

# Društvene mreže, depresivnost i anksioznost

## / *Social Connections, Depression and Anxiety*

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

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

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## DRUŠTVENE MREŽE I PSIHIČKO ZDRAVLJE

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

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

## SOCIAL NETWORKS AND MENTAL HEALTH

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



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

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

U meta-analizi koja je uključivala 18 radova o uporabi *Facebook*-a i usamljenosti pokazano je da su navedene dvije varijable značajno povezane te da usamljenost predviđa uporabu *Facebook*-a, ali ne i obratno (15). Uporaba društ-

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

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

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

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

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

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

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

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

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

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

## Društvene mreže i depresivnost

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

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

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

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

## Social networks and depression

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

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

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

## Društvene mreže i anksioznost

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

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

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

## Social networks and anxiety

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

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

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

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

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

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

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

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



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

## Društvene mreže i socijalna anksioznost

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

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

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

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

## Social networks and social anxiety

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

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

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

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

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

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

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

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

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

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

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

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

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

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

## Društvene mreže i pandemija

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

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

## Social networks and the pandemic

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



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

### Potreba za daljnjim istraživanjima

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

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

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

### The need for further research

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

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

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

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

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

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

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

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

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