), (91).

Most studies which examined gender as a moderator in the connection between depression and MCI suggest that depressed men are more likely to develop MCI than depressed women (66, 88, 89). There is a series of possible biological explanations, the most prominent of which are the neuroprotective effect of estrogen in animal models (117,118), vascular pathology underlying depression in men (119) - although other studies have refuted this (120), differences in endocrine and neurotransmitter systems (121), and differences in the reactivity of the hypothalamic-pituitary-adrenal axis (122). Subclinical depression is associated with smaller medial frontal lobe volume in older men, but not in women (123), suggesting that men may be more susceptible to brain changes associated with milder depression than women. Sociological explanations are also highlighted. Due to social expectations and gender roles, men are less likely than women to admit to depres-

Niži stupanj formalnog obrazovanja rizičan je čimbenik za razvoj BKP-a u depresivnih (66,84,93), moguće zbog manje stimulirajućih kognitivnih aktivnosti i manje kognitivne rezerve.

Women's Health Initiative Memory Study, najveće prospektivno istraživanje koje ispituje odnos između pijenja antidepresiva i specifičnih antidepresiva na kognitivno funkcioniranje zdravih žena u postmenopauzi, otkrilo je povećani rizik od BKP kod žena koje su uzimale selektivne inhibitore ponovne pohrane serotonina (SIPPS) ili tricikličke antidepresive (TCA) (93), a istraživanje Lenga i sur. (94) kod žena starije dobi koje su uzimale SIPPS-e ili trazodon, ali ne i TCA-e. Opaženi odnos između pijenja antidepresiva i kognitivnog oštećenja ostao je i nakon prilagodbe za povijest kardiovaskularnih bolesti. Nejasno je je li povećani rizik od razvoja BKP-a povezan s uporabom antidepresiva rezultat same depresije i je li smanjeni rizik od kognitivnog oštećenja posljedica smanjenja simptoma depresije, a ne izravne dobrobiti antidepresiva. Nije poznato mogu li kognitivni učinci antidepresiva biti posljedica depresije u prošlosti. Han i sur. (95) nisu pronašli značajnu povezanost između upotrebe antidepresiva i rizika od incidentnog BKP-a kada je upotreba antidepresiva definirana na temelju aktualne, dok je pronađen zaštitni učinak, značajna povezanost između upotrebe antidepresiva i nižeg rizika od BKP-a kada je korištenje antidepresiva definirano na temelju ikada prijavljene upotrebe, što ukazuje na važnost definiranja uzimanja lijekova kao vremenski promjenjivu kovarijablu u budućim istraživanjima, te ukazuje na mogućnost postojanja mehanizma neovisnog o djelovanju lijeka koji uvjetuje deterioraciju, primjerice neurodegenerativnog procesa. Iako većina istraživanja ukazuje da će pojedinci s receptom za antidepresiv imati veću vjerojatnost razvoja BKP-a, mnoga nisu provjerila i stvarno pridržavanje propisanog uzimanja antidepresiva, niti uzela podatke o indikaciji i trajanju,

sive symptoms (119, 124), which may result in underestimating their symptoms (119).

Lower levels of formal education represent a risk factor for the development of MCI in depressed individuals (66, 84, 93), possibly due to less stimulating cognitive activities and lower cognitive reserve.

The results of the *Women's Health Initiative Memory Study*, the largest prospective study examining the connection between the use of antidepressants and specific antidepressants on the cognitive functioning of healthy postmenopausal women, found an increased risk of MCI in women who took selective serotonin reuptake inhibitors (SSRIs) or tricyclic antidepressants (TCAs) (93), while a study conducted by Lenga et al. (94) showed these results among older women who took SSRIs or trazodone, but not TCAs. The observed connection between the use of antidepressants and cognitive impairment remained even after adjusting for the history of cardiovascular disease. It is unclear whether the increased risk of developing MCI is associated with the use of antidepressants as a result of depression itself, and whether the reduced risk of cognitive impairment is a result of reducing depressive symptoms, rather than a direct benefit of antidepressants. It is unclear whether the cognitive effects of antidepressants are a result of past depression. In their study, Han et al. (95) did not find a significant association between the use of antidepressants and the risk of incident MCI when antidepressant use was defined based on current use, but they found a protective effect, a significant association between antidepressant use and a lower risk of MCI when antidepressant use was defined based on ever-reported use, indicating the importance of defining medication use as a time-varying covariable in future research, and suggesting the possibility of the existence of a mechanism independent of the effect of medication that conditions deterioration, such as a neurodegenerative process. Although most studies suggest

točne doze pijenja lijekova. Antidepresivi imaju korisne učinke u akutnom liječenju i liječenju održavanja depresije u starijoj životnoj dobi (125). Moguće su sinergističke nuspojave i interakcije antidepresiva i nepsihotropnih i psihotropnih lijekova koje stariji odrasli uzimaju zbog vjerojatnijih komorbiditeta (126). Depresivne žene koje nisu uzimale antidepresive nisu imale manji rizik od kognitivnog oštećenja, što upućuje na složeni odnos između depresije i kognitivnog funkcioniranja uvjetovan različitim patofiziološkim mehanizmima (medijalnog temporalnog režnja, frontalne regionalne atrofije, povećanog hiperintenziteta bijele tvari, opterećenja patologijom AD-a, vaskularnih bolesti) (60). Antidepresivi sami dovode do potpune remisije u manje od 50 % starijih pacijenata s depresijom, a uz farmakološke važno je uvođenje nefarmakoloških intervencija (80,125).

U malom se broju istraživanja ispitalo zaštitne čimbenike reverzije iz BKP-a u uredno kognitivno funkcioniranje u depresivnih. Osobe koje su tijekom praćenja iz BKP-a postigle remisiju u uredno kognitivno funkcioniranje su mlađe dobi, vjerojatnije imaju neamnestički BKP, te niži ukupni rezultati na gerijatrijskoj ljestvici depresije (GDS-15) ili smanjenje depresivnih simptoma između mjerenja (80). Neamnestički BKP, vjerojatno uvjetovan vaskularnom patologijom, zaštitni je čimbenik reverzije BKP-a u uredno kognitivno funkcioniranje, što ukazuje na potencijalnu reverzibilnost nepovoljnog sinergističkog učinka depresije i vaskularnih rizičnih čimbenika. Smanjenjem depresije smanjuje se patologija hiperintenziteta bijele tvari u mozgu i nepovoljan učinak na kognitivnu rezervu, što smanjuje vjerojatnost javljanja BKP-a (68-70). Potencijalan učinak psihoterapije i kognitivno stimulirajućih aktivnosti na prevenciju i liječenje BKP-a (126-128) zasada je nedovoljno ispitan.

Odabir radova učinio je jedan autor. Istraživanja koja koriste isključivo „nepsihologijske metode“ (neuroslikovne i neurofiziološke me-

that individuals with a prescription for antidepressants are more likely to develop MCI, many have not verified the actual adherence to the prescribed antidepressant use, nor have they collected data on indication and duration, the accurate dosing of medication. Antidepressants have beneficial effects in acute treatment and maintenance treatment of depression in older age (125). There may be synergistic side effects and interactions between antidepressants and non-psychotropic and psychotropic medications taken by older adults due to more likely comorbidities (126). Depressive women who did not take antidepressants did not have a lower risk of cognitive impairment, suggesting a complex relationship between depression and cognitive functioning conditioned by different pathophysiological mechanisms (medial temporal lobe, frontal regional atrophy, increased white matter hyperintensity, AD pathology burden, vascular diseases) (60). Antidepressants alone lead to complete remission in less than 50% of older patients with depression, and it is important to introduce non-pharmacological interventions alongside the pharmacological ones (80, 125).

A small number of studies have examined the protective factors for the reversal of MCI to normal cognitive functioning in depressed individuals. Individuals who achieved remission to normal cognitive functioning from MCI during follow-ups are of younger age, they are more likely to have non-amnestic MCI, and have lower overall scores on the Geriatric Depression Scale (GDS-15) or reduced depressive symptoms between measurements (80). Non-amnestic MCI, likely caused by vascular pathology, is a protective factor for the reversal of MCI to normal cognitive functioning, suggesting a potential reversibility of the unfavorable synergistic effect of depression and vascular risk factors. Reducing depression reduces white matter hyperintensity pathology in the brain and the adverse effect on cognitive reserve, reducing the likelihood of MCI (68-70). The potential effect of psychotherapy and

tode, genske analize, određivanja biomarkera iz cerebrospinalnog likvora) su isključena, jer nadilaze okvire rada, a zasigurno su neizostavna za razumijevanje područja. Tako je primjerice nedavno istraživanje koristeći magnetsku rezonanciju mozga ukazalo na strukturne i funkcionalne razlike mozga depresivnih i nedepresivnih osoba s BKP te na njihovu povezanost s obrascima atrofije mozga i kognitivnog funkcioniranja u AD (129). Prednosti budućih istraživanja su longitudinalno praćeni sudionici iz opće, ali i kliničke populacije, s dijagnozama temeljenima na procjeni stručnjaka i formalnim kriterijima (uz korištenje podklasifikacije BKP-a). Važno je prikupiti podatke o dobi javljanja prve depresivne epizode, trajanju depresije, indikaciji za propisivanje, dozi, i stvarnom pijenju lijeka.

ZAKLJUČCI

Većina istraživanja koja su ispitivala depresivne osobe urednog kognitivnog funkcioniranja do pojave BKP-a pokazala su da je depresija povezana s većim rizikom od razvoja BKP-a.

Depresija može biti rizični čimbenik za razvoj BKP-a. Blagi depresivni simptomi mogu biti rana manifestacija BKP-a koji vodi do AD-a. Depresivni simptomi mogu biti klinička manifestacija vaskularnih lezija koje ujedno dovode i do BKP-a, ali i povećati rizik za vaskularne bolesti. Vaskularna depresija doprinosom patologiji hiperintenziteta bijele tvari u mozgu može umanjiti učinak kognitivne rezerve i uvjetovati brže javljanje BKP-a. Određene varijante presenilina povezane su s većom incidencijom kliničke depresije, a ujedno induciraju i patološke promjene koje rezultiraju BKP-om. Od istraživanja koja su metodološki osmišljena sa ciljem da ispitaju mehanizme najviše je potkrepljenja dobila depresija kao rizični čimbenik BKP-a, značajan dio ide u prilog depresiji koja koegzistira s BKP-om pri čemu su oni uvjetovani patologijom AD-a.

cognitive stimulating activities on the prevention and treatment of MCI (126-128) has so far been insufficiently studied.

The selection of works was made by a single author. Studies that exclusively use "non-psychological methods" (neuroimaging and neurophysiological methods, genetic analyses, cerebrospinal fluid biomarker determinations) were excluded as they go beyond the scope of this paper, and are certainly indispensable for understanding the field. For example, a recent study using magnetic resonance imaging of the brain pointed to structural and functional differences in the brains of depressed and non-depressed individuals with MCI, and their association with the patterns of brain atrophy and cognitive functioning in AD (129). The advantages of future research lie in longitudinal monitoring of participants from the general and clinical populations, with diagnoses based on expert assessments and formal criteria (with the use of MCI subclassifications). It is important to gather data regarding the age of onset of the first depressive episode, the duration of depression, indications for prescriptions, dosage, and actual medication use.

CONCLUSIONS

Most studies which examined individuals with depression and normal cognitive functioning prior to the onset of MCI have shown that depression is associated with a higher risk of MCI.

Depression can be a risk factor for the development of MCI. Mild depressive symptoms can be an early manifestation of MCI leading to AD. Depressive symptoms can be a clinical manifestation of vascular lesions that also lead to MCI, and can increase the risk of vascular diseases. Vascular depression, through the pathology of white matter hyperintensities in the brain, can diminish the effect of cognitive reserve and lead to an earlier onset of MCI. Certain presenilin variants are associated with a higher incidence of clinical depression and also

Rizični čimbenici za incidenciju BKP-a u depresivnih osoba su starija dob, dulje trajanje depresije, veći intenzitet depresivnih simptoma, niska, ali i visoka zastupljenost patologije AD-a, sinergistička aditivna interakcija nedostatka tjelesne aktivnosti i poteškoća spavanja, kliničke depresije i klinički značajne anksioznosti, muški rod, niži stupanj formalnog obrazovanja, aktualno posjedovanje recepta za korištenje antidepresiva. Istovremeno, korištenje antidepresiva definirano na temelju ikada prijavljene upotrebe pokazuje se zaštitnim čimbenikom smanjujući vjerojatnost BKP-a. Zaštitni čimbenici reverzije BKP-a u uredno kognitivno funkcioniranje u depresivnih osoba su mlađa dob, neamnestički BKP, manji intenzitet depresivnih simptoma, smanjenje depresivnih simptoma između mjerenja.

Identificiranje rizičnih za BKP u skupini depresivnih je važno, jer su oni potencijalni kandidati za pružanje intervencija, što postaje sve važnije sa starenjem stanovništva, porastom svijesti o demenciji i broja upućenih na specijalističke preglede zbog subjektivnih smetnji pamćenja. Liječenje treba biti usmjereno na smanjenje rizičnih čimbenika: trajanje neliječenih simptoma, intenzitet depresivnih simptoma odnosno težina depresije, smetnje spavanja. Liječenje može reducirati ruminacije, brige, ili poremećaje spavanja i izravno pozitivno djelovati na kognitivno funkcioniranje, ali i ograničiti neurobiološke promjene povezane s BKP-om. Opravdana su daljnja istraživanja o smanjenju rizika od BKP-a u depresivnim skupinama upravljanjem rizičnim čimbenicima (npr. intervencijom antidepresivima, psihoterapijom i kognitivno stimulirajućim aktivnostima).

induce pathological changes that result in MCI. Among studies methodologically designed to examine the mechanisms, depression was the most acknowledged as a risk factor for MCI, with a significant portion of evidence favoring depression that coexists with MCI, both of which are conditioned by AD pathology.

Risk factors for the incidence of MCI in individuals with depression include older age, longer duration of depression, higher intensity of depressive symptoms, low, but also high burden of AD pathology, synergistic additive interaction of physical inactivity and sleep difficulties, clinical depression and clinically significant anxiety. Other risk factors include male gender, lower level of formal education and current prescription for antidepressants. Simultaneously, the use of antidepressants, defined based on ever-reported use, is shown to be a protective factor that reduces the likelihood of MCI. Protective factors for the reversal of MCI to normal cognitive functioning in individuals with depression include younger age, non-amnestic MCI, lower severity of depressive symptoms, and a reduction in depressive symptoms between measurements.

Identifying the individuals at risk of MCI in the depressive group is important because they are potential candidates for interventions, which is becoming increasingly important with the aging population, growing awareness of dementia, and the number of referrals for specialist examinations due to subjective memory complaints. Treatment should be focused on reducing risk factors: the duration of untreated symptoms, the intensity of depressive symptoms, i.e. severity of depression, sleep disturbances. Treatment can reduce rumination, worry or sleep disorders, and can have a direct positive impact on cognitive functioning, while also limiting neurobiological changes associated with MCI. Further research on reducing the risk of MCI in depressive groups through risk factor management (e.g. antidepressant intervention, psychotherapy and cognitive stimulating activities) is justified.

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Je li nam zaista potreban unaprijed uspostavljen odnos licem u lice ili kontakt za učinkovite e-supervizije: prošli previdi, suvremeni kontekst i budući trendovi?

Do We Actually Need In-Person Pre-Established Relationships or Contact for Effective E-Supervision: Past Oversights, Modern Context, and Future Trends?

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Ovaj rad analizira literaturu o elektronskim supervizijama i istražuje važnost prethodnog kontakta ili odnosa za efikasne e-supervizije. Ova studija analizira dosadašnje propuste, suvremeni kontekst i buduće trendove u ovom području. Dodatno se u radu navode određene praktične smjernice za sudionike e-supervizija. Videokonferencijske supervizije treba razlikovati od ostalih oblika e-supervizija kako bi ih se moglo analizirati i o njima raspravljati kao posebnom modalitetu. Dok trenutni podatci možda nisu dovoljni da se definitivno opovrgne nužnost prethodnog kontakta u e-supervizijama, nedavni trendovi i saznanja sugeriraju da prethodni kontakt možda nema taku značajnu ulogu, suprotno prethodnim tvrdnjama. U kontekstu ovog istraživanja nužno je naglasiti da se ne zagovara potpuna supstitucija jednog oblika supervizije drugim. Umjesto toga, ključna poruka jest da se nijednom obliku supervizije ne bi trebalo pridavati inferiorni status, posebice kada je riječ o individualnim supervizijama. Studija naglašava potencijalni uspjeh individualnih videokonferencijskih supervizija bez prethodno uspostavljenih odnosa licem u lice, osobito kada su supervizor i supervizanti digitalni urođenici.

/ This paper examines the literature on electronic supervisions and explores the importance of prior contact or relationships for effective electronic supervision. This study analyzes the past oversights, modern context and future trends in this field. This paper additionally provides specific practical guidelines for participants in e-supervisions. Videoconferencing supervisions need to be differentiated from other types of e-supervision so that they can be analyzed and discussed as a separate modality. While current data might not be sufficient to definitively refute the necessity of prior contact in e-supervision, recent trends and findings suggest that prior contact may not have such a significant role, contrary to previous claims. In the context of this study, it is crucial to emphasize that advocating for the complete substitution of one form of supervision with another is not the intent. Instead, the key message is that no form of supervision should be regarded as inferior to another, especially when it comes to individual supervisions. The study highlights the potential success of individual videoconferencing supervisions without pre-established in-person relationships, especially when supervisors and supervisees are digital natives.

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UVOD

Iako su supervizije na daljinu već neko vrijeme prisutne u psihoterapijskoj edukaciji, pandemija COVID-19 uzrokovala je značajan porast njezine upotrebe, potaknuto neophodnošću i prisilom. Širenje supervizija na daljinu tijekom pandemije i postpandemije predmet je brojnih istraživačkih radova (1-12). Međutim, zabrinjavajuće je što su mnogi praktičari tijekom pandemije prešli na e-supervizije bez odgovarajuće obuke (8). Treba napomenuti da biti učinkovit supervizor uživo ne znači nužno biti učinkovit u elektronskom kontekstu (12). Supervizija je ključna za razvoj sposobnosti praktičara supervizanata (13). Naglašavamo da iako postoje istraživački dokazi koji podržavaju koristi supervizije za supervizante, još uvijek nemamo čvrste dokaze koji potvrđuju poboljšane ishode za klijente i pacijente koji surađuju sa stručnjacima pod supervizijom. Milne je naglasio da supervizija služi nizu svrha kao što su profesionalni razvoj, podrška, upravljanje, razvoj i evaluacija rada kolega od kompetentnih supervizora unutar odgovarajućih terapijskih pravaca (14). Telesupervizije, *online* supervizije ili e-supervizije kao pojam koji će se koristiti u ovom radu definira se kao obrazovni proces koji koristi komunikacijske ili elektroničke informacijske tehnologije za povezivanje pojedinaca na daljinu (15). Supervizija licem u lice je supervizija kada su supervizor i supervizant u istoj prostoriji. Jednostavno rečeno, e-supervizija se događa kada se supervizor i vježbenik supervizant ne nalaze u istoj prostoriji ili na istoj geografskoj lokaciji. Povijest istraživanja supervizija na daljinu seže u prošlo stoljeće, s ranim studijama usmjerenim na telefonske supervizije (16). Danas su videokonferencijske supervizije s audio i video prijenosom informacija najčešći oblik e-supervizija (17).

E-supervizije su bile u porastu i prije pandemije (18) te se pretpostavlja da će se istraživanja e-supervizija intenzivirati sljedećih godina (19). Iako brojne studije navode da nema zna-

INTRODUCTION

Although remote supervision has been present in psychotherapy education for some time, the COVID-19 pandemic caused a significant increase in its usage, driven by necessity and coercion. The expansion of remote supervisions during the pandemic and in the post-pandemic context has been the subject of numerous research papers (1-12). It is, however, concerning that during the pandemic many practitioners switched to e-supervision without proper training (8). It is worth noting that being an effective in-person supervisor does not necessarily translate to being effective in the electronic context (12). Supervision is crucial for developing practitioner/supervisee competence (13). Notably, even though research evidence supporting the benefits of supervision for supervisees exists, we still lack solid evidence which would confirm the improved outcomes for clients and patients who collaborate with professionals under supervision. Milne emphasized that supervision serves a range of purposes, such as professional development, support, management, development and evaluation of colleagues' work performed by competent supervisors within appropriate therapeutic directions (14). The terms telesupervision, online supervision or e-supervision, as used in this study, are defined as educational processes that use communication or electronic information technologies to connect individuals remotely (15). In-person supervisions represent supervisions during which the supervisor and supervisee are in same room. In simple terms, e-supervision takes place when the supervisor and the trainee/supervisee are not located in the same room or at the same geographical location. The history of remote supervision research dates back to the last century, with early studies focused on telephone supervisions (16). Nowadays, videoconferencing supervisions with audio and video transmission of information represent the most common form of e-supervision (17).

The occurrence of e-supervision was on the rise even before the pandemic (18) and it is assumed

čajne razlike između rada uživo i e-supervizija (11,20-25), rad na daljinu, barem prije pandemije, bio je u inferiornom položaju u odnosu na supervizije kada su supervizor i supervizant u istoj prostoriji (26). Mane supervizija na daljinu, kao što je nedostatak neverbalnih znakova, često su usmjerene na telefonske supervizije, a ne na videokonferencijske supervizije, ali u literaturi se navode kao generalni nedostatak (26). U prilog tome je i činjenica da su neke psihoterapijske udruge (27) ograničile broj sati e-supervizija i zahtijevale sastanak licem u lice prije početka elektronskog rada. U prijevodu to znači da se psihoterapijski program može završiti sa svim supervizijama licem u lice, ali se ne može završiti sa svim e-supervizijama. S obzirom na novi moderni kontekst kako psihoterapije, tako i supervizija, možda bi novi pravilnici psihoterapijskih udruga trebali imati minimalni broj supervizija kako licem u lice, tako i e-supervizija. Tako se supervizanti spremaju za suvremeni kontekst rada. Ranija istraživanja (17,28) preporučivala su kontakt licem u lice i izgradnju saveza prije e-supervizije, međutim, iako ovaj koncept nije ni potvrđen ni jasno opovrgnut, nova istraživanja (8,11,18,29,32) sve više bacaju sumnju na ove stare postulate, posebno uzimajući u obzir masovnu digitalnu pismenost supervizanata vježbenika, terapeuta i supervizora. Dvije relativno nedavne meta-analize e-supervizija (30,31) u svojim su zaključcima dale prednost odnosu licem u lice ili kontaktu prije e-supervizija, iako nijedna od referentnih studija ovih meta-analiza nije eksperimentalno ispitala stvarnu nužnost prethodnog kontakta ili odnosa. Sumirajući, čini se da ovi nalazi navode na pogrešan zaključak. Odgovarajuća meta-analiza ovog pitanja ne može se provesti u ovom trenutku zbog nedostatka studija koje su eksperimentalno testirale glavno pitanje ovog rada. Pored nekoliko studija (8,11,18,29) koje se indirektno suprotstavljaju staroj paradigmi neophodnosti prethodnog kontakta, pronađena je jedna nedavna studija (32) koja je direktno provjerila ovo pitanje, a njeni kvantitativni

that research concerning e-supervisions will intensify in the following years (19). Although numerous studies indicate that there is no significant difference between in-person work and e-supervision (11, 20-25), remote work, at least before the pandemic, was in an inferior position compared to supervisions in which the supervisor and the supervisee were in the same room (26). Concerns about remote supervisions, such as the lack of non-verbal cues, are often directed at telephone supervisions rather than videoconferencing supervisions, however in literature they are still referred to as a general disadvantage (26). This is supported by the fact that some psychotherapy associations (27) have limited the number of hours of e-supervisions and required an in-person meeting before starting online work. Further explained, this means that a psychotherapy program can be completed with all supervisions being in-person, but it cannot be completed with all supervisions being conducted in the form of e-supervisions. Taking into account the new modern context of both psychotherapy and supervisions, perhaps the new regulations of psychotherapy associations should specify a minimum number of supervisions, both for in-person supervisions and e-supervisions. In this way, the supervisees can prepare for the contemporary work context. Earlier studies (17, 28) recommended in-person contact and alliance building before conducting e-supervision, however, although this concept has neither been confirmed nor clearly refuted, new studies (8, 11, 18, 29, 32) increasingly cast doubt on these old postulates, especially taking into account the mass digital literacy of supervisee trainees, therapists and supervisors. In the conclusions of two relatively recent meta-analyses of e-supervisions (30, 31) we could see that the authors favored in-person relationships or contact before e-supervision, even though none of the referenced studies of these meta-analyses had experimentally tested the actual necessity of prior contact or relationship. In summary, these findings appear to be misleading. A proper meta-analysis of this issue cannot be conducted at this moment due to the scarcity of studies that

i kvalitativni rezultati podupiru hipoteze da se učinkovita supervizija i rezultati mogu postići kada supervizor i supervizanti rade isključivo na daljinu bez prethodnog kontakta ili uspostavljenog odnosa.

Ovaj rad ima za cilj analizirati dosadašnja saznanja, ali i potencijalne previde, suvremeni kontekst i buduće trendove, a sve kako bi se pokušalo odgovoriti na pitanje: *Je li nam zaista potreban unaprijed uspostavljen odnos licem u lice ili kontakt za učinkovite e-supervizije?* Mnoga su istraživanja ukazala na važnost istraživanja ovog pitanja te ponudila svoja osobna mišljenja i preporuke za buduća istraživanja. No, osim jedne studije (32) koja je u svoju metodologiju uključila glavno pitanje ove studije, nedostaje opsežna literatura. Međutim budući da svjedočimo ekspanziji e-supervizija i drugih oblika e-terapije, ponuditi odgovor ili barem konkretno ažuriranje smjernica od iznimne su važnosti za buduća istraživanja i e-praksu. Posebna korist može biti u međunacionalnim e-supervizijama ili kada supervizor isključivo radi na daljinu. U tom slučaju supervizanti nemaju priliku da upoznaju supervizora i nikada nemaju mogućnost da rade supervizije licem u lice.

Prije pregleda prošlih previda, suvremenog konteksta i budućih trendova o pitanju je li nam zaista potreban unaprijed uspostavljen odnos licem u lice ili kontakt za učinkovite e-supervizije, važno je definirati sam termin učinkovitosti e-supervizije. Literatura kako klasičnih supervizija, tako i e-supervizija općenito nema konsenzus o ovom pitanju. Većinom se studije fokusiraju na ispitivanje zadovoljstvo supervizijama od supervizanata i supervizorski odnos kao najbolje istraženu varijablu unutar supervizorske literature koja se može promatrati u tri dimenzije: odnos, ciljevi i zadatci unutar supervizija (13). Bernard i Goodyear (13) navode da je zadovoljstvo u supervizijama jedan od alternativnih načina pomoću kojih supervizanti mogu evaluirati kvalitetu svoje supervizije i

have experimentally tested the main question of this paper. In addition to several studies (8, 11, 18, 29) that indirectly challenge the old paradigm of the necessity of prior contact, one recent study (32) was found that directly examined this issue, and its quantitative and qualitative results support the hypotheses that effective supervision and results can be achieved when the supervisor and the supervisees work exclusively remotely without prior contact or established relationship.

The aim of this paper is to analyze previous findings, but also potential oversights, as well as the modern context and future trends, all in order to attempt to answer the following question: *Do we actually need in-person pre-established relationships or contact for effective e-supervision?* Many studies have pointed out the importance of exploring this question and authors offered their personal opinions and recommendations for future studies. However, with the exception of one study (32) the methodology of which also included the main question of this study, extensive literature is absent. Nevertheless, as we are witnessing an expansion of e-supervisions and other forms of e-therapy, the provision of an answer or at least of concrete updated guidelines is of utmost importance for future research and e-practice. A particular benefit can arise in international e-supervisions or when a supervisor works exclusively remotely. In that case, supervisees do not have the opportunity to meet the supervisor and never have the chance to engage in in-person supervisions.

Before reviewing past oversights, the modern context and the future trends regarding whether a pre-established in-person relationship or contact is truly necessary for effective e-supervisions, it is important to define the very term of effectiveness of e-supervision. Literature on both traditional supervision and e-supervision generally lacks consensus on this issue. Most studies primarily focus on examining supervisor satisfaction over supervisions, as well as on the supervisory relationship as the most researched variable within the supervisory literature, which can be viewed through three dimensions: rela-

ocijeniti u kojoj mjeri ta supervizija ispunjava njihova očekivanja i potrebe. Unutar literature e-supervizija pronalazimo svega nekoliko istraživanja koja mjere kompetencije supervizanata što bi trebao biti zlatni standard učinkovitosti supervizija. Dodatno, ne pronalazimo studije koje ispituju promjene kod klijenata pri radu sa supervizantima zbog prisutnosti ili odsutnosti e-supervizija, što bi isto tako trebao biti važan kriterij učinkovitosti supervizija.

PROŠLI PREVIDI LITERATURE KOJA FAVORIZIRA KONTAKT UŽIVO

U literaturi e-supervizija koje favoriziraju prethodni kontakt uživo prije e-supervizija pronalazimo određene previde. Martin i sur. (31) su analizirali 11 studija o e-supervizijama. Zaključili su da u četiri od ovih studija (17,33-35) postoje dokazi koji sugeriraju da prethodno osobno iskustvo između supervizora i supervizanata može pozitivno utjecati na ishod supervizija na daljinu. Ova se meta-studija spominje u nekoliko nedavnih studija (2,8,11,18) kao argument da bi svaka tehnološki potpomognuta supervizija općenito trebala zahtijevati unaprijed uspostavljen odnos licem u lice. Međutim, treba napomenuti da su Martin i sur. (31) naizmjenično koristili izraze "telefonske" i "videokonferencijske" e-supervizije, iako je samo jedna od navedenih studija (17) uključivala videokonferencijske supervizije. Četiri studije na koje se Martin i sur. (31) pozivaju bit će ukratko opisane kako bi se istaknuli potencijalni previdi.

Gammon i njegovi norveški kolege (17) proveli su jednu od pionirskih studija o iskustvu videokonferencijskih supervizija. U ovoj studiji, šest medicinskih psihijatrijskih specijalizanata sudjelovalo je u desetotjednom programu, gdje su se izmjenjivali između individualnih supervizija licem u lice i videokonferencijskih supervizija. Studija je imala za cilj istražiti izvedivost i učin-

tionship, goals and tasks as part of supervision (13). Bernard and Goodyear (13) note that satisfaction when it comes to supervision is one of the alternative ways in which supervisees can evaluate the quality of their supervision and assess the extent to which it meets their expectations and needs. When researching e-supervision literature, we can find only a few studies that measure supervisee competencies, which should be the gold standard for supervision effectiveness. Additionally, we cannot find any studies that investigate changes in clients when working with supervisees due to the presence or absence of e-supervision, which should also be an important criterion for supervision effectiveness.

PAST OVERSIGHTS OF LITERATURE FAVORIZING IN-PERSON CONTACT

We can identify certain oversights in the literature on e-supervision that favors prior in-person contact before conducting e-supervision. Martin et al. (31) conducted an analysis of 11 studies focusing on e-supervision. They concluded that in four of these studies (17, 33-35), there is evidence to suggest that prior in-person experience between supervisors and supervisees can positively impact the outcome of remote supervisions. This meta-study has been referenced in several recent studies (2, 8, 11, 18) as an argument that all technology-assisted supervision should generally require a pre-established in-person relationship. However, it should be noted that Martin et al. (31) used the terms "telephone" and "videoconferencing" e-supervision interchangeably, even though only one of the referenced studies (17) involved videoconferencing supervision. The four studies Martin et al (31) refer to will be briefly described in order to highlight potential oversights.

Gammon and his Norwegian colleagues (17) conducted one of the pioneering studies exploring the experience of videoconferencing supervisions. In this study, six medical psychiatric residents participated in a ten-week program during

kovitost videokonferencijskih supervizija kao potencijalne alternative supervizijama licem u lice. Ova studija (17) s e-supervizijama morala je slijediti određeni skup pravila koje je 1996. postavila Norveška liječnička udruga: „Broj polaznika i supervizijskih sesija trebao bi biti ograničen, supervizori su morali biti dio tima na radnim mjestima polaznika i supervizijski odnosi morali su biti dobro uspostavljeni licem u lice prije početka studije" (36, str. 453). Prema Gammonu i njegovim kolegama (17) videokonferencijske supervizije su se pokazale učinkovitima u održavanju kvalitete i zadovoljstva supervizijama. Međutim, istraživači su također primijetili da su potrebna daljnja istraživanja kako bi se utvrdilo je li potreban unaprijed uspostavljen odnos između supervizora i supervizanata. Konkretno, sugerirali su da su potrebne studije koje uključuju supervizorske dijade bez prethodnih odnosa kako bi se ovo pitanje dalje istražilo. Ova studija (17) nije mogla istražiti e-supervizije bez prethodnog odnosa licem u lice zbog posebnih propisa. U kasnijoj analizi studije, Sorlie i njegovi kolege (36) naglasili su važnost uspostavljenog odnosa licem u lice, posebno za terapeute početnike u ranim fazama njihove obuke. Isti su autori utvrdili da je interakcija licem u lice ključna za identifikaciju supervizanata sa supervizorom i za uspostavljanje snažnog profesionalnog identiteta. Ovaj zaključak je logično izveden za studiju staru četvrt stoljeća, kada je internet bio u razvoju; ali još se uvijek spominje u modernim studijama i možda ju više ne bi trebalo primjenjivati.

U Driscollovoj studiji (33) medicinske sestre koje se prije nisu susrele jedna s drugom, ni sa svojim supervizorom sudjelovale su u šestomjesečnim telefonskim grupnim kliničkim supervizijama. Autor je zaključio da su grupne telefonske supervizije dobra alternativa supervizijama licem u lice. Jedan je sudionik spomenuo da iako možda nisu idealne u usporedbi sa supervizijama licem u lice, supervizija na daljinu je isplativ način za pokretanje grupnih kli-

which they alternated between individual in-person supervisions and videoconferencing supervisions. The aim of this study was to explore the feasibility and effectiveness of videoconferencing supervisions as a potential alternative to in-person supervisions. This study (17) involving e-supervisions had to follow a specific set of rules established by the Norwegian Medical Association in 1996: "The number of trainees and supervision sessions should be limited, the supervisors had to be part of the team at the trainees' workplaces, and the supervision relationships had to be well established face-to-face before starting the study" (36, p. 453). According to Gammon and his colleagues (17), videoconferencing supervision was found to be effective in maintaining the quality of supervision and satisfaction with supervision. However, the researchers also noted that further studies were necessary in order to determine whether a pre-established relationship between supervisors and supervisees was needed. Specifically, they suggested that it was necessary to conduct studies that would include supervision dyads without previously established relationships for the purpose of exploring this issue further. In the course of this study (17) it was impossible to investigate e-supervision without a pre-existing in-person relationship due to specific regulations. In a subsequent analysis of the study, Sorlie and his colleagues (36) emphasized the importance of a pre-established in-person relationship, particularly for novice therapists in the early stages of their training. The same authors asserted that in-person interaction is critical for the supervisees' identification with the supervisor and for establishing a strong professional identity. This conclusion was logically deducted for a study that was a quarter of a century old when the Internet was still being developed; however, it is still referenced in modern day studies and should probably not be applicable anymore.

In Driscoll's study (33), nurses who had not met each other or their supervisor before participated in a six-month group clinical supervision conducted via telephone. The author concluded that telephone group supervisions were a good

ničkih supervizija, kada takav ne postoji. Studija predlaže održavanje prethodnog sastanka licem u lice kako bi se uspostavio dogovor i razjasnile uloge. Međutim, autor postavlja pitanje je li inicijalni sastanak licem u lice uistinu neophodan za telefonske i druge vrste supervizija na daljinu (33). Generalizacija rezultata ove studije na sve oblike e-supervizija, kako su Martin i sur. (31) učinili, treba izbjegavati jer su korištene telefonske umjesto videokonferencijskih supervizija.

Robson i Whelan (34) proveli su studiju u kojoj su nastavili svoj supervizorski odnos preko telefona jedan s drugim. Dok su rezultati pokazali da je odnos održan, autori su priznali da je bilo teško utvrditi je li to bilo zbog snage prethodno postojećeg saveza formiranog licem u lice.

Wright i Griffiths (35) proveli su narativnu studiju dijalogom između dva autora. Autori su izrazili sklonost supervizijama licem u lice, ali su priznali da telefon, Skype i e-pošta mogu biti korisni u nekim okolnostima, ali ne preporučuju ove oblike rada na daljinu neiskusnim terapeutima. Ova mišljenja utemeljena su na osobnom iskustvu, a ne na nalazima osnovanima na istraživanjima. Drugi autor primijetio je da telefonske supervizije mogu biti prihvatljive nakon izgradnje povjerenja putem kontakta licem u lice citirajući Shohetov rad (37) o potrebi da se praktičari osjećaju sigurnima u preuzimanju rizika i navodeći da supervizorski rad na daljinu ne može uspostaviti tako siguran prostor za odnos. Ovo istraživanje nije raspravljalo o videokonferencijskim supervizijama. Meta-analiza koju su proveli Martin i sur. (31) može se smatrati zastarjelom i navodi na pogrešne zaključke, budući da se primarno fokusira na telefonske supervizije i ne uzima u obzir trenutni dominantni oblik rada odnosno videokonferencijske supervizije.

U kvalitativnoj studiji s polustrukturiranim intervjuima koju su proveli Cameron i sur. (38) o videokonferencijskim supervizijama s mlađim

alternative to in-person supervisions. One participant mentioned that although they may not be ideal compared to in-person supervisions, remote supervisions are a cost-effective way to initiate group clinical supervisions when none exist. The study suggests having an in-person pre-meeting in order to establish an agreement and clarify specific roles. However, the author raises the question of whether an in-person initial meeting is truly necessary for telephone and other types of remote supervisions (33). The generalization of results from this study to all forms of e-supervision, as done by Martin et al. (31), should be avoided, because instead of videoconferencing supervisions they conducted telephone supervisions.

Robson and Whelan (34) conducted a study in which they continued their in-person supervisory relationship over the telephone. While the results indicated that the relationship was maintained, the authors acknowledged that it was difficult to determine whether this was due to the strength of the pre-existing alliance which they had established in-person.

Wright and Griffiths (35) conducted a narrative study by means of a dialogue between the two authors. The authors expressed a preference for in-person supervision, but acknowledged that telephone, Skype and email may be useful in some circumstances, although they did not recommend these types of remote work for inexperienced therapists. These opinions were based on personal experience rather than research-based findings. The second author noted that telephone supervision may be acceptable after trust has been established through in-person contact, citing Shohet's work (37) on the need for practitioners to feel secure in taking risks, and stating that remote supervision cannot enable such a safe space for a relationship to be built. Videoconferencing supervision was not discussed in this study. The meta-analysis conducted by Martin et al. (31) may be considered outdated and misleading, as it primarily focuses on telephone supervisions and does not account for the dominant form of work, i.e. videoconferencing supervisions.

stažistima medicinske onkologije i višim medicinskim službenicima, utvrđeno je da 70 % sudionika preferira imati sastanak licem u lice sa svojim supervizorom prije nego započnu e-supervizije. Iako su sudionici imali pozitivan stav prema supervizijama na daljinu putem videokonferencije, smatrali su da će im susret licem u lice pomoći da utvrde očekivanja i razjasne kako će proces funkcionirati. Glavni razlog za ovu sklonost bio je nedostatak neverbalnih znakova tijekom e-supervizija. Sudionici su također istaknuli prednosti rada na daljinu za pacijente o kojima su skrbili, posebno za mlađe pripravnike koji rade u udaljenim područjima i koji su ovisili o povratnim informacijama starijih kolega. Ovi nalazi nisu dobiveni iz eksperimentalnih postavki i nejasno je odražavaju li odgovori sudionika njihova stvarna iskustva ili osobna mišljenja u vezi s prijašnjim kontaktima i odnosima. U navedenom radu istražuju se preferencije ispitanika koje nisu nužno povezane s učinkovitosti e-supervizija, ali vjerojatno utječu na njihovu spremnost da pristanu na supervizije koje se odvijaju isključivo elektronski od samog početka. Ne ispituje se ni jedan parametar koji bi se mogao dovesti u vezu s efikasnošću e-supervizija poput zadovoljstvo supervizijama, supervizorski odnos ili kompetencije supervizanata, što samim time navodi da data studija ili slične njoj se ne bi trebale navoditi kao studije koje idu u prilog neophodnosti upoznavanja uživo prije rada e-supervizija.

Rousmaniere i sur. (39) sugerirali su da je za poboljšanje grupne kohezije i formiranje grupe s uravnoteženim skupom vještina važno imati prethodni kontakt licem u lice i povremeno se sastajati licem u lice, posebno za grupe koje rade elektronski. Autori su istaknuli da postoji veći rizik od neusklađenosti između osobnosti članova grupe, interesa pripravnika supervizanata i supervizora, kliničkih žarišta ili ciljeva obuke, ako se grupa formira bez susreta licem u lice. Webber i Deroche (40) predložili su u poglavlju knjige *Korištenje tehnologije za poboljIn a qualitative study which included semi structured interviews conducted by Cameron et al. (38) focusing on videoconferencing supervisions with junior medical oncology interns and senior medical officers, it was established that 70% of the participants preferred having an in-person meeting with their supervisor before starting e-supervisions. Although the participants had a positive attitude towards remote supervision via videoconferencing, they believed that meeting in person first would help them set the expectations and clarify how the process would work. The main reason for this preference was the lack of non-verbal cues during e-supervisions. The participants also highlighted the benefits of remote work for the patients they cared for, particularly when it comes to junior medical interns working in remote areas who depended on feedback from their senior colleagues. These findings were not obtained from experimental settings, and it is unclear whether the participants' responses reflect their actual experiences or personal opinions regarding prior contact and relationships. The subject study explores the participants' preferences that are not necessarily connected with the effectiveness of e-supervisions, but likely influence their willingness to engage in supervisions conducted exclusively electronically from the outset. No parameters relating to the effectiveness of e-supervisions, such as satisfaction with supervisions, the supervisory relationship or supervisee competencies are investigated, which in itself leads to the conclusion that this study or similar studies should not be cited as evidence in favor of the necessity of in-person introductions before engaging in e-supervision.

Rousmaniere et al. (39) suggested that in order to enhance group cohesion and form a group with a balanced skillset, it is important to have prior in-person contact and meet in-person periodically, especially when it comes to groups that meet online. The authors pointed out that there is a greater risk of mismatches between group member personalities, trainee/supervisee and supervisor interests, clinical foci or training goals if a

šanje kliničkih supervizija da bi prvi kontakt u e-supervizijama idealno trebao biti licem u lice kako bi se potaknuo odnos i izgradio snažan radni savez između supervizora i supervizanata. Opet, nije bilo eksperimentalnih studija koje bi potvrdile ni jednu od ovih tvrdnji.

Conn i sur. (41) ispitivali su učinkovitost hibridne (kombinacija licem u lice supervizija i e-supervizije) grupne supervizije u odnosu na superviziju licem u lice. Zanimljivo, rezultati su pokazali da je skupina koja je koristila hibridni model izvijestila o većem zadovoljstvu svojim supervizijama. Iako e-supervizije nisu bile glavni fokus studije, autori su naglasili važnost prethodnog kontakta licem u lice u e-supervizijama. Međutim, važno je napomenuti da se preferencija autora o unaprijed uspostavljenom kontaktu temelji na vlastitom mišljenju, a ne na izravnim odgovorima sudionika. Na ovo mišljenje možda su utjecale prethodne studije o ovoj temi za koje smo već naveli da imaju određene previde.

Chamberlain i Smith (42) proveli su analizu dostupne literature na području radnog saveza u supervizijama na daljinu i usporedili je sa supervizijama licem u lice. Rezultati ukazuju da ni jedan modalitet ne bi trebao zamijeniti drugi, već bi se trebali nadopunjavati kako bi pružili najbolju uslugu supervizantima i klijentima. Pozivajući se na prethodne studije (28,41,43) autori su preporučili uspostavljanje nekog oblika kontakta licem u lice i izgradnju radnog saveza prije prelaska na internetsku platformu. Predložili su da supervizori budu proaktivni u razvoju i uspostavljanju snažnog radnog saveza rano u procesu supervizije. Slično, Nelson i sur. (24) proveli su istraživanje s dvije grupe, od kojih je jedna grupa radila putem interneta, a druga pristupom licem u lice. Obje skupine pokazale su zadovoljstvo supervizijom. Međutim, i profesori i studenti uključeni u ovo istraživanje naveli su da preferiraju da se prvo sastanu licem u lice kako bi uspostavili odnos. Još jednom, ovaj je zaključak donesen kao re-

group is formed without having met in-person. In a chapter of the book *Using Technology to Enhance Clinical Supervision*, Webber and Deroche (40) suggested that the first contact in e-supervision should ideally be in-person, in order to foster rapport and build a strong working alliance between the supervisor and supervisee. Again, there were no experimental studies to confirm any of these claims.

Conn et al. (41) examined the effectiveness of hybrid group supervision (combination of in-person and e-supervisions) versus in-person supervision. Interestingly, the results showed that the group utilizing the hybrid model reported higher satisfaction with their supervisions. While e-supervision was not the main focus of the study, the authors stressed the importance of prior in-person contact when it comes to e-supervision. It should, however, be noted that the authors' preference for pre-established contact was based on their own opinions rather than the direct responses of the participants. These opinions may have been influenced by previous studies on this topic, for which we have already established that they have certain oversights.

Chamberlain and Smith (42) conducted an analysis of the literature available in the field of working alliances in distant supervisions and compared it with in-person supervisions. The results indicated that neither modality should replace the other, but rather should complement each other to provide the best service to supervisees and clients. Referring to previous studies (28, 41, 43), the authors recommended establishing some form of in-person contact and building a working alliance before moving to an online platform. They suggested that supervisors should be proactive in developing and establishing a strong working alliance early in the supervision process. Similarly, Nelson et al. (24) conducted a study with two groups, one of which met online, while the other met in-person. Both groups expressed satisfaction with their supervisions. However, both the professors and the students involved in this study preferred meeting in-person first to establish a relationship. Once again, this conclu-

zultat osobnog mišljenja hipotetičke situacije u postintervjuima, a ne kao rezultat eksperimentalne situacije.

Iako postoje neka ograničenja i propusti u prošlim studijama, osobne preferencije se ne mogu zanemariti. Neki supervizanti i supervizori mogu preferirati jedan način supervizije u odnosu na drugi i možda će trebati raditi na željeni način, bez obzira na njihovu dob, iskustvo ili tehnološku pismenost. Studije citirane u ovom radu spomenule su važnost prethodnog kontakta licem u lice u e-supervizijama, ali njihova metodologija nije bila dovoljna za izvlačenje konačnih rezultata. Na pogrešan zaključak navodi što mnogi autori stavljaju toliki naglasak na potrebu prethodnog kontakta licem u lice u e-supervizijama. Kao što ćemo vidjeti u sljedećem odjeljku, neke su studije testirale ove tvrdnje neizravno ili izravno.

SUVREMENI KONTEKST

U pet relativno nedavnih studija (18,29,32,46,47) primijećena je promjena paradigme. Hibridne metode, koje uključuju kombinaciju supervizija licem u lice i raznih oblika e-supervizija, stekle su popularnost u području supervizija. Ove su metode uspoređivane s tradicionalnim supervizijama licem u lice. Rezultati dosljedno pokazuju da su hibridne metode jednako učinkovite kao i tradicionalna supervizija licem u lice (11,15,21,22,24,41,43). Međutim, važno je napomenuti da se nijedna od ovih studija nije usredotočila isključivo na elektroničke videokonferencijske supervizije bez prethodno uspostavljenog odnosa (20).

Unatoč nepostojanju formalnog eksperimentalnog okruženja Elliot i sur. (47) navode iskustvo e-supervizija bez prethodnog kontakta između supervizora i supervizanta. Supervizant je izrazio visoku razinu ugode i podrške tijekom cijelog procesa unatoč tome što se nikad nije susreo licem u lice sa supervizorom. Prema riječima su-

sion was made as a result of personal opinions referencing a hypothetical situation in post interviews, and not as a result of an experimental situation.

Although previous studies contain some limitations and oversights, personal preferences cannot be ignored. Some supervisees and supervisors may prefer one mode of supervision over another, and may need to work in their preferred mode, regardless of their age, experience or technological literacy. The studies cited in this paper did mention the importance of prior in-person contact when it comes to e-supervision, but their methodology was insufficient to draw conclusive results. The fact that many authors place such emphasis on the need for prior in-person contact in e-supervision is misleading. As will be demonstrated in the next section, some studies have indirectly or directly tested these claims.

MODERN CONTEXT

A paradigm shift was observed in five relatively recent studies (18, 29, 32, 46, 47). Hybrid methods, which involve a combination of in-person supervision and various other forms of e-supervision, have gained popularity in the field of supervision. These methods have been compared to traditional in-person supervisions. The results consistently indicate that hybrid methods are equally effective as traditional in-person supervisions (11, 15, 21, 22, 24, 41, 43). It is, however, important to note that neither of these studies focused solely on electronic videoconferencing supervisions without a pre-established relationship (20).

Despite the absence of a formal experimental setting, Elliot et al. (47) recounted an e-supervision experience where there had been no prior contact between the supervisor and supervisee. The supervisee expressed a high level of comfort and support throughout the process, despite never having met the supervisor in-person. According to the supervisee, the use of videoconference

pervizanta, korištenje videokonferencije tijekom supervizijske sesije stvorilo je osjećaj blizine, kao da je supervizor fizički prisutan. Nadalje, supervizant nije naveo probleme ili izazove vezane uz korištenje videokonferencije u vezi s procesom supervizije ili uspostavljenjem odnosa.

Bernhard i Camins (29) proveli su kvalitativne analize dvoje polaznika koji su prošli šestomjesečnu superviziju licem u lice nakon koje je uslijedilo šest mjeseci videokonferencijske supervizije. Prvi supervizant je imao istog supervizora u obim fazama, dok je drugi supervizant radio s različitim supervizorima. Unatoč izazovima, prednosti e-supervizija nadmašile su nedostatke, jer je uspostavljen i održavan snažan savez sa supervizorom u jasnoj agendi i strukturiranim sastancima. Naime, jedan se sudionik nije složio s tvrdnjom da je prije e-supervizija neophodan sastanak licem u lice. Ova osoba je navela da se jedno od njihovih najkorisnijih supervizijskih iskustava dogodilo sa supervizorom kojeg nikada nisu sreli licem u lice.

Brandoff i Lombardij (46) zaključuju da je uspješna e-supervizija moguća u području art terapije korištenjem različitih načina e-supervizija. Međutim, preporučuju da se pojedinci koji sudjeluju u supervizijama na daljinu pokušaju sastati licem u lice barem jednom ako je to moguće. Obje studije koje su proveli Bernhard i Camins (29) te Brandoff i Lombardi (46) daju snažne indikacije da supervizanti nisu imali nikakav prethodni kontakt sa supervizorima niti su se s njima susreli licem u lice. Inman i sur. (30) također su prepoznali važnost istraživanja Brandoffa i Lombardija (46), ali su predložili daljnja istraživanja zbog ograničene veličine uzorka. Ograničenje obih studija koje su proveli Bernhard i Camins (29) te Brandoff i Lombardi (46) je uključivanje samo po jednog sudionika.

Jordan i Shearer (18) proveli su nedavno istraživanje koje je vrijedno pažnje jer je pokazalo pozitivne rezultate za videokonferencijske e-supervizije. Njihovo istraživanje koristilo je pristup mješovitih metoda koji je uključivao

during the supervision session created a sense of proximity, as if the supervisor were physically present. Furthermore, the supervisee reported no issues or challenges when it came to the use of videoconference in relation to the supervision process or the established relationship.

Bernhard and Camins (29) conducted qualitative analyses of two trainees who underwent six months of in-person supervisions followed by six months of videoconferencing supervisions. The first supervisee had the same supervisor during both phases, while the second supervisee worked with different supervisors. Despite some challenges, the advantages of e-supervisions outweighed the drawbacks, as a strong alliance with the supervisor was established and maintained through clear agendas and structured sessions. Notably, one participant disagreed with the notion that an in-person meeting is necessary prior to e-supervision. This individual stated that one of their most beneficial supervision experiences took place while working with a supervisor they had never met in person.

In their study, Brandoff and Lombardi (46) concluded that successful e-supervision is possible in the field of art therapy by using different methods of e-supervision. However, they recommend that individuals taking part in remote supervisions should make an effort to meet in person at least once if possible. Both studies conducted by Bernhard and Camins (29) and Brandoff and Lombardi (46) provide strong indications that the supervisees had no prior contact with the supervisors, and did not meet them in person. Inman et al. (30) also recognized the importance of the study conducted by Brandoff and Lombardi (46), but suggested that further research is necessary due to the limited size of the sample. A limitation of both studies conducted by Bernhard and Camins (29) and Brandoff and Lombardi (46) is that they included only one participant each.

Jordan and Shearer (18) conducted a recent study worth noting due to the fact that it yielded positive results concerning videoconferencing e-su-

12 psiholoških pripravnika koji su pružali terapiju pacijentima ratnim veteranima tijekom razdoblja od 12 mjeseci. Naime, studija nije precizirala jesu li polaznici prije studije imali kontakt sa svojim supervizorima. Međutim, na temelju dostupnih informacija može se zaključiti da nisu imali prethodnu interakciju. Slično drugim studijama, korišten je hibridni model u kojem su polaznici imali različite supervizore za supervizije licem u lice i za e-supervizije. Nalazi su pokazali da je većina pripravnika imala pozitivno iskustvo i razvila snažnu vezu sa svojim supervizorom. Većina supervizanata izvijestila je da nije bilo zamjetne razlike u učinkovitosti tih dvaju modaliteta, a neki su čak smatrali da e-supervizije potiču jače odnose i omogućuje veće samootkrivanje. Kao rezultat toga autori su predložili da se buduća istraživanja trebaju usredotočiti na istraživanje utjecaja prethodnih sastanaka licem u lice na proces supervizije.

E-supervizija je pokazala uspješnu implementaciju u kontekstu međunarodnih psihodinamskih pristupa o čemu svjedoči studija koju su proveli Fishkin i sur. (44). U ovoj studiji Fishkin je podučavao kineske studente procesu psihodinamičke analize tijekom dvogodišnjeg razdoblja. Većina supervizijskih sesija učinkovito je provedena putem videokonferencije uz prilagodbe koje su napravljene kako bi se odradila tradicionalna analiza. Na primjer, napravljene su prilagodbe položaja kamere kako bi se supervizantima omogućilo da leže na kauču i budu vidljivi supervizoru na ekranu, odražavajući postavke tradicionalne analize.

U drugoj međunarodnoj studiji koju su proveli Duan i sur. (45) ispitan je dvogodišnji međunarodni grupni metasupervizijski program. Autori su zaključili da je, unatoč izazovima kao što su vremenske razlike, kulturološke razlike i nedostatak vizualnih znakova, većina supervizanata pokazala poboljšane kompetencije u superviziji. Ovo je istraživanje istaknulo da međunarodna suradnja ne samo da je poboljšala znanje i vještine kineskih supervizanata, već

pervision. Their study employed a mixed methods approach which involved 12 psychological trainees who provided therapy to war veteran patients over a period of 12 months. Notably, the study did not specify whether the trainees had any contact with their supervisors prior to the study. However, based on the available information, it can be inferred that they had no prior interaction. Similar to other studies, a hybrid model was used in which the trainees had different supervisors for in-person supervisions and e-supervisions. The findings indicated that most trainees had a positive experience and developed strong bonds with their supervisors. Most of the supervisees reported that there was no discernible difference in the effectiveness of these two modalities, and some even felt that e-supervisions fostered stronger relationships and facilitated greater self-disclosure. As a result, the authors suggested that future research should focus on exploring the impact of in-person meetings on the process of supervision.

E-supervision was successfully implemented in the context of international psychodynamic approaches, as evidenced by the study conducted by Fishkin et al. (44). In this study, Fishkin taught Chinese students the process of psychodynamic analysis over a two-year period. The majority of the supervision sessions were effectively conducted via video conferencing, with adjustments made in order to replicate the traditional analysis setting. For instance, adjustments were made to the camera positioning so as to allow the supervisees to lie on the couch and be visible to the supervisor on the screen, mirroring the setup of a traditional analysis.

In another international study conducted by Duan et al. (45), a two-year international group meta-supervision program was examined. The authors concluded that despite the challenges such as time differences, cultural differences and the absence of visual cues, the majority of supervisees demonstrated improved competence during supervision. This study highlighted the fact that international collaboration not only enhanced the knowledge and skills of Chinese

je također pružila priliku za rast i jedinstvene trenutke učenja za međunarodne supervizore (45). Slične studije također su raspravljale o važnosti izgradnje međunarodnih veza supervizijom predstavljajući prilike za pozitivna iskustva, rast i razvoj (1,37). E-supervizije mogu posebno doprijeti područjima s ograničenim resursima ili onih pogođenih katastrofama, gdje u blizini možda nedostaje profesionalna podrška (1). U tim međunarodnim okolnostima, vjerojatno je da se uključene strane nikad nisu srele licem u lice. Međutim, metodologija i rezultati istraživanja nisu eksplicitno razjasnili jesu li se supervizori i supervizanti susreli prije nego što su se uključili u e-supervizije.

Na kraju je važno spomenuti jednu jedinu studiju (32) koja je uključila u svoju metodologiju pitanje je li prethodni kontakt i odnos zapravo neophodan za uspješnu e-superviziju. Ovo je istraživanje imalo za cilj ispitati kako početni kontakt licem u lice i pisane povratne informacije utječu na učinkovitost RE&KBT e-supervizija. Ova studija je navela po kojem psihoterapijskom i supervizorskom modalitetu je radila, što je rijetkost, ali i istovremeno mana većine istraživanja u ovoj oblasti. Istraživanje je uključivalo dvije skupine: kontrolnu koja je na početku imala jedan uvodni sastanak licem u lice i eksperimentalnu skupinu koja je cijeli proces supervizije provodila elektronski. Ukupno pet supervizanata završilo je deset sesija e-supervizije tijekom šest mjeseci. Obje su skupine postigle iznadprosječne rezultate na inventaru supervizorskog radnog saveza i na upitniku o zadovoljstvu supervizija. Osim toga, studija pokazuje da jedan kontakt licem u lice ne utječe značajno na zadovoljstvo e-supervizija ili radni savez. Vrijedno je napomenuti da trenutno postoji nedostatak validiranih modela e-supervizija, te je stoga ova studija koristila eksperimentalni model nazvan Suportativni model elektronskih supervizija (SMeS). Iako je model SMeS obećavajući, potrebno je daljnje testiranje s većim uzorkom i jasnije definiranim postupcima.

supervisees, but also provided opportunities for growth and unique learning moments for international supervisors (45). Similar studies have also discussed the importance of building international connections through supervision, presenting opportunities for positive experiences, growth and development (1, 37). E-supervision can effectively reach areas with limited resources or those affected by disasters, where nearby professional support may not be available (1). In these international settings, it is likely that the involved parties have never met in person. However, the methodology and results of the studies did not explicitly clarify whether the supervisors and supervisees had met before engaging in e-supervision.

Finally, it is important to mention the one and only study (32) the methodology of which included the question of whether previous contact and relationship is actually necessary for successful e-supervision. The aim of this study was to examine how initial in-person contact and written feedback affect the effectiveness of RE&CBT e-supervisions. The psychotherapeutic and supervisory modalities that were employed were specified in this study, which is rare, but is also a shortcoming of most studies within this field. The study involved two groups: a control group that had one in-person meeting at the beginning, and an experimental group that conducted the entire supervision process online. A total of five supervisees completed ten e-supervision sessions over a period of six months. Both groups scored above average on the Supervisory Working Alliance Inventory and on the Supervisor Satisfaction Questionnaire. Additionally, the study indicates that a single in-person contact does not significantly affect e-supervision satisfaction or the working alliance. It is worth noting that there is currently a lack of validated e-supervision models, and this study utilized an experimental model called the Supportive Model of Electronic Supervision (SMeS). While the SMeS model showed promise, further testing with a larger sample and more clearly defined procedures is necessary.

BUDUĆI TRENDOVI

Iako autori mogu imati svoje preferencije u vezi s prethodnim odnosima ili kontaktima u e-supervizijama, nekoliko prethodnih studija (17,21,33,34,36,43,48) kao i više nedavnih studija (8,11,18,29,30,32,42) naglasile su važnost istraživanja ovog neodgovorenog pitanja u budućim studijama.

Tarlow i sur. (11) su koristeći nacrte za studije slučaja s različitim vremenskim točkama uvođenja tretmana demonstrirali učinkovitost telefonskih i videokonferencijskih supervizija u usporedbi sa supervizijama licem u lice. Ova je studija poput pionirskog rada Gammona i sur. (17) već imala kontakt licem u lice prije e-supervizija. U svjetlu ovih otkrića Tarlow i sur. (11) identificirali su potrebu da buduća istraživanja e-supervizija ponude prioritet ispitivanju učinkovitosti supervizija bez početnih kontakata licem u lice.

U svojoj studiji Reese i sur. (43) uspoređivali su skupine koje su bile podvrgnute naizmjeničnoj superviziji licem u lice i videokonferencijskoj grupnoj superviziji te su zaključili da su zadovoljstvo supervizijom i supervizijski odnos slični u oba modaliteta. Ovi su nalazi dodatno potkrijepljeni kvalitativnim podatcima iz prethodnih studija (17,24), koji su ukazali da su potrebe polaznika adekvatno riješene i u videokonferencijskim supervizijama. Međutim, Reese i sur. (43) priznaju da određeni aspekti e-supervizija ostaju neistraženi. Konkretno, primijetili su izazov generaliziranja i naveli da buduća istraživanja trebaju odgovoriti na pitanje kako bi se početnici ili novi stručnjaci osjećali kada bi imali supervizije koje se pretežno ili u potpunosti temelje na videokonferencijskim supervizijama.

Phillips i sur. (8) sugeriraju da bi buduća istraživanja trebala ne samo istraživati utjecaj unaprijed uspostavljenih odnosa licem u lice na e-superviziju, već i istražiti razlike između terapeuta početnika i naprednijih starijih terapeuta u edukaciji. Slično, Deane i sur. (49) istaknuli su

FUTURE TRENDS

Even though authors may have their preferences when it comes to prior relationships or contact in e-supervision, several previous studies (17, 21, 33, 34, 36, 43, 48), as well as multiple recent studies (8, 11, 18, 29, 30, 32, 42) have emphasized the importance of exploring this unanswered question in future studies.

Using multiple baseline case study designs, Tarlow et al. (11) demonstrated the effectiveness of telephone and videoconferencing supervisions compared to in-person supervisions. In this study, like in the pioneering work of Gammon et al. (17), there was pre-existing in-person contact before e-supervision. In light of these findings, Tarlow et al. (11) identified the need for future e-supervision research to prioritize examining the effectiveness of supervisions without any initial in-person contacts.

In their study, Reese et al. (43) compared groups that underwent alternating in-person and videoconferencing group supervisions, and they concluded that satisfaction with supervision and the supervisory relationship were similar in both modes. These findings were further supported by qualitative data from previous studies (17, 24), which indicated that trainees' needs were adequately addressed in videoconferencing supervisions as well. Reese et al. (43), however, acknowledge that certain aspects of e-supervision remain unexplored. In particular, they noted the challenge of generalizability and stated that future research should address the question of how novices or new professionals would feel if they had supervisions that were predominantly or entirely based on videoconference supervisions.

Phillips et al. (8) suggest that future research should not only investigate the impact of pre-established in-person relationships on e-supervision, but should also explore the differences between novice therapists and more advanced senior therapists in training. Similarly, Deane et al. (49) highlighted the rarity of studies that exclusively focus on e-supervision without any in-person contact. Additionally, Chapman et al.

rijetkost studija koje se isključivo fokusiraju na e-supervizije bez ikakvog kontakta licem u lice. Dodatno, Chapman i sur. (21) postavili su isto pitanje: Koje su implikacije kada supervizoru nedostaje prethodno iskustvo sa supervizijom licem u lice?

Narativni izvještaji ili meta-studije često su izvori koji podržavaju sklonost odnosima lice u lice ili kontaktima prije e-supervizija, a ne izvorni eksperimenti. Kao što smo ranije zaključili meta-studije često izjednačavaju telefonske i videokonferencijske supervizije, što može navoditi na pogrešne zaključke. Nekoliko studija savjetovanja (17,24,43,46) koje su provodile kontrolirane eksperimente videokonferencijske e-supervizije i još uvijek zagovarale kontakt licem u lice nisu uključile prisutnost ili odsutnost kontakta kao nezavisnu varijablu u svojim nacrtima. Tim eksperimentima nedostajale su informacije o e-supervizijama koje se provode isključivo putem interneta. Međutim, autori poput Phillipsa i sur. (8) priznali su postojanje obje strane priče i prepoznali potencijalne nedosljednosti naglašavajući potrebu za daljnjim istraživanjem prije donošenja čvrstih zaključaka.

Irvin Yalom (50) također je priznao da je bio zabrinut, pa je imao čak i odbojnost prema elektronskom radu, no nakon što je dobio priliku, saznao je da e-psihoterapija i e-supervizija za neke klijente i supervizante može biti iznimno korisna: "S njezinim licem koje je ispunjavalo zaslon mog računala počeo sam osjećati njezinu blizinu i u vrlo kratkom vremenu činilo se da su tisuće milja koje su nas dijelile nestale" (str. 249).

PRAKTIČNE SMJERNICE ZA e-SUPERVIZIJE

Nakon sumiranja dosadašnje literature važno je ponuditi određene dodatne praktične smjernice za sve stručnjake koji sudjeluju u e-supervizijama, pogotovo ako se isključivo radi elektronski, bez upoznavanja licem u lice tijekom

(21) raised the same question: What are the implications of a situation when the supervisor lacks prior experience with in-person supervision?

Narrative reports or meta-studies are often the sources supporting the preference for in-person relationships or contact prior to e-supervision, rather than original experiments. As we concluded earlier, meta-studies often equate telephone supervisions and videoconferencing supervisions, which may be misleading. Several counseling studies (17, 24, 43, 46) that conducted controlled videoconferencing e-supervision experiments and still advocated for in-person contact did not include the presence or absence of contact as an independent variable in their designs. These experiments lacked information on e-supervisions conducted exclusively online. However, authors like Phillips et al. (8) acknowledged the existence of both sides of the story and recognized potential inconsistencies, emphasizing the need for further research before drawing firm conclusions.

Irvin Yalom (50) also admitted that he had concerns, and even felt an aversion toward online work, but after he gave it a chance, he learned that e-psychotherapy and e-supervision can be extremely beneficial for some clients and supervisees: "With her face filling my computer screen, I began to feel close to her, and within a very short time, the thousands of miles separating us seemed to evaporate" (p. 249).

PRACTICAL GUIDELINES FOR e-SUPERVISION

After summarizing the existing literature, it is important to offer additional practical guidelines for all professionals participating in e-supervision, especially if the work is conducted exclusively online and without any in-person interaction during any part of the supervisory process. It is crucial to emphasize that this paper does not advocate for one form of supervision to completely replace another. A more important message would be that no form of supervision should be considered inferior to another, at least with regard to individual

bilo kojeg segmenta supervizorskog procesa. Iznimno je važno naglasiti da ovaj rad ne zagovara da i jedan oblik supervizija potpuno zamijeni drugi oblik rada. Važnija bi poruka bila da se ni jedan oblik rada jedan pored drugog ne bi trebao smatrati inferiornim, barem što se tiče individualnih supervizija. Svaki oblik rada treba prepoznati kao jedinstven, ali opet s brojnim sličnostima poput dva brata blizanca i koristiti u skladu s kontekstom i uzajamnih potreba uključenih strana u supervizorski proces. Prvo je potrebno educirati trenutne supervizore o svim prednostima, ali i nedostatcima elektronskog rada. Ne treba pretpostavljati da se radi o identičnom kontekstu rada. Isti ti supervizori bi tijekom procesa psihoedukacije supervizanata unutar odgovarajućih modaliteta trebali u obavezni program uključiti edukaciju kako o e-psihoterapiji, tako i o e-supervizijama.

U supervizorskom procesu supervizant se većinom mora prilagođavati obliku rada supervizora. Supervizori većinom imaju unaprijed definiran oblik rada i uklapaju supervizante u dati kalup, bez obzira radi li se o supervizijama licem u lice ili e-supervizijama. Tako supervizori mogu preferirati djelomično preslušavanje seanse bez prilike za potpuno preslušavanje ili isključivo grupne supervizije bez individualnih supervizija. Na taj način supervizanti ostaju uskraćeni za određeno iskustvo i veće su šanse da mogu napraviti određene greške i možda čak potencijalno indirektno nauditi klijentima ili barem ne pružiti najbolju moguću uslugu. Vjerujemo da zbog izlaganja različitim oblicima rada tijekom edukacije može doći do transfera vještina iz supervizorskog procesa u terapijski. Supervizor bi trebao stvoriti dovoljno siguran prostor u supervizijama da se supervizant osjeća sigurnim iznijeti svoje ideje, mišljenje i potencijalne kritike te ih u skladu s mogućnostima edukacije primijeniti. Neposredno nakon završetka svake supervizije supervizant bi trebao ocijeniti rad supervizora na osnovi nekoliko stavki, na primjer ukupni dojam i stupanj zadovoljstva s datom supervizijom, izraženost

supervisions. Each form of work should be recognized as unique, but with numerous similarities, like two fraternal twins, and should be used in accordance with the context and mutual needs of the parties involved in the supervisory process. First, current supervisors should be educated about all the advantages and disadvantages of electronic work. It should not be assumed that it is an identical work context. In the course of the psychoeducation process of supervisees within appropriate modalities, these same supervisors should include education on both e-psychotherapy and e-supervision into the mandatory programs.

In the supervisory process, supervisees must typically adapt to the supervisors' working styles. Supervisors usually have a pre-defined way of working and fit supervisees into that mold, whether this concerns in-person supervision or e-supervision. As a result, supervisors may prefer partial listening of a session without the opportunity for complete listening, or exclusively group supervisions without individual supervisions. In this way, supervisees are deprived of certain experiences, and there is a greater chance that they might make certain mistakes or potentially indirectly harm clients or at least not provide the best possible service. We believe that skills can be transferred from the supervisory process to therapy due to exposure to different work modalities during training. The supervisor should create a safe enough space during supervision for the supervisees to feel comfortable expressing their ideas, opinions and potential criticisms, and apply them in accordance with educational opportunities. Immediately after each supervision, the supervisee should assess the supervisor's work based on several items, such as overall impression and degree of satisfaction with the subject supervision, the extent to which it focused on the supervisee's goals, suggestions for future supervision, and similar. We believe that assessments can be more honest in an electronic context by using pre-prepared evaluation sheets, because they can be completed literally a few minutes after completing e-supervision, as opposed

koliko se radilo na supervizantovim ciljevima, prijedlog za sljedeće supervizije i slično. Smatramo da ocjenjivanje može biti iskrenije u elektronskom kontekstu pomoću unaprijed pripremljenih evaluacijskih listova, jer se može ocijeniti doslovno nekoliko minuta nakon završene e-supervizije, za razliku od supervizije licem u lice gdje bi se supervizant trebao izložiti pisanju evaluacije ili popuniti elektronsku evaluaciju nakon što ima pristup internetu.

Pandemija je natjerala i najveće skeptike da se izlože radu na daljinu. Izlaganjem dolazi do promjene stava, mogli bismo čak reći i predrasuda prema e-supervizijama. Predlažemo da tijekom psihoterapijske edukacije unutar odgovarajućih modaliteta supervizanti imaju minimalan broj kako supervizija licem u lice, tako i e-supervizija. Na ovaj način supervizanti se mogu efikasnije spremiti za suvremeni kontekst rada u psihoterapiji. Dodatno imaju priliku da iskustveno testiraju svoja uvjerenja i formiraju stav u skladu sa svojim iskustvom. To isto može vrijediti za terapeute koji i nakon klasične psihoedukacije pohađaju supervizije, bilo za potrebe reakreditacije unutar odgovarajuće udruge bilo u kontekstu radne organizacije. Minimalnim brojem kako licem u lice supervizija, tako i e-supervizija u odgovarajućem razdoblju uz otvoreni poziv za razgovor o ovoj temi, supervizanti, ali i certificirani praktičari, imaju priliku osvijestiti i unaprijediti cjelokupno supervizorsko iskustvo. Isto kao što bi trebao biti minimalni broj sati supervizija kako licem u lice, tako i elektronski, smatramo da je važno postaviti minimalnu kvotu psihoterapijskih sati koje supervizant treba odraditi kako licem u lice s klijentom, tako i u elektronskom kontekstu, ne nužno s istim klijentom te uz suglasnost klijenata. Supervizanti trebaju biti svestrani i imati barem minimalno iskustvo u raznim oblicima rada, a to jedino mogu postati, ako su i njihovi supervizori svestrani i fleksibilni. Na taj se način supervizanti mogu efikasnije adaptirati i pripremiti za suvremeni kontekst rada. Tijekom supervizija bi se raspravljalo o različitim kontekstima rada.

to in-person supervision where the supervisee would need to provide a written evaluation or fill out an electronic evaluation once they have access to the Internet.

The pandemic has forced even the most skeptical individuals to open themselves up to remote work. Such exposure leads to a change in attitude, and we could even say a change in bias, towards e-supervision. We propose that during psychotherapy education within appropriate modalities, supervisees should have a minimum number of both in-person supervisions and e-supervisions. This way, supervisees can prepare more efficiently for the modern work context in psychotherapy. Additionally, they have the opportunity to experientially test their beliefs and form their attitudes in line with their experience. This can also apply to therapists who continue to attend supervisions even after standard psychoeducation, either for reaccreditation purposes within the appropriate association or in the context of work organization. With a minimum number of both in-person supervisions and e-supervisions over an appropriate period, and with an open invitation to discuss this topic, the supervisees, as well as certified practitioners, have the opportunity to reflect on and improve their overall supervisory experience. Just as there should be a minimum number of hours of supervision, both in-person and electronic, we believe it is important to set a minimum quota of psychotherapy hours that a supervisee should conduct, both in-person with clients and in an electronic context - not necessarily with the same clients, and with client consent. Supervisees need to be versatile and have at least minimal experience in various forms of work, which they can only gain if their supervisors are versatile and flexible. This way, supervisees can adapt more effectively and can prepare for the modern work context. During supervisions, various work contexts should be discussed.

When discussing supervision, it is important to emphasize the difference between individual and group supervisions. We believe that individual supervisions can be successfully transformed into e-supervisions with appropriate education,

Prilikom razgovora o supervizijama važno je naglasiti razliku između individualnih i grupnih supervizija. Smatramo da se individualne supervizije mogu veoma uspješno transformirati u e-supervizije uz odgovarajuću edukaciju, bilo osnovnim programom edukacije ili tijekom uvodne supervizije i razgovora u okviru supervizorskog ugovora. Individualne e-supervizije omogućavaju tijekom cijelog razgovora fokus na jednom supervizantu. Vjerujemo da grupne e-supervizije traže dodatni fokus kako supervizora tako i supervizanta. Veličina grupe je važna za bilo koji oblik grupne supervizije, ali pogotovo u elektronskom kontekstu. Svakim novim supervizantom u grupnim e-supervizijama proporcionalno može biti teže održavati pažnju sudionika. Supervizor bi trebao ohrabriti supervizante da drže uključenu kameru tijekom cijele supervizije. Na taj se način može smanjiti mogućnost za distrakciju i povećati fokus supervizanata. Supervizanti koji iznose studije slučaja u grupnim e-supervizijama mogu izgubiti pojam o vremenu i važno je da supervizor relativno ograniči vrijeme izlaganja kako bi uključio što veći broj supervizanata. Supervizanti koji su introvertirane prirode mogu biti manje spremni da se bore za riječ sa svojim ekstrovertnim kolegama u elektronskom kontekstu. Perceptivni supervizor bi trebao osjetiti grupnu dinamiku i uključiti sve članove grupe barem jednom tijekom grupne e-supervizije. Upravo se manjim brojem sudionika ovaj cilj može i ostvariti. Smatramo da bi se grupne e-supervizije trebale kombinirati s bilo kojim oblikom individualnih supervizija, pogotovo zbog introvertiranih supervizanata s ciljem jačanja supervizorskog odnosa.

Supervizori bi trebali iskoristiti sve mogućnosti elektronskog rada. U početku supervizantima može trebati veći nadzor tako da potpuno preslušavanje seanse uz pisane komentare i dodatni sastanak može pružiti širinu i bolje ih spremiti za psihoterapijsku seansu. U nastavku se može prijeći na djelomično preslušavanje, jer

whether through a basic educational program or during the introductory supervision and discussions as part of the supervisory contract. Individual e-supervisions allow for a continuous focus on one supervisee throughout the session. We believe that group e-supervisions require additional focus both from the supervisor and the supervisees. The size of the group is crucial for any form of group supervision, especially in the electronic context. With each new supervisee in group e-supervision, it can proportionally become more challenging to maintain participants' attention. Supervisors should encourage supervisees to keep their cameras on during the entire supervision session. This can reduce the possibility of distraction and enhance the focus of supervisees. Supervisees presenting case studies in group e-supervisions can lose track of time, therefore it is important for the supervisor to relatively limit the time to include as many supervisees as possible. Introverted supervisees may be less inclined to speak up in an electronic context, particularly when competing with their extroverted peers. A perceptive supervisor should sense the group dynamics and involve all group members at least once during group e-supervision. This goal can be achieved more effectively with a smaller number of participants. We believe that group e-supervisions should be combined with any form of individual supervision, especially for introverted supervisees in order to strengthen the supervisory relationship.

Supervisors should make the most of all of the opportunities offered by electronic work. Initially, supervisees may require more supervision, so a complete review of the session with written comments and additional meetings can provide depth and better prepare them for the psychotherapeutic session. As the process continues, partial reviewing may be implemented, as we believe that excessive control can also be counterproductive to the development of supervisees. Finally, in the later stages and after experiencing various forms of individual e-supervisions, supervisees should have the option to choose the type of supervision they need in accordance

smatramo da previše kontrole isto tako može biti kontraproduktivno za razvoj supervizanata. Konačno, u daljem radu, nakon što su iskusili razne oblike individualnih e-supervizija, supervizanti bi trebali imati mogućnost biranja koji oblik supervizije im je potreban u skladu s problematikom koju donose na superviziju. Na ovaj način se može postizati veća nezavisnost supervizanta i potencijalno jačati supervizorski odnos i općenito njihovo samopouzdanje, ali i terapijsku efikasnost. U okviru klasičnih supervizija postoje slučajevi kada supervizanti rade s direktnim instrukcijama supervizora koji ih većinom promatra preko jednostranog stakla i daje instrukcije putem bubice u uho. Uz suglasnost klijenta, pri e-supervizijama ovaj proces može biti još efikasniji, gdje supervizor može doslovno ponuditi određena tekstualna pitanja koje supervizant može upitati klijenta. Tijekom e-supervizija, uz prethodnu suglasnost klijenata, može se pregledavati i video snimku s klijentom što može ponuditi dodatne informacije o govoru tijela klijenta i supervizanta.

Neki autori (42,51) su predložili da je u e-supervizijama potrebno obratiti dodatnu pažnju izgradnji snažnijeg supervizorskog odnosa, pogotovo jer pregledni radovi (30,31) o toj temi naglašavaju da i dalje nešto nedostaje e-supervizijama, ali nisu sigurni što je to točno. Smatramo da upravo kada ne postoji nikakav kontakt licem u lice, odnos dolazi do posebnog izražaja i zaslužuje posebnu pažnju.

Pregledna literatura supervizorskog odnosa (42) navodi da kvantitativno nema razlike što se tiče skorova odnosa kada se usporede supervizije licem u lice i e-supervizije, ali vodeći se opažanjem da supervizanti navode da postoji određena nedefinirana razlika, smatramo da je iznimno važno staviti dodatni akcent na odnos od prve uvodne e-supervizije, pogotovo ako će odnos ostati isključivo elektronski. Odnos se može jačati na različite načine. Novija literatura supervizija naglašava važnost određenih konstrukata kao što su poniznost (52,53) i su-

with the issues they bring into supervision. This way, greater independence can be achieved for the supervisee, potentially strengthening the supervisory relationship, their self-confidence, and overall therapeutic effectiveness. In traditional supervisions, there are cases where supervisees work with direct instructions from the supervisor, who primarily observes them through a one-way mirror and provides instructions through an earpiece. With the client's consent, this process can be even more efficient in e-supervision, where the supervisor can literally offer specific textual questions that the supervisee can ask the client. During e-supervision, with prior consent from the clients, video recordings with the client can later be reviewed, providing additional information about the body language of both the client and the supervisee.

Some authors (42, 51) have suggested that during e-supervisions additional attention should be paid to building a stronger supervisory relationship, especially since review papers (30, 31) on this topic emphasize the fact that something is still missing in e-supervisions, but they are not sure what exactly it is. We believe that, especially when there is no in-person contact, the relationship takes on special significance and deserves special attention.

Review literature focusing on the supervisory relationship (42) indicates that there is no quantitative difference in relationship scores when comparing in-person supervisions and e-supervisions. However, considering that supervisees report a certain undefined difference, we believe that it is extremely important to put additional emphasis on the relationship from the first introductory e-supervision, especially if the relationship will remain exclusively electronic. The relationship can be strengthened in various ways. Recent supervision literature emphasizes the importance of certain constructs such as humility (52, 53) and compassion (54, 55) in supervision, which can have a beneficial effect on the supervisory relationship. Cultural, relational and intellectual humility of the supervisor should represent the cornerstones of the super-

osjećanje (54,55) u supervizijama koji se mogu dovesti u pozitivan odnos sa supervizorskim odnosom. Kulturološke, relacijske i intelektualne poniznosti supervizora trebale bi biti stupovi supervizorskog procesa (52,53). Važno je naglasiti da pri radu na internetu može doći do pojave *online* dezinhibicije (56) što omogućuje sudionicima da se iskrenije i otvorenije izraze. Supervizije su upravo većinom namijenjene novijim generacijama odnosno digitalnim urođenicima koji već preferiraju takav stil komunikacije. Emocionalne i ponašajne kočnice postaju manje restriktivne. Supervizijske dijade koje vrednuju emocionalni i podržavajući aspekt supervizije mogu iskoristiti ovu dinamiku kako bi ojačali svoj supervizorski odnos. S druge strane, supervizori koji teže strogo formalnom i profesionalnom načinu komunikacije mogu naići na izazove u vezi s ovom vrstom komunikacije, jer e-supervizija može oslabiti hijerarhijsku strukturu, odnosno odnos između nadređenog i podređenog (57). Smatramo da ravnopravniji i otvoreniji odnos između supervizora i supervizanta, uz poštivanje profesionalnih granica može potaknuti nove teme za razgovor.

Osim obaveznog razgovora o elektronskom kontekstu rada već od uvodne e-supervizije, supervizori bi dodatno trebali pružiti jednu dozu fleksibilnosti, na primjer pri ugovaranju termina navesti nekoliko slobodnih termina u koje se supervizant može uklopiti. Osnovna funkcija supervizija jest edukacija, ali to ne znači da restorativne faktore treba zanemariti. Efikasna e-supervizija nije slučajnost već u velikoj mjeri ovisi o snažnom odnosu koji služi kao temelj. Ključna komponenta uspjeha leži u tome koliko je supervizor svjestan i perceptivan te kako na vrijeme prepoznaje potrebe supervizanta reagirajući na njih na odgovarajući način prije nego što mogu negativno utjecati na supervizorski proces i ishod terapije s klijentima. Bez ulaženje u oblast terapije, smatramo da bi supervizor u elektronskom kontekstu trebao obraćati dodatnu pažnju mislima i emocijama koje se

visory process (54, 55). It is important to note that when working online, online disinhibition (56) can occur, allowing participants to express themselves more honestly and openly. Supervision is mainly intended for younger generations, i.e. digital natives who already prefer this style of communication. Emotional and behavioral inhibitions become less restrictive. Supervisory dyads that value the emotional and supportive aspect of supervision can use this dynamic in order to strengthen their supervisory relationship. On the other hand, supervisors who lean towards a strictly formal and professional mode of communication may encounter challenges with this type of communication because e-supervision can weaken the hierarchical structure, i.e. the relationship between the superior and the subordinate (57). We believe that a more egalitarian and open relationship between the supervisor and supervisee, while respecting professional boundaries, can stimulate new topics of discussion.

In addition to the obligatory discussion concerning the electronic work context starting from the introductory e-supervision, supervisors should provide a dose of flexibility, so for example, when scheduling appointments, they should list several available time slots that the supervisee can accommodate to. The primary function of supervisions is education, but that does not mean that restorative factors should be neglected. Effective e-supervision is not a coincidence, but depends largely on a strong relationship that serves as a foundation. The key component of success lies in the awareness and perceptiveness of the supervisor and their timely recognition of the supervisee's needs, reacting to them appropriately before they can negatively impact the supervisory process and the outcome of therapy for clients. Without encroaching on the domain of therapy, we believe that in an electronic context the supervisor should pay extra attention to the thoughts and emotions that may arise during the therapeutic process, but also during the supervision process. Within the framework of the aforementioned Supportive Model of Electronic

mogu pojaviti tijekom terapijskog procesa, ali i samog procesa supervizije. U okviru prethodno spomenutog Suportativnog modela elektronskih supervizija (SMeS) sudionici eksperimenta su u okviru post-intervjua upravo naglasili da je responzivnost na njihove potrebe i istinska zainteresiranost te posvećenost supervizora za njihov profesionalni i osobni razvoj bio najinovativniji i najbolji element odrađenih supervizija (32). Sve to treba biti usklađeno s unaprijed dogovorenim standardima supervizijskog ugovora kako ne bi prešlo u oblast terapije. U slučaju da e-supervizije isključivo ostanu na elektronskom odnosu, zalažemo se za jedan odnos koji treba biti podržavajući, fleksibilniji, ravnopravniji i zasnovan na iskrenoj zainteresiranosti, suosjećanju i poniznosti supervizora. Ovakav pristup e-supervizijama bi mogao potencijalno pozitivno djelovati na jačanje profesionalne kvalitete života superviziranih, odnosno preventivno djelovati na pojavu simptoma sagorijevanja i sekundarnog traumatskog stresa, ali isto tako povećati zadovoljstvo zbog suosjećanja kod praktičara. Fizička daljina ne mora nužno biti emocionalna daljina.

OGRANIČENJA I PREPORUKE ZA BUDUĆE STUDIJE

Nedostatak ove studije je ograničeni broj dostupnih članaka koji istražuju ovu temu, što je dodatno otežano nepotpunim objavljivanjem relevantnih informacija o uvjetima e-supervizija nekih autora. Inman i sur. (30) već su istaknuli tendenciju zanemarivanja određenih aspekata e-supervizija pri izvještavanju o detaljima metodologije. Moguće je da su se druge prethodne studije neizravno bavile glavnim pitanjem ove studije potvrđujući ga ili osporavajući, ali njihov naglasak na ovom aspektu nije bio dovoljan da omogući njihovu identifikaciju i evaluaciju. Pri pregledu literature e-supervizija, ali i klasičnih supervizija, uočavamo da istraživači veoma rijetko navode na osnovi kojeg su psihotera-

Supervision (SMeS), in their post-interviews the participants in the experiment highlighted that responsiveness to their needs and genuine interest and dedication of the supervisors to their professional and personal development were the most innovative and finest elements of the supervisions conducted (32). All of this should be in line with pre-agreed standards of the supervisory contract, in order to avoid crossing into the domain of therapy. If e-supervisions exclusively remain in the form of an electronic relationship, we advocate for a relationship that should be supportive, more flexible, egalitarian and based on genuine interest, compassion and humility of the supervisor. Such an approach to e-supervisions could potentially have a positive effect on strengthening the professional quality of life of the supervisees, i.e. it could prevent the appearance of symptoms of burnout and secondary traumatic stress, but could also increase satisfaction due to the compassion of practitioners. Physical distance does not necessarily have to mean emotional distance.

LIMITATIONS AND RECOMMENDATIONS FOR FUTURE STUDIES

A shortcoming of this study is the limited number of available articles investigating the topic, compounded by incomplete disclosure of relevant information regarding e-supervision conditions by some authors. Inman et al. (30) have previously highlighted the tendency to overlook certain aspects of e-supervision when reporting methodology details. It is possible that other previous studies have indirectly addressed the main question of this study, either confirming or challenging it, but their emphasis on this aspect was not sufficient to allow for their identification and evaluation. When reviewing the literature on e-supervision, as well as traditional supervision, it is apparent that researchers very rarely specify the psychotherapeutic modality on the basis of which both supervisory and

pijskog modaliteta rađene kako supervizorske tako i psihoterapijske seanse. Nedostatak ovog podatka dodatno otežava generaliziranje rezultata. Ne pronalazimo istraživanja u kojima se navodi koji oblik rada su supervizanti radili s klijentima, odnosno licem u lice ili elektronski te usporedba s oblikom supervizije koju su dobili, odnosno klasična supervizija licem u lice ili e-supervizijama. Buduća istraživanja bi se trebala fokusirati i na ovo pitanje.

Istraživač koji provodi ovu studiju predviđa daljnji rast e-supervizija usklađujući se sa širenjem drugih modaliteta e-medicine u bliskoj budućnosti. Za buduće studije e-supervizija bitno je osigurati transparentnost u vezi s uspostavljanjem prethodnog kontakta licem u lice između supervizanta i supervizora. Nadalje, studije bi trebale istražiti rezultate randomiziranih kontroliranih ispitivanja e-supervizija, uspoređujući intervencije s kontaktom licem u lice ili bez takvog kontakta. Kako bi se steklo sveobuhvatno razumijevanje, buduća istraživanja bi trebala ispitati ove hipoteze na različitim generacijama polaznika. Nadalje, buduća istraživanja trebala bi uključivati međunacionalne kliničke supervizije, koje obično potpuno isključuje prethodnu interakciju licem u lice. S obzirom da nemamo čvrste dokaze da supervizije zaista djeluju na poboljšani ishod za klijente i pacijente, buduća bi se istraživanja trebala usmjeriti na tetradne i trijadne supervizorske studije slučaja. U okviru e-supervizija trijadni procesi bi bili supervizije u kojima se istovremeno prati efekt supervizija na supervizante, uz praćenje ishoda klijenta. Tetradni supervizorski proces bi dodatno uključio i supervizije supervizora u cijeli proces. Isto tako, umjesto fokusa na supervizorski odnos i zadovoljstvo supervizija kao mjere učinkovitosti supervizija, bilo bi poželjno tijekom edukacije ispitivati i pratiti ključne psihoterapijske kompetencije supervizanata. Navedeni praktični savjeti za e-supervizije iz prethodnog poglavlja bi se dodatno trebali eksperimentalno testirati.

psychotherapeutic sessions were conducted. The absence of this information further complicates the generalizability of the results. We cannot find studies that indicate which work format the supervisees used to work with their clients, i.e. in-person or electronic, or a comparison with the form of supervision they received, whether it was traditional in-person supervision or e-supervision. Future research should focus on these issues as well.

The researcher who conducted this study anticipates further growth in e-supervisions, aligning with the expansion of other e-medicine modalities in the near future. It is essential for future studies concerning e-supervision to provide transparency when it comes to establishing an in-person pre-existing contact between the supervisee and supervisor. Additionally, studies should explore the results of randomized controlled trials on e-supervision, comparing interventions with and without in-person contact. In order to gain a comprehensive understanding, future research should examine these hypotheses across different generations of trainees. Furthermore, future studies should include international clinical supervision, which typically excludes prior in-person interactions entirely. Given that we lack solid evidence that supervision indeed leads to improved outcomes for clients and patients, future research should focus on tetradic and triadic supervisory case studies. Within the context of e-supervision, triadic processes would involve supervisions where the effects on supervisees are monitored simultaneously, alongside tracking client outcomes. Tetradic supervisory processes would further include supervision of the supervisor in the entire process. Additionally, instead of focusing solely on the supervisory relationship and supervisee satisfaction as measures of supervision effectiveness, it would be desirable to assess and monitor key psychotherapeutic competencies of supervisees during their training. The abovementioned practical recommendations for e-supervision referred to in the previous chapter should be further experimentally tested.

ZAKLJUČAK

Ova studija zaključuje da vjerojatno nije potrebno pridržavati se zastarjelih paradigmi koje naglašavaju potrebu za prethodnim kontaktom ili uspostavljenom odnosu u e-supervizijama. Prethodne studije samo su kratko spomenule ili predstavile alternativnu perspektivu o ovom aspektu u okviru svoje metodologije i rasprave. Međutim, pet novijih studija (18,29,32,46,47) proturječi zastarjelim smjernicama i percipiranoj nužnosti prethodnog kontakta u e-supervizijama. Osim toga, više prethodnih studija preporučilo je daljnje istraživanje ove teme u budućim istraživanjima.

Ova tema zahtijeva suvremeni pristup u novom kontekstu, posebno u svjetlu globalne revolucije digitalne psihoterapije i supervizije koju je donio COVID-19 (7). Osim tehnološkog napretka, i supervizori i, što je još važnije, supervizanti imali su vremena za privikavanje na okruženje internetom, što bi moglo značajno utjecati na ocjenu ishoda e-supervizija.

Studije pokazuju da općenito nema značajne razlike između supervizija licem u lice i e-supervizija, osobito kada se koristi videokonferencija. Važno je priznati da usporedba tradicionalnih telefonskih supervizija, koje datiraju unatrag 150 godina, s modernim i brzo napredujućim videokonferencijskim sesijama nije primjerena. Većina studija koje zagovaraju prethodni kontakt također su relativno zastarjele, postoje 10 do 25 godina. Kako napredujemo, pojavljuje se nova generacija digitalnih urođenika, uključujući i supervizore i supervizante. Kada se upoznaju s postavkama e-supervizija i iskusni i početnici supervizori i supervizanti imaju tendenciju brze prilagodbe. Ključno je napomenuti da ova studija ne zagovara da svaki supervizor radi isključivo na daljinu. Međutim, naglašava potrebu za podatcima kako bi se razumjelo je li ovaj model pristupačniji određenim supervizantima i supervizorima, čime se stručnjacima omogućuje da dosegnu više pojedinaca i pruže optimalnu brigu o klijentima. Iako, barem u

CONCLUSION

This study concludes that it is probably not necessary to adhere to outdated paradigms that emphasize the need for prior contact or established relationships in e-supervision. Previous studies have only briefly mentioned or presented an alternative perspective on this aspect in their methodology and discussion sections. However, five recent studies (18, 29, 32, 46, 47) contradict these outdated guidelines and the perceived necessity of prior contact in e-supervision. Additionally, multiple previous studies have recommended further exploration of this topic through future research.

This topic warrants a contemporary approach within a new context, particularly in light of the global digital psychotherapy and supervision revolution brought about by COVID-19 (7). In addition to technological advancements, both supervisors and, more importantly, supervisees have had time to acclimate to the online environment, which could significantly impact the assessment of e-supervision outcomes.

Studies indicate that there is generally no significant difference between in-person supervisions and e-supervisions, particularly when using the videoconferencing method. It is important to acknowledge that a comparison of traditional telephone supervision, which dates back 150 years, with modern and rapidly advancing videoconferencing sessions is not appropriate. The majority of studies that advocate prior contact are also relatively outdated, ranging from 10 to 25 years old. As we move forward, a new generation of digital natives, which includes both supervisors and supervisees, is emerging. When introduced to e-supervision settings, both experienced and novice supervisors and supervisees tend to adapt quickly. It is crucial to note that this study does not advocate for every supervisor to exclusively work remotely. However, it emphasizes the need to collect more data in order to understand if this model is more accessible to certain supervisees and supervisors, thereby enabling professionals to reach more individuals and provide optimal

ovom trenutku, možda nemamo dovoljno podataka da opovrgnemo nužnost prethodnog kontakta u e-supervizijama, suvremeni trendovi i spoznaje pokazuju da prethodni kontakt nema značajnu ulogu, kako se to ranije čvrsto tvrdilo. Umjesto toga, potencijalne koristi e-supervizija mogu biti znatne.

E-supervizije nisu ograničene samo na ruralne sudionike. Zapravo, neke edukacije prešle su isključivo na internet platforme na temelju iskustava stečenih tijekom pandemije. Kao profesionalci, imamo dužnost i odgovornost prema našim klijentima tražiti i kreirati najučinkovitije metode obuke koje će izroditi visoko kvalificirane praktičare. Supervizor, kako su ga opisali Bernard i Goodyear (13), služi kao vratar profesije. No, uz pregled i doček supervizanta kroz fizička vrata tradicionalne supervizije, treba prigrliti i e-generacije i omogućiti im ulazak kroz e-vrata e-supervizije. Tehnologija je neodvojivi segment naših života i moramo se ili prilagoditi njenoj prisutnosti ili se suočiti s posljedicama. Kao što bi zloglasni svemirski osvajači rekli: *Otpor je uzaludan*.

client care. Although at least in this moment we may not have sufficient data to disprove the necessity of prior contact in e-supervision, contemporary trends and findings suggest that prior contact does not play a significant role, as it was firmly asserted earlier. Instead, the potential benefits of e-supervision can be substantial.

E-supervision is not limited only to rural participants. In fact, some training programs have transitioned exclusively to online platforms based on the experiences gained during the pandemic. As professionals, we have a duty and a responsibility to our clients to seek out and create the most effective training methods that will produce highly skilled practitioners. The supervisor, as described by Bernard and Goodyear (13), serves as the gatekeeper of the profession. However, in addition to examining and welcoming supervisees through the physical doors of traditional supervision, we should also embrace the e-generations and allow them to enter through the e-doors of e-supervision. Technology is an inseparable segment of our lives, and we must either adapt to its presence or face the consequences. As the infamous space invaders would say: *Resistance is futile*.

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Kritički osvrt na istraživanja rizičnih ponašanja adolescenata na društvenim mrežama

/ A Critical Review of Research into Adolescent Risky Behavior on Social Networks

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Cilj ovog rada bio je pružiti uvid u neke do sada utvrđene spoznaje o činiteljima rizičnog ponašanja adolescenata na društvenim mrežama, uz kritički osvrt na metodologiju istraživanja u ovom području, kao i preporuke za buduća istraživanja. U radu se razmatraju neki od prediktora rizičnog ponašanja na društvenim mrežama – rod i dob adolescenata, njihova zabrinutost za *online* privatnost, osobine ličnosti, emocionalni i ponašajni problemi te roditeljsko i vršnjačko posredovanje *online* aktivnosti adolescenata. Opisani su i modeli koji su najčešće korišteni u svrhu objašnjenja rizičnog ponašanja adolescenata na društvenim mrežama s naglaskom na model prototipova ili spremnosti na rizično ponašanje koji nastoji objasniti rizična ponašanja koja nisu planirana ni promišljena. Istaknuti su nedostatci dosadašnjih istraživanja koja su se bavila provjerom modela prototipova ili spremnosti na rizično ponašanje za objašnjenje rizičnih ponašanja u *online* kontekstu i obrazložena je potreba za daljnjim istraživanjima. Kao najveća ograničenja navedenih istraživanja ističu se nedostatak razvijenih mjera za procjenu konstrukata, nedostatak longitudinalnih nacrta kao i činjenica da samo mali broj istraživanja uzima u obzir veći broj činitelja potencijalno povezanih s rizičnim *online* ponašanjem adolescenata. Napredak u istraživanjima u ovom području izrazito je važan jer primjena njihovih rezultata može doprinijeti kvaliteti i uspješnosti preventivnih programa namijenjenih sigurnijem *online* ponašanju djece i adolescenata.

/ The aim of this paper was to provide an insight into some of the previously established findings regarding the factors associated with adolescent risky behavior on social networks, with a critical review of the research methodology in this field, as well as recommendations for future research. The paper examines some of the predictors of risky behavior on social networks - gender and age of adolescents, their concerns about online privacy, their personality traits, emotional and behavioral problems, as well as parental and peer mediation of adolescents' online activities. The models that are most often used in order to explain adolescent risky behavior on social networks, with an emphasis on the Prototype Willingness Model, which attempts to explain risky behaviors that are not planned or rational, are explained as well. The shortcomings of previous research dealing with the verification of the Prototype Willingness Model for the explanation of risky behavior in the online context are highlighted, and the need for further research is explained. The lack of developed measures for assessing relevant constructs, the lack of longitudinal designs, as well as the fact that only a small number of studies take into account a larger number of factors potentially associated with adolescent risky online behavior have been stated as the biggest limitations of the previously mentioned research. Research progress in this field is of extreme importance, since the application of obtained results can contribute to the quality and success of preventive programs aimed at safer online behavior of children and adolescents.

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UVOD

Na temelju opsežnog pregleda literature i statističkih pokazatelja uočava se kako su adolescenti sve češći korisnici različitih društvenih mreža (1-4). Cheung i sur. (5) ističu kako društvene mreže korisnicima omogućavaju druženje, komunikaciju i interakciju vezanu uz određenu temu. Lenhart i sur. (6) definiraju društvene mreže kao *online* mjesto na kojem korisnici mogu stvoriti svoj profil i povezati ga s profilima drugih ljudi te tako stvoriti svoju osobnu mrežu poznanstava, a Karal i Kokoc (7) navode *online* društvene mreže kao alat za stvaranje osobne socijalne mreže koja zauzima središnje mjesto u životima adolescenata. U začetcima istraživanja *online* navika adolescenata interes je bio najviše usmjeren na *Facebook*, tada najpopularniju društvenu mrežu, no istraživanje na reprezentativnom uzorku europskih adolescenata pokazalo je kako adeloscenti danas češće koriste *Instagram* i *Snapchat* koji im nude izražavanje prevladavajuće u obliku fotografija i videa (4). Kao najpopularnije društvene mreže među adolescentima u Hrvatskoj trenutno se ističu *Instagram, YouTube, Snapchat* i *TikTok* (1,3).

Adolescenti svakodnevno provode velik dio svog slobodnog vremena *online* te istraživanja (2-4,6) ukazuju na to kako se često susreću s različitim *online* rizicima i upuštaju u rizična *online* ponašanja. Rizično *online* ponašanje

INTRODUCTION

Based on an extensive review of literature and statistical indicators, it can be observed that adolescents are increasingly frequent users of various social networks (1-4). Cheung et al. (5) point out that social networks enable users to socialize, communicate and interact with regard to specific topics. Lenhart et al. (6) define social networks as an online space where users can create their own profile and connect it to other people's profiles, thus creating their personal network of acquaintances, while Karal and Kokoc (7) define online social networks as a tool for creating a personal social network that holds a central place in the lives of adolescents. In the early days of research on the online habits of adolescents, research interest was mostly focused on Facebook, the most popular social network at the time, but research conducted on a representative sample of European adolescents has shown that these days they more often use Instagram and Snapchat, which allow them to express themselves predominantly in the form of photographs and videos (4). The most popular social networks among Croatian adolescents are currently Instagram, YouTube, Snapchat and TikTok (1, 3).

Adolescents spend a large amount of their free time online every day, and various studies (2-4, 6) indicate that they often encounter various online risks and engage in risky online behav-

možemo definirati kao *online* aktivnost koja ima negativne posljedice za osobu koja ga čini, odnosno kao svako *online* ponašanje koje uzrokuje zdravstvenu, profesionalnu, financijsku ili socijalnu štetu (8). Postoje različite definicije i vrste *online* rizika, a prema definiciji autorica Livingstone i Stoilove (9) *online* rizici za djecu i mlade nastaju kada je adolescent izložen potencijalno štetnom *online* sadržaju poput seksualnih ili nasilnih sadržaja; kada je na meti potencijalno ugrožavajućeg *online* kontakta; kada je iskorišten potencijalno štetnim ugovorom poput ugovora o kupnji različitih proizvoda ili sudjeluje u ponašanju koje može biti štetno za njega ili za drugu osobu poput, primjerice, vrijeđanja ili drugih oblika verbalnog nasilja. Budući da istraživanja sugeriraju kako adolescenti većinu vremena kada su *online* provode na društvenim mrežama (1,3,4), istraživanja rizičnog *online* ponašanja adolescenata u svojim početcima fokusirala su se na različite oblike nasilja putem društvenih mreža (npr. vrijeđanje, objavljivanje neistina, slanje neželjenih sadržaja, krađu lozinki, preuzimanje tuđeg identiteta, *online* isključivanje) (6,10,11). U novije vrijeme kao posebni *online* rizici za adolescente ističu se ponašanja kojima oni ugrožavaju svoju *online* privatnost, odnosno privatnost svojih osobnih podataka, a to su komunikacija s nepoznatim osobama i objava sadržaja, osobnih informacija ili fotografija na društvenim mrežama (3,9,12-15). Čini se kako ova ponašanja od strane adolescenata često nisu percipirana kao rizična ponašanja, odnosno adolescenti često nisu svjesni opasnosti koje mogu proizaći iz njih (12-15) te će stoga upravo ona biti predmet ovog rada.

Istraživanja provedena na različitim dobnim skupinama naglašavaju kako su adolescenti populacija najsklonija rizičnom ponašanju na društvenim mrežama, zbog razvojnih obilježja adolescencije kao što su impulzivnost, sklonost podcjenjivanju potencijalnih negativnih posljedica određenog ponašanja te još nedovoljno razvijenih vještina donošenja rizičnih odlu-

iors. Risky online behavior can be defined as an online activity that has negative consequences for the person engaging in it, i.e. as any online behavior that causes health, professional, financial or social damage (8). There are different definitions and types of online risks, and according to the definition of the authors Livingstone and Stoilova (9), online risks for children and young people arise when an adolescent is exposed to potentially harmful online content, such as sexual or violent content; when he/she is the target of a potentially threatening online contact; when he/she is taken advantage of by a potentially harmful contract, such as contract concerning the purchase of certain products or he/she engages in conduct that may be harmful for him/her or another person, such as insults or other forms of verbal violence. Considering that research suggests that adolescents spend most of their online time on social networks (1, 3, 4), studies of adolescent risky online behavior initially focused on different forms of social media violence (e.g., insults, posting falsehoods, sending unwanted content, password theft, identity theft, online exclusion) (6, 10, 11). Nowadays, behaviors that endanger their online privacy, i.e. the privacy of personal data, stand out as particular online risks for adolescents, and these include communication with unknown persons and sharing content, personal information or photographs on social networks (3, 9, 12-15). It seems that these behaviors are often not perceived as risky behaviors by adolescents, that is, adolescents are often unaware of the dangers that can arise from them (12-15), and therefore these behaviors will be the main subject of this paper.

Studies conducted on different age groups emphasize the fact that the adolescent population is the most prone to risky behavior on social networks, due to the developmental characteristics of adolescence such as impulsivity, tendency to underestimate the potential negative consequences of certain behaviors and the

ka (14-16). U istraživanju Steijna i suradnika (14) utvrđeno je kako adolescenti, u usporedbi s ostalim dobnim skupinama, imaju najviše kontakata na profilima društvenih mreža, najskloniji su dodavati nepoznate kontakte na njih, često objavljuju različite sadržaje te rijetko mijenjaju postavke privatnosti svojih profila.

U istraživanjima rizičnih *online* ponašanja adolescenata procjenjuje se povezanost takvih rizičnih ponašanja s individualnim karakteristikama adolescenata; njihovim sociodemografskim karakteristikama (rodom, dobi), osobinama ličnosti, stavovima prema rizičnom ponašanju ili zabrinutosti za privatnost, problemima mentalnog zdravlja (emocionalnim teškoćama, poput depresivnosti i anksioznosti i ponašajnim problemima) te čimbenicima u njihovom socijalnom okruženju (utjecajem roditelja i vršnjaka, usamljenosti i kvalitetom socijalne podrške) (17-22). U ovom radu prikazat ćemo neke rizične čimbenike koji su se najčešće procjenjivali u kontekstu rizičnih ponašanja adolescenata koja podrazumijevaju rizičnu *online* komunikaciju putem društvenih mreža i dijeljenje sadržaja na profilima društvenih mreža. Cilj ovog rada je na temelju pregleda literature dati uvid u neke do sada utvrđene spoznaje o čimbenicima povezanima s rizičnim ponašanjima adolescenata na društvenim mrežama te modelima koji se najčešće koriste u njihovom objašnjenju. U radu se daje kritički osvrt na korištenu metodologiju istraživanja u ovom području, kao i preporuke za buduća istraživanja.

KOMUNIKACIJA PUTEM DRUŠTVENIH MREŽA KAO POTENCIJALNO RIZIČNO PONAŠANJE ADOLESCENATA

Različiti istraživači (3,14,15,18) ističu kako je komunikacija s vršnjačkom grupom najvažniji motiv adolescenata za korištenje društvenih

insufficiently developed risky decision-making skills (14-16). In a study conducted by Steijn et al. (14), it was determined that adolescents, compared to other age groups, have the highest number of contacts on their social network profiles, they are most inclined to add unknown contacts to them, often publish different online content and rarely change the privacy settings of their profiles.

Studies concerning adolescent risky online behavior examine the connection of such risky behaviors with the individual characteristics of adolescents; their socio-demographic characteristics (gender, age), personality traits, attitudes towards risky behavior or privacy concerns, mental health problems (emotional difficulties such as depression and anxiety, and behavioral problems) and factors in their social environment (influence of parents and peers, loneliness and quality of social support) (17-22). In this paper, we will provide an overview of some risk factors that have been most often examined in the context of adolescent risky behavior, which include risky online communication via social networks and sharing content on social network profiles. The aim of this paper is to provide a literature-based insight into some of the previously established findings regarding the factors associated with adolescent risky behavior on social networks, and the models that are most often used in their explanation. The paper provides a critical review of the research methodology used in this field, as well as recommendations for future research.

COMMUNICATION THROUGH SOCIAL NETWORKS AS POTENTIALLY RISKY ADOLESCENT BEHAVIOR

Various researchers (3, 14, 15, 18) point out that communication with a peer group is the most important motive for adolescents to use

mreža te kako *online* komunikacija u svrhu održavanja postojećih prijateljstava iz stvarnog života povećava socijalnu povezanost s vršnjacima i psihičku dobrobit adolescenata. Prema istraživanju Buljan Flander i sur. (1) adolescenti u Republici Hrvatskoj kao primarni motiv korištenja većine društvenih mreža navode dopisivanje sa svojim vršnjacima. Postavlja se pitanje na koji način utječe na njih povećano vrijeme koje adolescenti provode u *online* komunikaciji. Pozitivni učinci *online* komunikacije s vršnjacima ostvaruju se kada adolescenti provode kvalitetno vrijeme s tim istim vršnjacima u stvarnom životu, međutim, čini se kako pozitivni učinci *online* komunikacije ne postoje ako adolescenti komuniciraju s nepoznatim osobama te kako su adolescenti koji to čine izloženi većem riziku od elektroničkog nasilja i zloupotrebe osobnih podataka (15,18,23).

Prema Cernikovoj i suradnicima (23) adolescenti mogu dodati nepoznatu osobu na svoj profil društvene mreže, mogu se uključiti u *online* komunikaciju s nepoznatom osobom i mogu otići na sastanak uživo s nepoznatom osobom upoznatom *online*. Svaka od navedenih interakcija može biti opasna, posebno sastanci uživo s nepoznatim osobama. Istraživanjem Livingstone i sur. (20) dobiveni su podatci da u Europskoj uniji 9 % djece u dobi od devet do 16 godina odlazi na sastanak uživo s osobom upoznatom putem društvenih mreža, a prema novijim istraživanjima (1,3) to čini 27 %, odnosno 34 % adolescenata u Republici Hrvatskoj. U novijoj literaturi se kao poseban rizik za adolescente ističe i dodavanje nepoznatih kontakata (prijatelja ili pratitelja, engl. *friend / follower*) na profil društvene mreže. Prema jednom istraživanju (3) 11 % adolescenata prihvaća sve zahtjeve za prijateljstvom ili praćenjem (*friend / follow request*) pa i one nepoznatih osoba, dok 44 % adolescenata prihvaća zahtjev za prijateljstvom nepoznate osobe, ako imaju zajedničke prijatelje na društvenoj mreži. Razna istraživanja (6,18,24) ukazuju na rizike koji mogu pro-

social networks, and that online communication for the purpose of maintaining existing real-life friendships increases social connection with peers and the psychological well-being of adolescents. According to a study conducted by Buljan Flander et al. (1), adolescents in the Republic of Croatia cite correspondence with their peers as the primary motive for using most social networks. The question arises as to how the increased time adolescents spend in online communication affects them. The positive effects of online communication with peers are achieved when adolescents spend quality time with the same peers in real life, however, it seems that the positive effects of online communication do not exist if adolescents communicate with unknown persons, and adolescents who do so are exposed to a higher risk of cyberbullying and personal data misuse (15, 18, 23).

According to Cernikova et al. (23), adolescents can add an unknown contact to their social network profile, they can engage in online communication with an unknown person, and can meet in person with an unknown person they had met online. Each of these interactions can be dangerous, especially real-life meetings with strangers. A study conducted by Livingstone et al. (20) provided data that in the European Union, 9% of children between the ages of nine and 16 meet in person with a person they had met through social networks, and according to recent studies (1, 3) 27%, i.e. 34% of adolescents in the Republic of Croatia engage in such behavior. In recent literature, adding unknown contacts (friends or followers) to a social network profile is highlighted as a special risk for adolescents. According to one study (3), 11% of adolescents accept all friend/follow requests, including those from unknown persons, while 44% of adolescents accept a friend request from a stranger if they have mutual friends on a social network. Various studies (6, 18, 24) emphasize the risks that can arise from accepting friend requests from strangers; it increases

izaći iz prihvaćanja zahtjeva za prijateljstvom nepoznatih osoba; ono povećava izloženost adolescenta zlonamjernim porukama, rizičnim *online* sadržajima i krađama identiteta (engl. *phishing attacks*), a adolescenti često nisu svjesni ovih opasnosti.

DIJELJENJE SADRŽAJA NA PROFILIMA DRUŠTVENIH MREŽA KAO POTENCIJALNO RIZIČNO PONAŠANJE ADOLESCENATA

Osim što često ostvaruju kontakte s nepoznatim osobama *online*, adolescenti često ne vode računa o količini osobnih podataka koje objavljuju na profilima svojih društvenih mreža, niti o broju osoba kojima su njihovi osobni podatci dostupni (20,25). Jedan od temeljnih razvojnih zadataka adolescencije je izgradnja identiteta koja se između ostaloga odvija i samoprezentacijom pred vršnjacima (14), a same stranice društvenih mreža su osmišljene s ciljem samoprezentacije korisnika. Društvene mreže adolescentima mogu pomoći i u stjecanju komunikacijskih vještina (15), a čini se kako je potreba adolescenata za komuniciranjem s vršnjacima jača od njihovog osjećaja opreza i nepovjerenja prema nepoznatim osobama pa adolescenti često nekritički pristupaju *online* situacijama. Brstilo i sur. (25) navode kako adolescenti precjenjuju svoju povezanost sa svojim *online* prijateljima, često su impulzivni, djeluju bez razmišljanja i smatraju se otpornima na različite prijetnje *online* privatnosti, a sposobnosti donošenja odluka u adolescenciji još nisu dovoljno razvijene što ih često čini sklonima rizičnom *online* ponašanju. Također, čini se da adolescenti uglavnom smatraju kako je njihova publika ograničena na vršnjake te nisu svjesni kako postoji drugi dio publike poput njihovih roditelja, nastavnika ili budućih poslodavaca (26). Takva pogrešna percepcija utječe na to da neki adolescenti otkrivaju informacije o sebi koje mogu biti potencijalno kompromitirajuće,

adolescents' exposure to malicious messages, risky online content and identity thefts (or *phishing attacks*), and adolescents are often unaware of these risks.

SHARING CONTENT ON SOCIAL NETWORK PROFILES AS POTENTIALLY RISKY ADOLESCENT BEHAVIOR

In addition to often making contact with unknown persons online, adolescents often do not pay attention to the amount of personal information they share on their social network profiles, or the number of people to whom their personal information is available (20, 25). One of the main developmental tasks in adolescence is identity development which, among other things, occurs through self-presentation in front of peers (14) and social networking sites are designed for the self-presentation of their users. Social networks can also help adolescents to acquire communication skills (15), and it seems that the adolescents' need for communication with peers is stronger than their sense of caution and mistrust towards strangers, so adolescents often approach online situations uncritically. According to Brstilo et al. (25), adolescents overestimate their connection with their online friends, they are often impulsive, they act without thinking and consider themselves resistant to various online privacy threats. In addition, decision-making abilities in adolescence are not yet sufficiently developed, which often makes them prone to risky online behavior. Furthermore, it seems that adolescents mostly believe that their online audience is limited to their peers and are not aware that there are other participants of online audience such as their parents, teachers or future employers (26). Such misperceptions prompt some adolescents to reveal potentially compromising information about themselves, e.g. they post photographs of themselves while drinking alcohol or present

npr. objavljuju vlastite fotografije za vrijeme konzumacije alkohola i prikazuju se provokativno odjeveni na svojim profilima, čak i kada su im profili javni (26).

ODREDNICE RIZIČNOG PONAŠANJA ADOLESCENATA NA DRUŠTVENIM MREŽAMA

Istraživanja odrednica rizičnih ponašanja kojima adolescenti na društvenim mrežama ugrožavaju svoju *online* privatnost naglašavaju važnost određenih individualnih karakteristika adolescenata (npr. njihove dobi, roda, zabrinutosti za privatnost, osobina ličnosti i emocionalnih i ponašajnih problema) te čimbenika u njihovom obiteljskom i socijalnom okruženju (primjerice stavova prema rizičnom ponašanju i rizičnog ponašanja roditelja i vršnjaka te kvalitete socijalne podrške) (10-13,21,22). Većina se autora (27) slaže kako jedan čimbenik nije dovoljan za pojavu rizičnog ponašanja, već kako porastom broja rizičnih čimbenika raste i vjerojatnost javljanja rizičnog ponašanja.

Neki najčešće procjenjivani rizični čimbenici:

Dob i rod

Najčešće ispitivane sociodemografske varijable u kontekstu rizičnog ponašanja na društvenim mrežama su varijable dobi i roda. Postoje podatci kako su stariji adolescenti (u dobi od 15 do 18 godina), u odnosu na mlađe (u dobi od 11 do 14 godina), kao i mladići u odnosu na djevojke skloniji rizičnom ponašanju na društvenim mrežama - otkrivanju osobnih podataka i prihvaćanju nepoznatih zahtjeva za prijateljstvom (28-34). Nadalje, čini se kako djevojke, u usporedbi s mladićima, provode više vremena u *online* komunikaciji s vršnjacima iz stvarnog života, ali je vjerojatnije kako će one biti mete rizičnih kontakata, odnosno mete potencijalno opasnih odraslih osoba. Međutim, čini se kako mladići češće samostalno započinju *online* ko-

themselves provocatively dressed on their profiles, even when their profiles are public (26).

DETERMINANTS OF ADOLESCENT RISKY BEHAVIOR ON SOCIAL NETWORKS

Studies examining the determinants of adolescent risky behaviors on social networks that jeopardize their online privacy emphasize the importance of certain individual characteristics of adolescents (e.g. their age, gender, privacy concerns, personality traits, emotional and behavioral problems) and factors in their family and social environments (such as their parents' and peers' attitudes towards risky behavior and their risky behavior, and quality of their social support) (10-13, 21, 22). Most authors (27) agree that one factor is not enough for the occurrence of risky behavior, but that a higher number of risk factors increases the likelihood of risky behavior.

Some of the most commonly assessed risk factors:

Age and gender

The most frequently examined sociodemographic variables in the context of risky behavior on social networks are the variables of age and gender. Certain data shows that older adolescents (aged 15 to 18), compared to younger adolescents (aged 11 to 14), as well as boys compared to girls, are more prone to risky behavior on social networks - revealing personal information and accepting unknown friend requests (28-34). Furthermore, it seems that girls, compared to boys, spend more time in online communication with their real-life peers, but they are also more likely to be targets of risky contacts, i.e. targets of potentially dangerous adults. However, it seems that boys are more likely to initiate online communication with strangers and disclose more personal informa-

munikaciju s nepoznatim osobama i otkrivaju više *online* osobnih informacija od djevojaka, što ih čini izloženijima različitim *online* rizicima (18,29,34).

Zabrinutost za *online* privatnost i sigurnost

Velik broj istraživanja bavio se zabrinutošću za *online* privatnost i sigurnost, koja se najčešće definira kao vjerovanje pojedinca o rizicima i negativnim posljedicama *online* dijeljenja informacija (29,35-39), kao odrednicom rizičnog *online* ponašanja te su brojni istraživači pretpostavili kako će se pojedinci zabrinuti za svoju *online* privatnost i sigurnost ponašati oprezno u različitim *online* situacijama. Zabrinutost za *online* privatnost (ili sigurnost) često je ispitivana u kontekstu dijeljenja osobnih informacija na društvenim mrežama adolescenata, ali rezultati tih istraživanja su nejednoznačni (29,35-39). Taddicken (37) smatra kako su pojedinci koji nisu zabrinuti za svoju *online* privatnost upravo oni koji su poduzeli sve korake kako bi se zaštitili te se zbog toga osjećaju sigurno. Problem je činjenica kako u literaturi ne postoji konsenzus oko operacionalizacije pojmova poput zabrinutosti za *online* privatnost (engl. *online privacy concerns*), svijesti o *online* privatnosti i sigurnosti (engl. *online privacy / security awareness*), percepcije *online* rizika (engl. *online risk perception*), stavova prema *online* privatnosti i/ili sigurnosti ili rizicima (engl. *attitudes towards online privacy/security/risk*) i sl. te se oni ovisno o istraživanju u većoj ili manjoj mjeri razlikuju.

Postavlja se i pitanje operacionalizacije rizičnog ponašanja specifično na društvenim mrežama. Moguće je kako dijeljenje sadržaja na društvenoj mreži ne mora uvijek biti rizično, posebno ako ono nije javno te zbog toga neki adolescenti nisu zabrinuti za svoju privatnost, iako svakodnevno dijele sadržaje na svojim profilima. Stutzman i sur. (38) proveli su od 2005. do 2011. godine longitudinalno istraživanje te

tion online than girls, which makes them more exposed to various online risks (18, 29, 34).

Online privacy and security concerns

A large number of studies has addressed online privacy and security concerns, which are most commonly defined as individuals' beliefs about the risks ad negative consequences of sharing information online (29,35-39) as a determinant of risky online behavior, and many researchers have hypothesized that individuals concerned about their online privacy and security will act cautiously in different online situations. Online privacy (or security) concerns have often been examined in the context of adolescents sharing their personal information on social networks, but the results of these studies are inconclusive (29, 35-39). Taddicken (37) believes that individuals who are not concerned about their online privacy are precisely those who have taken all the necessary steps to protect themselves, and therefore feel safe. The problem lies in the fact that there is no consensus in literature regarding the operationalization of concepts such as online privacy concerns, online privacy and security awareness, online risk perception, attitudes towards online privacy and/or security or risks etc., and they differ to a greater or lesser extent depending on the study.

There is also an issue of operationalizing risky behavior specifically on social networks. It is possible that sharing content on a social network does not always have to be risky, especially if it is not public, which is why some adolescents are not concerned about their privacy, even though they share content on their profiles on a daily basis. In the period from 2005 to 2011, Stutzman et al. (38) conducted a longitudinal study and concluded that over time students (aged 18 to 24) who are Facebook users increase the amount of personal information they share with their friends, all the while

zaključili kako studenti (u dobi od 18 do 24 godine) koji su korisnici *Facebook*a s vremenom povećavaju broj osobnih informacija koje dijele s prijateljima istovremeno sve više ograničavajući informacije koje su javne i svima vidljive mijenjajući postavke privatnosti svojih profila. Dakle, dijeljenje informacija i zaštita privatnosti nisu nužno povezane ni kontradiktorne. Također, Christofides i suradnici (39) utvrdili su kako otkrivanje osobnih podataka i poduzete mjere zaštite *online* privatnosti nisu u negativnoj korelaciji. Čini se kako objava sadržaja na društvenim mrežama adolescenata sama po sebi nije rizično ponašanje, a razmjena poruka i informacija putem društvenih mreža adolescentima može pomoći u formiranju društvenih odnosa ako paze na privatnost svog profila te na njega ne dodaju nepoznate kontakte (39-42).

Osobine ličnosti

Čini se kako su određene osobine ličnosti te roditeljsko i vršnjačko posredovanje *online* aktivnosti adolescenata u većoj mjeri povezane s rizičnim ponašanjima adolescenata na društvenim mrežama, nego što je to zabrinutost za privatnost (30,35,42,43). U istraživanjima provedenima na odraslim osobama (44-47) utvrđeno je kako su neke osobine ličnosti (izraženo traženje uzbuđenja, ekstraverzija, neuroticizam te niska savjesnost) povezane s učestalijom *online* objavom osobnih fotografija i informacija te rizičnom *online* komunikacijom. Istraživanja povezanosti osobina ličnosti i rizičnog *online* ponašanja adolescenata su malobrojna (20,43), ali čini se da su rezultati sukladni rezultatima istraživanja provedenima na odrasloj populaciji.

Pregledom literature moguće je uočiti kako se u ulozi prediktora rizičnih ponašanja adolescenata na društvenim mrežama značajnima najčešće pokazuju ekstraverzija i traženje uzbuđenja. Ekstraverzija podrazumijeva osobine poput društvenosti, razgovorljivosti i asertivnosti (48). Postoje nalazi kako će ekstrovertiraniji adolescenti

increasingly limiting the information that are publicly available and visible to everyone by changing the privacy settings of their profiles. Information sharing and privacy protection are, therefore, not necessarily connected or contradictory. Furthermore, Christofides et al. (39) determined that there is no negative correlation between disclosure of personal information and measures taken to protect online privacy. It seems that adolescents' content sharing on social networks alone does not represent risky behavior, and exchanging messages and information via social networks can help adolescents to form social relationships, if they pay attention to the privacy of their profiles and do not add strangers to their contacts (39-42).

Personality traits

It seems that certain personality traits and parental and peer mediation of adolescents' online activities are more closely related to adolescents' risky behavior on social networks than their online privacy concerns (30, 35, 42, 43). In studies conducted on adults (44-47), it was determined that some personality traits (high sensation seeking, extraversion, neuroticism and low conscientiousness) are associated with more frequent online publication of personal photographs and information, as well as risky online communication. Studies addressing the connection between personality traits and risky online behavior in adolescents are rare (20, 43), but the results seem to be consistent with the results of studies conducted on the adult population.

Upon reviewing the literature, it is noticeable that extraversion and sensation seeking are the most common predictors of adolescent risky behavior on social networks. Extraversion includes traits such as sociability, talkativeness and assertiveness (48). Some findings suggest that more extroverted adolescents will share content and information about themselves on

centi na društvenim mrežama češće objavljivati sadržaje i informacije o sebi, u usporedbi s introvertiranijim adolescentima (43). Isto se tako čini kako će ekstroverti biti češće uključeni u *online* komunikaciju, ali s osobama koje poznaju u svakodnevnom životu (18). Međutim, Davidson i sur. (49) navode hipotezu prema kojoj su ekstrovertirani adolescenti komunikativniji i češće preuzimaju rizike u različitim situacijama te su stoga podložniji *online* mamljenju (engl. *online grooming*; uspostavljanju odnosa povjerenja i emocionalne veze odrasle osobe i djeteta, s ciljem iskorištavanja djeteta) od introvertiranih adolescenata. Čini se kako ekstrovertirane odrasle osobe imaju više *online* kontakata na svojim društvenim mrežama, češće komentiraju objave svojih *online* kontakata i općenito su aktivniji na društvenim mrežama od introvertiranih odraslih osoba (45,46) pa bi u budućim istraživanjima bilo potrebno preciznije ispitati postoje li razlike u uključenosti u rizična ponašanja na društvenim mrežama između ekstrovertiranih i introvertiranih adolescenata.

Traženje uzbuđenja je dimenzija ličnosti koju obilježava potreba za traženjem raznovrsnih i intenzivnih podražaja iz okoline. Osobe s izraženom osobinom traženja uzbuđenja sklone su fizičkim, socijalnim i financijskim rizicima (50). Prema nekim nalazima na temelju izraženog traženja uzbuđenja moguće je predvidjeti uključenost adolescenata u *online* komunikaciju s nepoznatim osobama (20,51).

POVEZANOST RIZIČNIH *ONLINE* PONAŠANJA ADOLESCENATA S NJIHOVIM EMOCIONALNIM I PONAŠAJNIM PROBLEMIMA I RIZIČNIM PONAŠANJEM U STVARNOM ŽIVOTU

U brojnim istraživanjima utvrđeno je kako su različita rizična *online* ponašanja adolescenata međusobno pozitivno povezana, npr. prekomjerno

social networks more often than the more introverted adolescents (43). Furthermore, it seems that extroverts will involve in online communication more often, but with people they know in real life (18). Davidson et al. (49), however, propose a hypothesis according to which extroverted adolescents are more communicative and more likely to take risks in different situations, and are therefore more susceptible to online grooming (establishing a relationship of trust and emotional connection between an adult and a child, with the aim of exploiting the child) than introverted adolescents. Extroverted adults appear to have more online contacts in their social networks, comment more often on the posts of their online contacts, and are generally more active on social networks than introverted adults (45, 46). Future studies should, therefore, examine more precisely whether there are differences in involvement in risky behaviors on social networks between extroverted and introverted adolescents.

Sensation seeking is a personality dimension characterized by the need to seek diverse and intense stimuli from the environment. Individuals with a pronounced sensation seeking trait are prone to physical, social and financial risks (50). According to some findings, it is possible to predict the involvement of adolescents in online communication with strangers based on their pronounced sensation seeking traits (20, 51).

CONNECTION BETWEEN ADOLESCENT RISKY ONLINE BEHAVIOR, THEIR EMOTIONAL AND BEHAVIORAL PROBLEMS AND RISKY BEHAVIOR IN REAL LIFE

Numerous studies have found that there is a mutual positive connection between various risky online behaviors of adolescents, e.g. ex-

korištenje interneta, uključenost u *online* komunikaciju s nepoznatim osobama i sudjelovanje u *online* nasilju (11,13,20). Stoga se postavlja pitanje je li opravdano pretpostaviti pozitivnu povezanost rizičnih ponašanja adolescenata na društvenim mrežama s njihovim problemima mentalnog zdravlja, odnosno emocionalnim i ponašajnim problemima te rizičnim ponašanjima u stvarnom životu. U istraživanju Livingstone i Helsper (52) utvrđeno je kako je u populaciji adolescenata nezadovoljstvo vlastitim životom povezano sa češćim odavanjem osobnih podataka i *online* komunikacijom s nepoznatim osobama. Čini se kako nedostatak otvorene komunikacije adolescenata s roditeljima povećava njihovo traženje intimnosti od nepoznatih osoba *online* (52), a adolescenti koji doživljavaju manje socijalne podrške u svakodnevnom životu u riziku su da se uključuju u više rizičnih ponašanja na društvenim mrežama (29). Prema nekim nalazima adolescenti skloni depresivnosti češće stupaju u kontakt s nepoznatim osobama *online*, češće im odaju svoje osobne informacije, nalaze se s njima u stvarnom životu te češće traže osobu za razgovor o seksualnim temama *online* (18,20-22,49,53). Nadalje, prema nekim nalazima adolescenti koji sudjeluju u *online* komunikaciji s nepoznatim osobama, u usporedbi s onima koji ne sudjeluju u njoj, uključeni su u više rizičnih ponašanja u stvarnom životu – u više seksualno rizičnih ponašanja, nasilja i češću konzumaciju psihoaktivnih tvari (51,54). Isto se tako čini da je konzumacija alkohola pozitivno povezana s prekomjernom uporabom interneta adolescenata (47).

VRŠNJAČKO I RODITELJSKO POSREDOVANJE RIZIČNOG *ONLINE* PONAŠANJA ADOLESCENATA

Neka istraživanja ukazuju na to kako rizična *online* ponašanja često nisu namjerna i planirana (55,56). Postoji određena razlika između

cessive Internet use, online communication with strangers and participation in cyberbullying (11, 13, 20). The question, therefore, arises of whether it is justified to assume that there is a positive connection between adolescent risky behavior on social networks, their mental health issues, i.e. emotional and behavioral problems, and their risky behaviors in real life. In a study conducted by Livingstone and Helsper (52), it was determined that among adolescents, dissatisfaction with one's own life is associated with more frequent disclosure of personal information and online communication with strangers. A lack of open communication between adolescents and their parents seems to increase their intimacy seeking from strangers online (52), and adolescents who experience less social support in everyday life are at risk of engaging in riskier behavior on social networks (29). According to some findings, adolescents prone to depression come into contact with strangers online more often, they reveal their personal information more often, meet them in real life and more often look for someone to talk to about sexual topics online (18, 20-22, 49, 53). Furthermore, according to some findings, adolescents who participate in online communication with strangers, compared to those who do not participate in such communication, are involved in more instances of risky behavior in real life - in more sexually risky behaviors, more violence and more frequent consumption of psychoactive substances (51, 54). It also seems that adolescent alcohol consumption is positively related to their excessive Internet use (47).

PEER AND PARENTAL MEDIATION OF ADOLESCENT RISKY ONLINE BEHAVIOR

Some studies indicate that adolescent risky online behavior is often not intentional and planned (55, 56). There is a certain difference between attitudes towards online behavior, which

stavova prema *online* ponašanju, koji se često definiraju kao zabrinutost za *online* privatnost i sigurnost i ponašanja vezanih uz *online* privatnost i sigurnost, a s ponašanjem su osim kognitivne komponente stava prema ponašanju, povezani i socijalni čimbenici i trenutne emocije. I odavanje osobnih podataka ili dodavanje nepoznatih kontakata na profil društvene mreže nisu uvijek isključivo rizična ponašanja već donose određene dobiti, kao što su povećanje samopoštovanja adolescenta ili njegove popularnosti među vršnjacima. Dakle, adolescenti na neki način analiziraju moguće dobiti (prednosti) i gubitke (rizike) kada odlučuju o tome trebaju li se upustiti u određeno ponašanje na društvenim mrežama ili ne trebaju. Adolescenti imaju veću potrebu za uspostavljanjem socijalnih odnosa i razvojem identiteta od odraslih osoba, kako u stvarnom, tako i u *online* svijetu (15). Za njih je važno naučiti vještine potrebne za formiranje i održavanje intimnih veza, a te vještine mogu usavršiti i *online* interakcijom. Rezultati meta-analize Stoilove i suradnika (41) ukazuju kako tijekom adolescencije društvene posljedice za koje adolescenti predviđaju da će uslijediti nakon ponašanja utječu na upuštanje ili neupuštanje u neko ponašanje, možda i više od stavova prema određenom ponašanju. U istraživanju Heirmana i sur. (24) utvrđeno je kako su pretpostavljene vršnjačke norme adolescenata snažni prediktor njihovom prihvaćanja zahtjeva za prijateljstvom od nepoznatih osoba na društvenim mrežama.

Osim vršnjačkih utjecaja, u istraživanjima je često ispitivan utjecaj različitih strategija roditeljskog posredovanja *online* aktivnosti adolescenata na njihovo *online* ponašanje (20,29,35,57,58). Strategije roditeljskog posredovanja dječje *online* aktivnosti odnose se na načine kojima roditelji pokušavaju upravljati *online* aktivnostima djece i objasniti *online* sadržaje svojoj djeci (20). Čini se kako komponenta roditeljskog posredovanja koja se odnosi na roditeljski nadzor nad dječjom *online* aktivnosti ima zaštitno djelova-

are often defined as concerns about online privacy and security, and behaviors related to online privacy and security. In addition to the cognitive component of the attitude towards behavior, behavior is also influenced by social factors and individuals' current emotional state. Furthermore, sharing personal information or adding unknown contacts to a social network profile are not always exclusively risky behaviors, but can bring certain benefits, such as increased self-esteem or popularity of adolescents among peers. Therefore, in a way, adolescents analyse the possible gains (advantages) and losses (disadvantages) when they decide whether or not they should engage in certain behavior on social networks. Compared to adults, adolescents have a greater need to establish social relationships and develop their identity, both in real life and online (15). It is important for them to learn the skills necessary to form and maintain intimate relationships, and they can perfect these skills through online interactions as well. The results of a meta-analysis conducted by Stoilova et al. (41) indicate that during adolescence, the social consequences that adolescents predict will occur after certain behavior influence whether or not they will engage in such behavior, perhaps even more than their attitudes towards this behavior. In a study conducted by Heirman et al. (24) it was determined that the assumed adolescents' subjective peer norms are a strong predictor when it comes to their acceptance of friend requests from strangers on social networks.

In addition to peer influences, studies have often examined the influence of various strategies of parental mediation of adolescents' online activities on their risky online behavior (20, 29, 35, 57, 58). Strategies of parental mediation of their children's online activity refer to the ways in which parents try to manage the children's online activities and explain online content to them (20). The component of parental mediation that refers to parental supervision of children's online activity appears to

nje na djecu kada se ona susretnu s uznemirujućim *online* sadržajem (57). U novije vrijeme najčešće se koristi podjela na aktivno roditeljsko posredovanje *online* aktivnosti, koje uključuje razgovor roditelja s djetetom i poticanje djeteta na sigurnu upotrebu *online* sadržaja i restriktivno roditeljsko posredovanje *online* aktivnosti, koje uključuje zabranu određenih *online* aktivnosti ili sadržaja, a istraživanja uglavnom ukazuju na aktivno posredovanje kao učinkovitijoj metodi utjecanja na *online* ponašanje adolescenata (20,57,58).

PREGLED PREVLADAVAJUĆIH TEORIJSKIH MODELA KORIŠTENIH U SVRHU OBJAŠNJENJA RIZIČNOG ONLINE PONAŠANJA ADOLESCENATA

Brojne teorije objašnjavaju razvoj rizičnog ponašanja adolescenata u stvarnom životu, no teorije koje bi pokušale objasniti rizično ponašanje adolescenata na društvenim mrežama tek su u začetcima. U objašnjenju rizičnog ponašanja adolescenata u stvarnom životu naglašavaju se individualne karakteristike pojedinca, čimbenici u njihovom obiteljskom i širem socijalnom okruženju te koriste modeli i teorije poput Bronfenbrennerovog ekološkog modela (59). U kontekstu rizičnog *online* ponašanja u tu se svrhu uglavnom koriste Teorija motivacije za zaštitom (60), Teorija planiranog ponašanja (61,62) i Model prototipova ili spremnosti na rizično ponašanje (63). Teorija planiranog ponašanja i Teorija motivacije za zaštitom ubrajaju se u teorije usklađenosti stavova o ponašanju, ponašajne namjere i ponašanja (61-63), ali čini se kako je upuštanje adolescenata u rizično ponašanje često rezultat spontane odluke te se adolescenti upuštaju u rizična ponašanja unatoč svojim negativnim stavovima prema takvom ponašanju (63-70). Stoga se u novije vrijeme u objašnjenju rizičnog *online* ponašanja dominantno koristi Model prototipova ili

have a protective effect on the children when they encounter disturbing online content (57). Recently, the ones most often used are the division into active parental mediation of online activities, which includes parents having conversations with their child and encouraging the child to safely use online content, and restrictive parental mediation, which includes the prohibition of certain online activities or content. Studies mainly indicate that active mediation is the more effective method of influencing adolescent online behavior (20, 57, 58).

OVERVIEW OF THE PREVAILING THEORETICAL MODELS USED TO EXPLAIN ADOLESCENT RISKY ONLINE BEHAVIOR

Numerous theories explain the development of adolescent risky behavior in real life, however theories that would explain adolescent risky behavior on social networks are still being developed. When explaining adolescent risky behavior in real life, adolescents' individual characteristics, as well as factors in their family and wider social environment are emphasized, and models such as Bronfenbrenner's ecological model are used (59). In the context of risky online behavior, the Protection Motivation Theory (60), the Theory of Planned Behavior (61, 62) and the Prototype Willingness Model (63) are mainly used for this purpose. The Theory of Planned Behavior and the Protection Motivation Theory are among the theories explaining the concordance of attitudes towards behavior, behavioral intention and behavior (61-63), however, it seems that adolescents' engagement in risky behavior is often the result of a spontaneous decision, and adolescents engage in risky behaviors despite their negative attitudes towards such behavior (63-70). Therefore, in recent studies the Prototype Willingness Model is predominantly used when it comes to explaining risky online behavior, and its specificity is that it tries to explain

spremnosti na ponašanje čija je specifičnost da nastoji objasniti ponašanja adolescenata koja nisu potpuno planirana i racionalna i zbog toga ćemo ovaj model u nastavku opisati detaljnije od ostalih.

TEORIJA MOTIVACIJE ZA ZAŠTITOM I TEORIJA PLANIRANOG PONAŠANJA

Teorija motivacije za zaštitom (60) i Teorija planiranog ponašanja (61) koje se pretežno koriste za objašnjenje nekih rizičnih ponašanja adolescenata u stvarnom životu, a korištene su i u objašnjenju rizičnog *online* ponašanja adolescenata (64-66). Ove teorije temelje se na pretpostavci da je odluka o upuštanju u određeno ponašanje rezultat racionalnog procesa koji uključuje logičku procjenu i evaluaciju posljedica ponašanja. Autori ovih teorija navode kako osoba razmatra posljedice različitih ponašanja, donosi odluku o postupanju te takvu odluku nazivaju ponašajnom namjerom, a ona je najbolji prediktor ponašanju. Istraživanja ukazuju na to kako Teorija planiranog ponašanja i Teorija motivacije za zaštitom dobro predviđaju zaštitna ponašanja vezana uz zdravlje (npr. preventivne zdravstvene preglede), ali loša rizična ponašanja kao što su rizični spolni odnosi ili prekomjerna konzumacija alkohola (63). Neki nalazi ukazuju na to kako je povezanost ponašajne namjere i rizičnog ponašanja slabija u uzorcima adolescenata u usporedbi s uzorcima odraslih osoba (63) te kako općenito postoji neusklađenost stavova o rizičnom ponašanju i rizičnog ponašanja, posebno u populaciji adolescenata. Youn (66) smatra kako svijest o posljedicama i apstraktno razmišljanje adolescenata nisu još razvijeni kao kod odraslih te kako njihova *online* ponašanja nisu isključivo pod utjecajem kognitivnih, već i socijalnih i emocionalnih čimbenika. Čini se kako je upuštanje adolescenata u rizično *online* ponašanje često rezultat spontane odluke. Brojni nalazi ukazuju

adolescent behaviors that are not completely planned and rational. For this reason, we will describe this model in more detail than the others.

PROTECTION MOTIVATION THEORY AND THEORY OF PLANNED BEHAVIOR

The Protection Motivation Theory (60) and the Theory of Planned Behavior (61) are generally used to explain certain adolescent risky behaviors in real life, and are also used to explain adolescent risky online behavior (64-66). These theories are based on the assumption that the decision to engage in certain behavior is the result of a rational process which includes a logical assessment and evaluation of the consequences of behavior. The authors of these theories state that a person considers the consequences of different behaviors and makes a decision on behavior, and they refer to such a decision as behavioral intention, which is the best predictor of behavior. Studies indicate that the Theory of Planned Behavior and the Protection Motivation Theory are good at predicting health-related protective behaviors (e.g. preventive health check-ups), but are not good at predicting risky behaviors such as risky sexual relations or excessive alcohol consumption (63). Some findings indicate that the connection between behavioral intention and risky behavior is weaker in adolescent samples, compared to adult samples (63), and that there is generally a mismatch between attitudes towards risky behavior and actual risky behavior, especially in the adolescent population. Youn (66) suggests that the awareness of consequences and abstract thinking of adolescents are not yet as developed as in adults, and that their online behavior is not only influenced by cognitive, but also by social and emotional factors. It seems that adolescent involvement in risky behavior is often the result of a spontaneous decision. Numerous findings indicate that adolescents underestimate their personal vulnerability to

da adolescenti podcjenjuju svoju osobnu ranjivost na posljedice, smatraju da se mogu "izvući" s određenim rizičnim aktivnostima te su skloni obraditi informacije o riziku na površan način, npr. fokusirajući se na neposredne prednosti određenog ponašanja, a ne i na potencijalne dugoročnije rizike (67-69). Prema nekim autorima (67-69) adolescenti više razmišljaju o posljedicama nekog rizičnog ponašanja nakon što su se u njega upustili, a vrlo malo prije upuštanja u rizično ponašanje.

MODEL PROTOTIPOVA ILI SPREMNOSTI NA RIZIČNO PONAŠANJE

U kontekstu rizičnog *online* ponašanja se u novije vrijeme koristi Model prototipova ili spremnosti na ponašanje (engl. *Prototype Willingness Model*, u nastavku skraćeno: Model prototipova) (63). Model prototipova pokušava objasniti rizična ponašanja adolescenata koja nisu promišljena i racionalna (npr. vožnja pod utjecajem alkohola ili spolni odnos bez zaštite), već reaktivna, a karakteristična su za adolescente. Prema autorima ovog modela postoje tri obilježja rizičnog ponašanja adolescenata: 1) rizična ponašanja su često nenamjerna i reaktivna, 2) rizična ponašanja su za adolescente socijalni događaj i 3) kada se adolescent nađe u situaciji u kojoj se pruža prilika za sudjelovanje u rizičnom ponašanju, socijalne slike odnosno zamišljeni prototipovi vršnjaka koji su povezani s rizičnim ponašanjem imaju utjecaja na njegovo ponašanje (63). U model su uključeni: a) stavovi adolescenata prema rizičnom ponašanju koji predstavljaju procjenu osobne ranjivosti na negativne posljedice rizičnog ponašanja, b) subjektivne socijalne norme adolescenata koje se odnose na percepciju adolescenata da se njima bliske osobe (najčešće roditelji i vršnjaci) rizično ponašaju i odobravaju njihovo rizično ponašanje te c) percepcija prototipa koja se sastoji od procjene prototipa (engl. *prototype favorability*),

consequences, believe that they can "get away" with certain risky activities, and tend to process information about risk in a superficial way, for example, by focusing on the immediate benefits of certain behaviors rather than on potential long-term risks (67-69). According to some authors (67-69), adolescents think more about the consequences of risky behavior after engaging in it, and very little before engaging in it.

PROTOTYPE WILLINGNESS MODEL

Recently, the Prototype Willingness model has been used in the context of risky online behavior (63). The objective of the Prototype Willingness Model is to explain the risky behaviors of adolescents that are not premeditated and rational (e.g. driving under the influence of alcohol or unprotected intercourse), but are reactive and typical for adolescents. According to the authors of this model, there are three characteristics of adolescent risky behavior: 1) risky behavior is often unintentional and reactive, 2) risky behavior represents a social event for adolescents, and 3) when an adolescent finds himself/herself in a situation in which there is an opportunity to participate in risky behavior, the social images or imagined prototypes of peers that are associated with risky behavior have an influence on his/her behavior (63). The model includes the following: a) adolescents' attitudes towards risky behavior, which represent an assessment of personal vulnerability to the negative consequences of risky behavior, b) adolescents' subjective social norms, which refer to the adolescents' perception that people close to them (most often parents and peers) behave in a risky manner and approve their risky behavior, and c) perception of the prototype, which consists of the evaluation of the prototype (*prototype favorability*), i.e. the cognitive representation of a typical person engaging in certain risky behavior and the perceived similarity of adolescents to the imagined prototype (*prototype similarity*) (63).

odnosno kognitivne reprezentacije tipične osobe koja se upušta u određeno rizično ponašanje i percipirane sličnosti adolescenata zamišljenom prototipu (engl. *prototype similarity*) (63). Osnovicu Modela prototipova čine spremnost na rizično ponašanje i ponašajna namjera koje zajedno vode k rizičnom ponašanju. Spremnost na rizično ponašanje definira se kao otvorenost prema rizičnim situacijama, vjerojatnost da se osoba u određenoj situaciji ponaša rizično bez razmišljanja o mogućim posljedicama rizičnog ponašanja (68). Autori Modela prototipova naglašavaju kako donošenje odluka o (ne)upuštanju u ponašanje može biti rezultat dvaju kvalitativno različitih procesa – racionalnog, analitičkog procesa (puta) koji se temelji na logičkom rezoniranju te socijalno reaktivnog procesa (puta) koji se temelji na heuristicima. Stavovi prema ponašanju, percepcija socijalnih normi i prototipa osobe uključene u rizično ponašanje te percipirana sličnost prototipu povezani su sa spremnošću na rizično ponašanje i socijalno reaktivni su put do odluke o ponašanju (68). Za socijalno reaktivni put autori modela (68) navode kako je automatski, nesvjestan, impulzivan, spontan i afektivan. Ponašajna namjera je kognitivna varijabla, a odnosi se na procjenu mogućih posljedica određenog ponašanja i donošenje odluke o postupanju (68). Ponašajna namjera određena je stavovima prema ponašanju i subjektivnim socijalnim normama koje su racionalni put modela. Za racionalni put do rizičnog ponašanja autori navode kako je razuman, analitičan, sistematičan i planiran (68).

The basis of the Prototype Willingness Model includes behavioral willingness and behavioral intention, which together lead to risky behavior. Behavioral willingness is defined as openness to risky situations, the probability that in a certain situation a person will behave in a risky manner without thinking about the possible consequences of risky behavior (68). The authors of the Prototype Willingness Model emphasize that making a decision about engaging or not engaging in a certain type of behavior can be the result of two qualitatively different processes – a rational, analytical process (path) based on logical reasoning, and a socially reactive process (path) based on heuristics. Attitudes towards behavior, perception of the social norms and the prototype of the person engaging in risky behavior, as well as perceived prototype similarity, are associated with behavioral willingness for risky behavior and represent a socially reactive path leading to a decision on behavior. With regard to the socially reactive path, the authors of the model (68) state that it is automatic, unconscious, impulsive, spontaneous and affective. Behavioral intention is a cognitive variable, and it refers to the assessment of the possible consequences of certain behavior and the process of making a decision regarding the behavior (68). Behavioral intention is determined by attitudes towards certain behavior and the subjective social norms that represent the rational path of the model. The authors state that the rational path to risky behavior is reasonable, analytical, systematic and planned (68).

EMPIRIJSKE PROVJERE MODELA PROTOTIPOVA ZA OBJAŠNJENJE RIZIČNIH PONAŠANJA ADOLESCENATA NA DRUŠTVENIM MREŽAMA

Novija istraživanja testirala su Model prototipova u kontekstu *sextinga*, dijeljenja seksualno sugestivnih fotografija, dijeljenja rizičnih sel-

EMPIRICAL VERIFICATION OF THE PROTOTYPE WILLINGNESS MODEL FOR THE PURPOSE OF EXPLAINING ADOLESCENT RISKY BEHAVIOR ON SOCIAL NETWORKS

More recent studies have tested the Prototype Willingness Model in the context of *sexting*, sharing sexually suggestive photographs, risky

fija (fotografija na kojima se osoba sama fotografirala za vrijeme rizičnih aktivnosti poput neoprezne vožnje automobila) i informacija na društvenim mrežama adolescenata (70-74). Nalazi Ouytsela i sur. (70) pokazuju kako su vršnjačke norme percipirane od adolescenata, njihova spremnost na ponašanje, percepcija prototipa i stavovi prediktori njihove objave vlastitih seksualno sugestivnih fotografija na društvenim mrežama, dok se njihova percepcija roditeljskih normi nije pokazala značajnim prediktorom takvog ponašanja. Prema istraživanju Goola i sur. (71) roditeljske i vršnjačke norme percipirane od strane adolescenta prediktori su njihove objave informacija o vršnjačkim vezama na društvenim mrežama, dok se njihov stav prema dijeljenju informacija o vršnjačkim vezama na društvenim mrežama pokazao najsnažnijim prediktorom dijeljenja takvih informacija. Također, čini se kako stavovi adolescenata o dijeljenju rizičnih selfija nisu značajni prediktori, dok su njihove subjektivne, percipirane vršnjačke norme i spremnost na ponašanje značajni prediktori njihove namjere za dijeljenjem takvih selfija (72). Dakle, čini se kako značajnost pojedinog konstrukta modela ovisi o vrsti rizičnog ponašanja, no rezultati istraživanja općenito potvrđuju ovaj model te idu u prilog pretpostavke kako je odluka o upuštanju u rizično *online* ponašanje adolescenata dijelom rezultat racionalnog procesa, a dijelom reaktivna i spontana.

OSVRT NA METODOLOGIJU ISTRAŽIVANJA RIZIČNIH PONAŠANJA ADOLESCENATA NA DRUŠTVENIM MREŽAMA

U nastavku će kratko biti opisana najčešće korištena metodologija navedenih istraživanja rizičnog ponašanja adolescenata na društvenim mrežama. Bit će navedena najčešće korištena operacionalizacija takvog ponašanja, opisani najčešće korišteni nacrti, metode prikuplja-

selfies (photographs which a person has taken while engaging in a risky activity such as reckless driving) and information on adolescents' social networks (70-74). The findings presented by Ouytsel et al. (70) suggest that adolescents' subjective peer norms, their behavioral willingness, prototype favorability and attitudes are predictors of sharing own sexually suggestive photographs on social networks, while their perception of parental norms did not prove to be a significant predictor of such behavior. According to a study conducted by Gool et al. (71), the parental and peer norms perceived by adolescents represent predictors when it comes to sharing information about their peer relationships on social networks, while their attitude towards sharing information about peer relationships on social networks proved to be the strongest predictor of sharing such information. Furthermore, it seems that adolescents' attitudes towards sharing risky selfies do not represent significant predictors, while their subjective, perceived peer norms and behavioral willingness are significant predictors of their intention to share such selfies (72). It seems, therefore, that the significance of each construct of the model depends on the type of risky behavior, but the results generally confirm this model and support the hypothesis that the adolescents' decision about engaging in risky online behavior is partially the result of a rational process, and is partially reactive and spontaneous.

A REVIEW OF THE RESEARCH METHODOLOGY REGARDING ADOLESCENT RISKY BEHAVIOR ON SOCIAL NETWORKS

In the text that follows, we will briefly describe the methodology most frequently used in the aforementioned studies on adolescent risky behavior on social networks. The most commonly used operationalization of such behavior will be described, as well as the most commonly used

nja podataka i izvori informacija, s posebnim naglaskom na nedostatke istraživanja u ovom području. Istraživanja rizičnih ponašanja adolescenata najčešće nude deskriptivne podatke o tome koje osobne podatke (npr. datum rođenja, adresu stanovanja, e-mail adresu) ili kakve osobne fotografije adolescenti dijele na svojim profilima društvenih mreža, uz eventualno uključivanje čimbenika koji su potencijalno povezani s takvim ponašanjem (npr. zabrinutosti za privatnost, osobina ličnosti ili strategija vršnjačkog ili roditeljskog posredovanja *online* aktivnosti adolescenata). Podatci su uglavnom dobiveni upitničkim mjerama samoprocjene *online* ponašanja adolescenata koje su konstruirane za potrebe svakog pojedinog istraživanja i primijenjene u jednoj vremenskoj točci.

Dosadašnja istraživanja rizično ponašanje adolescenata na društvenim mrežama najčešće operacionaliziraju kao dijeljenje sadržaja na društvenim mrežama (25,37,70,72), a bavila su se uglavnom količinom osobnih informacija ili fotografija koje adolescenti dijele te nisu ispitivala čine li oni to isključivo privatno ili javno te ako i imaju isključivo privatne profile koliko često na profil društvene mreže dodaju nepoznate kontakte kojima na taj način podijeljeni sadržaj postaje dostupan. Dakle, prvi metodološki problem istraživanja u ovom području je sama operacionalizacija rizičnog ponašanja na društvenim mrežama. U budućim bi istraživanjima trebalo ispitati koje sadržaje adolescenti dijele javno, a koje privatno te koliko su svjesni privatnosti svog profila. Važno je razmotriti i njihove motive javnog i privatnog dijeljenja sadržaja te u istraživanja uključiti varijable poput sklonosti dosadi i želje za popularnosti među vršnjacima (75,76). Jedan je od većih nedostataka u području istraživanja rizičnog ponašanja adolescenata na društvenim mrežama nedostatak validiranih instrumenata za mjerenje takvog ponašanja, ali i konstrukata povezanih s njim, npr. zabrinutosti za *online* privatnost (36-38).

designs, data collection methods and sources of information, with a special emphasis on the shortcomings of studies conducted in this field. Studies addressing adolescent risky behaviors generally offer descriptive data on what personal information (e.g. date of birth, residential address, e-mail address) or what personal photographs adolescents share on their social network profiles, sometimes with the inclusion of factors that are potentially associated with such behavior (e.g. privacy concerns, personality traits, or strategies of peer or parental mediation of adolescents' online activities). The data were mainly obtained through questionnaire measures of self-assessment of adolescent online behavior, which were constructed for the purpose of each individual study, and applied at one point in time.

Previous studies mostly operationalized adolescent risky behavior on social networks as sharing content on social networks (25, 37, 70, 72), and mainly focused on the amount of personal information or photographs that adolescents share on their profiles, but did not examine whether they do so privately or publicly, or if they have exclusively private profiles, how often they add unknown contacts to their profiles to whom the content shared in this way becomes available. Therefore, the first methodological problem of research in this field is the very operationalization of risky behavior on social networks. Future studies should examine which content adolescents share publicly and which content they share privately, and how aware they are of the privacy of their profiles. It is important to consider their motives for public and private content sharing and to include variables such as the boredom tendency and the desire for popularity among peers in the research (75, 76). Furthermore, one of the major shortcomings in the field of research of adolescent risky behavior on social networks is the lack of validated instruments for measuring such behavior, as well as constructs related to it, for example online privacy concerns (36-38).

Drugi problem čine nacrti istraživanja koji vrlo rijetko uključuju longitudinalne podatke (13,78) što onemogućuje zaključivanje o uzrocima i posljedicama rizičnog *online* ponašanja. Istraživanja u ovom području su najčešće deskriptivna i korelacijska. Uglavnom su korištene upitničke mjere samoprocjene ponašanja adolescenata, a istraživanja su provedena *online* (15,37) ili metodom papir-olovka u školama (36,70,74) te su ponekad provođeni i intervjui s roditeljima i adolescentima uživo (20) i telefonskim putem (29). Iako je *online* istraživanjem moguće u kratkom razdoblju doći do velikog uzorka, njihov je nedostatak samoselekcija sudionika koja može dovesti do nereprezentativnog uzorka; npr. vjerojatnije je da će *online* upitnik ispuniti adolescenti koji više vremena provode *online* pa se stoga možda i susreću s više *online* rizika, kao i činjenica da ne možemo biti sigurni jesu li upitnike zaista ispunili adolescenti (77). Zbog toga bi prednost trebalo dati provedbi istraživanja uživo. Kada se radi o osjetljivim temama kao što je rizično ponašanje, prisutnost istraživača koja je nužna za provođenja intervjua može dovesti do socijalno poželjnog odgovaranja (78). Naravno, postavlja se pitanje točnosti samoprocjene ponašanja, budući da su takve mjere pod utjecajem socijalno poželjnog odgovaranja. Međutim, u prilog mjerama samoprocjene *online* ponašanja ide istraživanje Acquistija i Grossa (55), koji su usporedbom izjava studenata (u dobi od 17 do 24 godine) o vlastitom *online* ponašanju i opažanja njihova stvarnog *online* ponašanja utvrdili kako ih 80 % daje točne procjene svog ponašanja. Većina istraživanja u području *online* ponašanja ne koristi izravno opažanje ponašanja iz praktičnih razloga – ovu metodu teško je provesti, a postavlja se i pitanje etičnosti takvih istraživanja. Nadalje, vrlo su rijetka istraživanja koja su koristila više izvora informacija – npr. ispitivala stavove prema rizičnom *online* ponašanju adolescenata, njihovih vršnjaka i roditelja. Buduća bi istraživanja svakako trebala uključiti

Another problem are research designs that rarely include longitudinal data (13,78), which makes it impossible to draw conclusions about the causes and consequences of risky online behavior. Research in this field is mostly descriptive and correlational. Questionnaire measures of self-assessment of adolescent behavior were mainly used, research was conducted online (15,37) or using the paper-pencil method in schools (36,70,74), and sometimes interviews with parents and adolescents were conducted live (20) or via telephone (29). Although it is possible to obtain a large sample in a short period of time through online research, the disadvantage of such research is the self-selection of participants which can lead to an unrepresentative sample; for example, the online questionnaire is more likely to be completed by adolescents who spend more time online, and therefore may encounter more online risks, and there is also the fact that we cannot be sure whether the questionnaires were actually completed by adolescents (77). For this reason, priority should be given to the implementation of live research. Furthermore, when dealing with sensitive topics such as risky behavior, the presence of the researcher, which is necessary for conducting interviews, can lead to socially desirable responding (78). Of course, the question of the accuracy of self-assessment of behavior arises, since such measures are influenced by socially desirable responding. However, a study conducted by Acquisti and Gross (55) supports the measures of self-assessment of online behavior. These authors (55) compared the students' statements (aged 17 to 24 years) about their own online behavior with their observed actual online behavior and found that 80% of them gave accurate assessments of their behavior. Most studies in the field of risky online behavior do not use direct observation of behavior for practical reasons - this method is difficult to implement and the question of the ethics of such research also arises. Furthermore, there are very few studies that used multiple sources of information - for

mjere socijalno poželjnog odgovaranja i različitije izvore podataka, npr. metodu dnevnog bilježenja vlastitog ponašanja.

OSVRT NA ISTRAŽIVANJA PROVJERE MODELA PROTOTIPOVA ZA OBJAŠNJENJE RIZIČNIH PONAŠANJA ADOLESCENATA NA DRUŠTVENIM MREŽAMA

Navedena istraživanja provjere Modela prototipova za objašnjenje rizičnih ponašanja adolescenata na društvenim mrežama (70-74) imaju određene nedostatke i ograničenja. Svako od navedenih istraživanja bavilo se samo jednom vrstom rizičnog ponašanja; uglavnom objavom određenih sadržaja na društvenim mrežama te, koliko je nama poznato, ni jedno istraživanje nije ponudilo usporedbu sklonosti riziku za različite vrste rizičnog ponašanja niti uključilo kontakte s nepoznatim osobama putem društvenih mreža kao rizično ponašanje. Zbog složenosti modela u istraživanjima rizičnih ponašanja u *online* kontekstu korišteni su samo njegovi dijelovi, odnosno nismo uspjeli pronaći istraživanje koje originalni model testira u cijelosti. Navedena istraživanja (70-74) stav su mjerila općenitim tvrdnjama o predmetnom rizičnom ponašanju, npr. „Sexting je loš", „Sexting je negativan" ili „"Sexting je rizičan", odnosno potencijalne rizične posljedice nisu bile dovoljno specifično opisane. Istraživanja ukazuju na to kako mlade osobe često vjeruju u „osobnu bajku" odnosno da je neka *online* aktivnost općenito opasna za druge pojedince te kako postoji velika vjerojatnost da se neki negativni događaj dogodi drugima, dok smatraju kako oni osobno nisu ranjivi na moguće posljedice te podcjenjuju vjerojatnost da se negativni događaj dogodi upravo njima (79). Adolescenti često ne uočavaju specifične negativne posljedice nekog rizičnog *online* ponašanja, npr. ne uočavaju da je *sexting* rizičan jer

example, examining the attitudes towards risky online behavior of adolescents, their peers and parents. Future studies should certainly include measures of socially desirable responding and more diverse sources of data, for example, the method of daily recording of one's own behavior.

A REVIEW OF STUDIES USING THE PROTOTYPE WILLINGNESS MODEL FOR THE PURPOSE OF EXPLAINING ADOLESCENT RISKY BEHAVIOR ON SOCIAL NETWORKS

The aforementioned studies in which the Prototype Willingness Model was used for the purpose of explaining adolescent risky behavior on social networks (70-74) have some shortcomings and limitations. Each of these studies assessed only one type of risky behavior; mainly sharing certain content on social networks, and as far as we know, no research has offered a comparison of risk vulnerability for different types of risky behavior or included contacts with strangers via social networks as risky behavior. Also, due to the complexity of the model employed in the research on risky behavior in the online context, only parts of it were used, that is, we were unable to find a study that examines the original model in its entirety. Furthermore, these studies (70-74) measured the attitudes toward risky behavior using general statements about the subject risky behavior, e.g. "Sexting is bad", "Sexting is negative" or "Sexting is risky", i.e. the potential risky consequences were not described specifically enough. Studies have shown that young people often believe in the "personal fairy tale", i.e. that some online activity is generally dangerous for other individuals and that there is a high probability that a negative event will happen to others, however, they believe that they are not personally vulnerable to the possible consequences and underestimate the probability that a negative event will

može naškoditi slici o sebi ili slici koju vršnjaci imaju o adolescentu, da sadržaj poruke razmijenjene u *sextingu* može biti zlouporabljen itd. Zbog toga smatramo da je u budućim istraživanjima u upitnicima stavova prema rizičnom ponašanju potrebno naglasiti komponentu osobne ranjivosti na negativne posljedice rizičnog ponašanja te potencijalne pozitivne i negativne posljedice takvog ponašanja jasnije odrediti.

Sljedeća kritika odnosi se na način procjene percepcije prototipa ili slike tipičnih osoba koje se ponašaju rizično. Percepcija prototipa vršnjaka koji se rizično ponaša u dosadašnjim istraživanjima ispitivala se tako da je adolescentima rečeno da sami zamisle tipičnog vršnjaka koji se ponaša rizično i ponuđena im je lista pridjeva (osobina), a njihov zadatak je bio procijeniti koliko se navedene osobine odnose na zamišljenog vršnjaka. Iako se originalni Upitnik prototipova (63) koristen u istraživanjima rizičnih ponašanja u stvarnom životu sastoji od dvanaest pozitivnih i negativnih osobina osobe uključene u rizično ponašanje, pri ispitivanju rizičnih ponašanja na društvenim mrežama u procjeni prototipova korišten je samo manji broj osobina (uglavnom tri do maksimalno šest) te su pouzdanosti takvih skraćenih ljestvica bile nezadovoljavajuće (70-74). U nekim istraživanjima (70,72) korištene osobine prototipova bile su isključivo pozitivne (npr. uzbudljiv, privlačan, popularan), odnosno nisu bile uključene negativne osobine te bi u budućim istraživanjima u upitnike prototipa trebalo uključiti veći broj pozitivnih i negativnih osobina.

Iako različiti autori (70,73) naglašavaju važnost procjene konstrukata Modela prototipova u više vremenskih točaka, ni jedno navedeno istraživanje u kojemu se ovaj model testirao u kontekstu rizičnog *online* ponašanja nije uključivalo longitudinalni nacrt. Dakle, ponašajna namjera i spremnost na ponašanja, koje se odnose na namjeru i spremnost

happen to them (79). Adolescents often do not notice the specific negative consequences of certain risky online behavior, for example, they do not perceive that sexting is risky because it can harm their self-image or the image that peers have of the adolescent, that the content of the sexting message can be misused, etc. For this reason, we believe that the questionnaires assessing the attitudes towards risky behavior included in future studies should emphasize the component of personal vulnerability to the negative consequences of risky behavior, as well as define the potential positive and negative consequences of such behavior more clearly.

The following criticism refers to the method of assessing the prototype favorability or the images of typical individuals engaging in risky behavior. In previous studies the prototype favorability of a peer engaging in risky behavior was examined in a way that the adolescents were told to imagine a typical peer behaving in a risky manner, and were offered a list of adjectives (traits). Their task was to assess how much the provided characteristics refer to the imaginary peer. Although the original Prototype Questionnaire (63) used in research on risky behavior in real life consists of twelve positive and negative traits of a person involved in risky behavior, when examining risky behavior on social networks, only a smaller number of traits was used in the prototype assessment (mainly three, up to a maximum of six) and the reliability of such abbreviated scales was unsatisfactory (70-74). In some studies (70,72), the used characteristics of the prototypes were exclusively positive (e.g. exciting, attractive, popular), i.e. the negative characteristics were not included, and in future studies a larger number of positive and negative characteristics should be included in the Prototype Questionnaire.

Although various authors (70,73) emphasize the importance of assessing the constructs of the Prototype Willingness Model at multiple time points, none of the cited studies in which

da se osoba upusti u rizično ponašanje u budućnosti bili su prediktori rizičnog ponašanja te su mjereni u istoj vremenskoj točki kao i rizično ponašanje, koje se odnosilo na prošlo ponašanje u koje su adolescenti bili uključeni u zadnjih dva do šest mjeseci, što vjerojatno rezultira precijenjenom povezanošću ovih konstrukata u navedenim istraživanjima. Postavlja se pitanje s kolikom je preciznošću na temelju ponašajne namjere i spremnosti na ponašanje uistinu moguće predvidjeti buduću uključenost adolescenata u rizično *online* ponašanje. Nameće se potreba za istraživanjem koje će obuhvatiti sve konstrukte Modela prototipova i uz longitudinalni nacrt omogućiti donošenje pouzdanijih zaključaka o ulozi ponašajne namjere i spremnosti na ponašanje odnosno racionalnog i socijalno reaktivnog puta u procesu donošenja odluka o upuštanju u rizično *online* ponašanje adolescenata. Takvi podatci dali bi jasniju sliku o tome u kojoj je mjeri rizično ponašanje *online* adolescenata promišljeno i planirano, a u kojoj mjeri reaktivno i spontano.

ZAKLJUČAK

Dosadašnja istraživanja rizičnog ponašanja adolescenata na društvenim mrežama dovode takvo ponašanje u vezu s individualnim činiteljima (npr. dobi, rodom, osobinama ličnosti, zabrinutosti za privatnost, emocionalnim i ponašajnim problemima adolescenta) te činiteljima u socijalnom okruženju adolescenta, najčešće percipiranim vršnjačkim i roditeljskim normama vezanima uz rizično ponašanje. Ipak, spoznaje o rizičnom ponašanju adolescenata na društvenim mrežama još uvijek nisu potpune, a dosadašnja istraživanja imaju određene nedostatke. Kao prvo, ističe se problem operacionalizacije rizičnog ponašanja na društvenim mrežama, koje se razlikuje u različitim istraživanjima. Takva istraživanja uglavnom su fokusirana na manji broj činitelja

this model was examined in the context of risky online behavior included a longitudinal design. Therefore, behavioral intention and willingness, which refer to the intention and willingness of a person to engage in risky behavior in the future, were predictors of risky behavior and were measured at the same time point as risky behavior, which referred to past behavior in which adolescents were involved in the last two to six months, which probably resulted in an overestimated correlation of these constructs in the aforementioned studies. The question arises as to how accurately it is possible to predict future involvement of adolescents in risky online behavior on the basis of their behavioral intention and behavioral willingness. There is a need for research that will include all the Prototype Willingness Model constructs, and will utilize the longitudinal design in order to derive more reliable conclusions about the role of behavioral intention and willingness, i.e. the rational and socially reactive path, in the process of making decisions about engaging in risky online behavior among adolescents. Such data would provide a clearer picture of the extent to which adolescent risky online behavior is deliberate and planned, and to which extent it is reactive and spontaneous.

CONCLUSION

Previous studies addressing adolescent risky behavior on social networks link such behavior to individual factors (e.g. age, gender, personality traits, privacy concerns, emotional and behavioral problems of adolescents) and factors in the adolescents' social environment, most often the perceived peer and parental norms relating to risky behavior. However, knowledge about the risky behavior of adolescents on social networks is still not complete, and studies conducted so far have certain shortcomings. First of all, the problem of operationalizing risky behavior on social networks, which is different in various studies, is highlighted in

koji potencijalno utječu na takvo ponašanje, a uočava se i nedostatak istraživanja koja bi ispitala moderatorske i medijatorske učinke pojedinih varijabli. Kao dodatno ograničenje navedenih istraživanja ističe se nedostatak longitudinalnih nacrta i razvijenih mjera za procjenu konstrukta rizičnog ponašanja na društvenim mrežama, kao i konstrukata povezanih s njima (npr. zabrinutosti na privatnost). U ovom području ima prostora za nova, kvalitetnija istraživanja koja će jasnije operacionalizirati takvo ponašanje, uključiti reprezentativne uzorke sudionika te longitudinalne podatke koji će omogućiti zaključivanje o uzrocima i posljedicama rizičnog *online* ponašanja adolescenata. Napredak u istraživanjima u ovom području izrazito je važan jer primjena njihovih rezultata može doprinijeti kvaliteti i uspješnosti preventivnih programa namijenjenima sigurnijem *online* ponašanju djece i adolescenata.

this paper. Such studies are mainly focused on a smaller number of factors that potentially influence such behavior, and there is also a lack of research that would examine the moderating and mediating effects of individual variables. An additional limitation is the lack of longitudinal designs and developed measures for assessing the construct of risky behavior on social networks, as well as related constructs (e.g. privacy concerns). In this area, there is room for new, better studies that will operationalize risky behavior more clearly, and will include representative samples of participants, as well as longitudinal data that will allow for conclusions to be drawn about the causes and consequences of adolescent risky online behavior. It is extremely important to make progress in this area of research, because the application of obtained results can contribute to the quality and success of preventive programs aimed at safer online behavior of children and adolescents.

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Cilj je kratak opis što se namjerava istraživati, tj. što je svrha istraživanja.

Metode se prikazuju tako da se čitatelju omogući ponavljanje opisanog istraživanja. Metode poznate iz literature ne opisuju se, već se navode izvorni literaturni podatci. Ako se navode lijekovi, rabe se njihova generička imena (u zagradi se može navesti njihovo tvorničko ime).

Rasprava sadrži tumačenje dobivenih rezultata i njihovu usporedbu s rezultatima drugih istraživača i postojećim spoznajama na tom području.U raspravi treba objasniti važnost dobivenih rezultata i njihova ograničenja, uključujući i implikacije vezane uz buduća istraživanja, ali uz izbjegavanje izjava i zaključaka koji nisu potpuno potvrđeni dobivenim rezultatima.

Zaključci trebaju odgovarati postavljenom cilju istraživanja i temeljiti se na vlastitim rezultatima.

Tablice treba smjestiti unutar Word-dokumenta na kraju teksta, a označiti mjesto njihovog pojavljivanja u tekstu. Ako se tablica daje u formatu slike (tj. nije izrađena u Wordu), za nju vrijede upute kao za slike. Svaka tablica treba imati redni broj i naslov.

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U tekstu se literaturni podatak navodi arapskim brojem u zagradi.

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