Socijalna psihijatrija

UDC 616.89
SPSIDE 52 (2) 107-184 (2024)
ISSN 0303-7908

VOL. 52 – 2024
BROJ/NUMBER 2
ZAGREB, lipanj/June 2024.

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Međuodnos praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama i sociokulturnog pritiska za mršavošću mladih žena u Hrvatskoj

/ The Relationship Between Health-Related Social Media Content Consumption and Sociocultural Pressures to Be Thin Among Young Women in Croatia

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Cilj istraživanja bio je ispitati međuodnos praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama s doživljenim pritiscima medija i vršnjaka za mršavošću i provođenja dijete. U istraživanju su sudjelovale 352 mlade žene iz Hrvatske u dobi između 18 i 21 godine. *Online* upitnikom prikupljeni su podatci o korištenju društvenih mreža, doživljaju pritiska povezanog sa izgledom od medija i vršnjaka te podatci o provođenju dijete. Rezultati ukazuju da mlade žene u Hrvatskoj pretežito koriste Instagram za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom te da ih većina provede do 30 minuta na dan prateći ovu vrstu sadržaja na društvenim mrežama. Korištenje društvenih mreža i pritisci koje doživljavaju mlade žene za mršavošću od medija i vršnjaka, izravno su predviđali provođenje dijete. Istovremeno, praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom predviđalo je provođenje dijete i neizravno, ali samo pritiskom koji mlade djevojke doživljavaju od medija. Nalazi ovog istraživanja korisni su za osmišljavanje budućih intervencija s ciljem ublažavanja osjećaja sociokulturnog pritiska i smanjenja provođenja dijeta među mladim ženama koje prate sadržaj povezan sa zdravom prehranom i zdravim životom na društvenim mrežama.

/ The aim of the study was to examine the relationship between health-related social media content consumption and the perceived media and peer pressures for being thin and dieting. The study involved 352 young women from Croatia, between 18 and 21 years of age. An online questionnaire was used to collect data on their social media use, the perceived media and peer pressures relating to appearance, and their dieting behavior. The results indicate that young women from Croatia mostly use Instagram to follow health-related content, and the majority of them spend up to 30 minutes per day following this type of content on social media. The use of social media, as well as the media and peer pressures experienced by young women to be thin, directly predicted their dieting behavior. At the same time, health-related content consumption indirectly predicted dieting as well, but only through pressure that young women experience from the media. The findings of this study are useful for designing future interventions with the aim of alleviating the experience of sociocultural pressures and reducing dieting among young women who follow health-related content on social media.

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KLJUČNE RIJEČI / *KEY WORDS*:
Društvene mreže / *Social Media*
Sociokulturni pritisak / *Sociocultural Pressure*
Tjelesni izgled / *Appearance*
Dijeta / *Diet*
Zdravlje / *Health*

TO LINK TO THIS ARTICLE: https://doi.org/10.24869/spsih.2024.109

UVOD

U današnjem društvu interneta većina mladih koristi pametni telefon (1) s kojim je moguće cjelodnevno koristiti društvene medije. Društveni mediji čine platformu preko koje mladi primaju informacije i međusobno komuniciraju izlažući ih medijima i utjecajima vršnjaka u novom društvenom kontekstu (2,3). Zbog toga su recentna istraživanja prebacila fokus s teme doživljaja pritiska putem tradicionalnih medija ili pritiska u klasičnoj interakciji licem u lice s vršnjacima na razmatranje povezanosti sociokulturnih pritisaka vezanih uz izgled koje mladi doživljavaju od medija i vršnjaka na društvenim mrežama (2).

U većini istraživanja u kojima su razmatrani sociokulturni pritisci na društvenim mrežama ispitanici su bili korisnici *Facebook*-a i *Instagram*-a. Ta su istraživanja pokazala da korištenje društvenih mreža i utjecaj vršnjaka može doprinijeti stvaranju pritiska za postizanje određenog tjelesnog izgleda što može stvoriti osjećaj nezadovoljstva vlastitim tijelom i poremećaje prehrane (4-7). Čini se da društvene mreže, poput *Instagram*-a i *Facebook*-a, potiču socijalnu usporedbu i procjenjivanje na temelju fizičkog izgleda, što pridonosi internalizaciji nametnutih ideala mršavosti i potencijalno vodi do negativnih ishoda kao što su, primjerice, povećana briga vezana uz sliku o vlastitom tijelu, nezadovoljstvo tijelom ili razvoj poremećaja prehrane (4,7-10).

INTRODUCTION

In today's internet-based society, the majority of young people use smartphones (1) which enable them to use social media throughout the day. Social media act as a platform where young people receive information and interact with one another, thus exposing them to the media and peer pressures in a new social context (2, 3). For this reason, recent studies have shifted focus from the pressures of traditional media or face-to-face interactions among peers to examining the connections between appearance-related sociocultural pressures experienced by young people from the media and their peers on social media (2).

Most of the studies addressing sociocultural pressures on social media included participants using Facebook and Instagram. Such studies have shown that social media use and peer pressure can contribute to creating the pressure to meet certain appearance standards, which could lead to body dissatisfaction and eating disorders (4-7). It appears that social media, such as Instagram and Facebook, encourage social comparisons and evaluations based on physical appearance, which contributes to the internalization of imposed ideals of thinness, and potentially leads to negative outcomes such as increased concern about one's body image, body dissatisfaction or eating disorders (4, 7-10).

Different researchers tried to explain the mechanisms behind body image dissatisfaction and

Više je istraživača pokušalo objasniti mehanizme nakon nezadovoljstva vlastitim tijelom i poremećaja prehrane kod mladih djevojaka te su pokušali objasniti koju ulogu u tome imaju sociokulturni utjecaji (3,11-13). Prema sociokulturnom tripartitnom modelu (13) nezadovoljstvo tijelom kod žena nastaje jer sociokulturna okolina, poput roditelja, vršnjaka i medija, izravno ili neizravno, promovira određene ideale ljepote i preferira specifičan tjelesni izgled i mršavost, koje žene zatim internaliziraju. Žene, međutim, nastojeći dostići te standarde ljepote najčešće dožive neuspjeh, jer su ti standardi za većinu žena nerealni i nedostižni (13). U ovim nastojanjima, zbog nemogućnosti dostizanja navedenih ideala, javlja se nezadovoljstvo vlastitim tijelom što za posljedicu ima brojne druge negativne ishode, kao što je, primjerice, razvoj poremećaja prehrane (14-16).

U kontekstu doživljaja pritiska od medija i vršnjaka na društvenim mrežama, razvojno-sociokulturni model (3) pretpostavlja da karakteristike društvenih mreža, poput prisutnosti idealiziranih slika vršnjaka i povratnih informacija koje su vidljive svima, mogu kod žena pojačati brigu vezanu uz sliku o vlastitom tijelu i narušiti njihovo mentalno zdravlje. To je posebno izraženo kod mlađih žena u razvojno važnoj fazi adolescencije kada su im odnosi s vršnjacima izrazito važni (17-20). Zbog toga su žene podložnije društvenim pritiscima da se konformiraju društveno nametnutom poželjnom standardu tjelesnog izgleda (21).

Prijašnja istraživanja potvrđuju da su žene, te osobito mlađe žene (3,22-24), ranjiva skupina za razvoj pretjerane brige vezano uz sliku o vlastitom tijelu i za razvoj nezadovoljstva tijelom, budući da doživljavaju snažnije društvene pritiske povezane s izgledom te su sklonije prikloniti se nametnutim društvenim idealima ljepote (4,10,25-28). Ovo nije iznenađujuće jer žene i inače češće koriste društvene mreže, općenito su sklonije uspoređivanju s drugima (29-31) te su sklonije od muškaraca uspoređivati vlastiti

eating disorders in young women, as well as the role of sociocultural influences in this regard (3, 11-13). According to the sociocultural Tripartite Influence model (13), body dissatisfaction among women arises because their sociocultural surroundings, such as parents, peers and media, directly or indirectly promote certain beauty ideals and preferences for certain body images and thinness, which women then internalize. Women, however, usually fail in their attempts to achieve these beauty standards, because they are unrealistic and unachievable for most women (13). Due to the inability to achieve these ideals, these attempts result in body dissatisfaction which can lead to other negative outcomes, such as the development of eating disorders (14-16).

Within the context of media and peer pressures perceived on social media, the developmental-sociocultural framework (3) assumes that the characteristics of social media, with their idealized images of peers and feedback that is visible to everybody, can exacerbate body image concerns in women and impair their mental health. This is particularly pronounced in younger women during the developmentally important period of adolescence, when the relationships with their peers are extremely important (17-20). For this reason, women are more susceptible to social pressures to conform to the socially imposed desirable standard of physical appearance (21).

It was observed in previous studies that women, especially younger women (3, 22-24), are more susceptible to developing exaggerated body image concerns or body dissatisfaction, as they tend to experience more social pressure regarding their appearance, and are more prone to adhere to the imposed social ideals of beauty (4, 10, 25-28). This is not surprising, as women usually use social media more frequently, they are generally more inclined to compare themselves to others (29-31), and are more likely to compare their appearance to others than men,

izgled, i to ponajprije s vršnjacima a onda i s drugim društvenim skupinama poput primjerice članova svoje obitelji (4,26). Istraživanja pokazuju da provođenje više vremena na društvenim mrežama dovodi do nižeg samopoštovanja i veće brige o slici vlastitog tijela, kao i do više poremećaja prehrane (5,6 8, 32,33).

Činjenica je da izloženost sadržaju koji promiče ideale mršavosti, savjeti i strategije kako biti mršav, kao i izloženost različitim slikama mršavosti, idealiziranim slikama utjecajnih osoba na društvenim mrežama i slavnih osoba ili vršnjaka na društvenim mrežama naglašava idealizaciju mršavih tijela što može pridonijeti nezadovoljstvu tijelom i dovesti do poremećaja ponašanja u prehrani kod mladih žena (24,33-36). Međutim, težnja za mršavošću često obuhvaća i provođenja dijete radi gubitka tjelesne težine. Istraživanja pokazuju da ekstremnija ograničenja u prehrani dovode često do osjećaja deprivacije i gubitka kontrole što zauzvrat potiče nezdravo ponašanje s obzirom na prehranu (12,37-38). Također, različita istraživanja pokazuju da su djevojke koje su u mlađim godinama provodile dijetu, kasnije u životu bile podložnije razvoju poremećaja prehrane (12,39-41). Stoga je prema Američkom psihijatrijskom udruženju (42) provođenje dijete prepoznato kao jedno od ključnih obilježja poremećaja prehrane, te se smatra čimbenikom rizika za razvoj poremećaja prehrane poput anoreksije nervoze i bulimije nervoze (41).

Štoviše, istraživanja su pokazala da mlade djevojke provode značajno vrijeme na društvenim mrežama koristeći ih kao primarni izvor informacija o zdravlju i zdravom načinu života (43). One često prate sadržaj povezan sa zdravom prehranom i zdravim životom kako bi postigle mršav i 'fit' izgled zdravim načinom života poput zdrave prehrane i tjelovježbe (15). U tom smislu društvene mreže dijeljenjem različitih savjeta i strategija među korisnicima radi postizanja specifičnog tjelesnog izgleda mogu lako postati platforma za stvaranje sociokulturnih

primarily to their peers and then to other social groups such as their families (4, 26). Studies have shown that spending more time on social media leads to lower self-esteem and greater body image concerns, as well as more eating disorders (5, 6, 8, 32, 33).

The fact is that exposure to content that promotes thin ideals, tips and strategies on how to be thin, as well as exposure to different images of thinness, idealized images of social media influencers and celebrities or peers on social media, emphasizes the idealization of thin bodies which can contribute to body dissatisfaction and lead to the development of eating disorders in young women (24, 33-36). However, a pursuit of thinness often involves the adoption of some form of dieting with the aim of losing weight. Studies have shown that more extreme dietary restrictions often lead to feelings of deprivation and loss of control, which in return facilitates unhealthy eating behaviors (12, 37-38). Furthermore, different studies have shown that young women who used to diet at a younger age are at an increased risk of developing eating disorders later in life (12, 39-41). According to the American Psychiatric Association (42), dieting is, therefore, recognized as one of the key features of eating disorders, and is considered a risk factor for the development of eating disorders such as anorexia nervosa and bulimia nervosa (41).

Moreover, studies have shown that young women spend a significant amount of time on social media, using them as the primary source of health and healthy lifestyle information (43). They often follow healthy eating and healthy lifestyle related content in order to achieve a thin and fit appearance by adopting healthy lifestyle choices, such as healthy eating and exercise (15). In this regard, social media can easily become a platform for creating appearance-related sociocultural pressures by encouraging the sharing of different tips and strategies among their users, aiming at achiev-

pritisaka usmjerenih na izgled. Primjerice, na društvenim mrežama se tako promovira sadržaj koji potiče korisnike na mršavost (npr. "*thinspiration*" (44)), no problematično je to što se pri takvim pokretima najčešće ne uzimaju u obzir specifične potrebe pojedinca, a i promiče se prehrana i tjelovježbe koji nisu nužno zdravi za sve. Pokazalo se da je među mladim ženama koje su koristile sadržaj vezan uz zdravu prehranu i zdrav život na društvenim mrežama, 17,7 % bilo izloženo visokom riziku za razvoj poremećaja prehrane, 17,4 % je iskazalo visoku razinu psihološkog stresa, a 10,3 % ih je iskazalo znakove ovisnosti o vježbanju (45).

U Hrvatskoj se više istraživanja bavilo odnosom između sociokulturnih pritisaka i rizika za razvoj poremećaja prehrane. Internalizacija ideala mršavosti predviđa nezadovoljstvo tjelesnim izgledom (46), kao i provođenje dijete kod žena (47). Istraživanje Anić i sur. (48) i Rukavina i Pokrajac-Bulian (49) je pokazalo da žene s višim indeksom tjelesne mase češće doživljavaju sociokulturni pritisak da se prilagode kulturološki definiranim idealima mršavosti. Također, pokazalo se da je taj pritisak povezan i s internalizacijom ideala mršavosti, provođenjem dijete (49-51) i s motivacijom za vježbanjem radi poboljšanja vlastitog izgleda i regulacije tjelesne težine (48). Osim toga, u Hrvatskoj je provedeno i jedno novije istraživanje u kojem se promatra odnos društvenih medija, slike o vlastitom tijelu i ponašanja vezanima uz prehranu. Marić i sur. (52) su pokazali da žene koje češće prate stranice vezane uz fitnes, zdravlje i prehranu na *Instagram*-u pokazuju značajno veću želju za mršavošću i veće idealiziranje vitke građe u usporedbi s ispitanicama koje manje prate ovakve sadržaje. Štoviše, Marić i sur. (52) primijetili su da žene koje redovito prate slavne i utjecajne osobe imaju tendenciju internalizirati društvene ideale. To dodatno potvrđuje istraživanje Stojčić i sur. (46), u kojem se pokazalo da su žene bile manje zadovoljne svojim tijelom kada su bile izložene slikama idealnih mršavih žena.

ing certain appearance standards. Social media, for example, promote content that encourages thinness (e.g. "thinspiration" (44)), but the problem arises in the fact that such movements generally do not consider the specific individual needs, and promote eating and exercise choices that are not necessarily healthy for everyone. It has been observed that among young women who accessed health-related content on social media, 17.7% were at a high risk of developing eating disorders, 17.4% reported high levels of psychological stress, and 10.3% showed signs of addictive exercise behavior (45).

Several studies conducted in Croatia have examined the relationship between sociocultural pressures and the risk of developing eating disorders. An internalization of the ideal of thinnnes predicts body image dissatisfaction (46) and dieting (47) among women. It was observed in studies conducted by Anić et al. (48), and Rukavina and Pokrajac-Bulian (49), that women with higher body mass index levels more often experience sociocultural pressures to conform to the culturally defined ideals of thinness. These pressures were also found to be associated with the internalization of the ideal of thinness, dieting behavior (49-51) and motivation to engage in exercise for the purpose of enhancing one's appearance and managing body weight (48). Furthermore, a more recent study conducted in Croatia has examined the relationship beween social media, one's own body image and eating behaviors. Marić et al. (52) found that women who frequently follow fitness, health and nutrition-related accounts on Instagram, exhibit a significantly greater desire for thinness and idealization of a slender physique compared to those who did so less frequently. Moreover, Marić et al. (52) observed that women who regularly follow accounts of celebrities and influential figures tend to internalize social ideals. This was further confirmed in the study conducted by Stojčić et al. (46), where it was observed that women were less

Nastavljajući na navedene rezultate u ovom smo istraživanju željeli razmotriti odnos između sadržaja povezanog sa zdravom prehranom i zdravim životom (vježbanje i sl.) na društvenim mrežama, sociokulturnih pritisaka za mršavošću i provođenja dijete među mladim ženama u Hrvatskoj. Dok je fokus istraživanja Marić i sur. (52) na korištenju *Instagram*-a, cilj ovog istraživanja je uzeti u obzir različite platforme društvenih mreža i ispitali učestalost korištenja sadržaja povezanog sa zdravom prehranom i zdravim životom (vježbanje i sl.). Rezultati će nam pružiti bolje razumijevanje odnosa između korištenja sadržaja na društvenim medijima, sociokulturnog pritiska i provođenja dijete. Dosadašnja istraživanja u Hrvatskoj bavila su se odnosom sociokulturnih pritisaka, provođenjem dijete i poremećajima prehrane. Međutim, dinamika odnosa navedenih konstrukata nije ispitana u kontekstu društvenih medija i praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim medijima. Također, u prijašnjim istraživanima u Hrvatskoj nije istraživan medijatorski utjecaj medija i pritiska vršnjaka u odnosu između učestalosti korištenja društvenih medija i provođenja dijete.

Prema tome, prvi cilj našeg istraživanja bio je utvrditi koje društvene mreže mlade žene u Hrvatskoj koriste za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom, te ispitati učestalost korištenja tog sadržaja na različitim društvenim mrežama. Drugi cilj bio je ispitati kako je među mladim djevojkama u Hrvatskoj praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama povezano s pritiscima koje one doživljavaju vezano uz izgled od strane medija i vršnjaka te s provođenjem dijete. Zapravo, cilj je testirati model koji predviđa rizik od provođenja dijete kod mladih žena u Hrvatskoj, na temelju njihovog praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama (npr.

satisfied with their bodies when they were exposed to images of ideal thin women.

Building upon these findings, our study aim was to examine the relationship between health-related content (exercise etc.) on social media, sociocultural pressures for thinness, and dieting among young women in Croatia. While the study conducted by Marić et al. (52) focused solely on Instagram, the aim of our study was to incorporate various social media platforms and examine the frequency of engagement with health-related content (exercise, etc.). The results will provide us with a better understanding of the relationship between engagement with social media content, sociocultural pressures, and dieting behavior. The studies conducted in Croatia so far have explored the relationship between sociocultural pressures, dieting behaviors and eating disorders. However, they have not examined the dynamics between these constructs within the context of social media and health-related content consumption on social media. Additionally, previous studies conducted in Croatia did not explore the mediating role of media and peer pressure in the relationship between the frequency of social media usage and dieting.

Accordingly, the first aim of our study was to identify which social media young women in Croatia predominantly use in order to consume health-related content, and to determine the frequency of their engagement with such content on different social media. The second aim of our study was to examine how the consumption of health-related content on social media relates to the pressures young women in Croatia experience from both peers and the media regarding their appearance, as well as their dieting behaviors. Specifically, the aim was to test the model of predicting the risk of dieting among young women in Croatia, based on their level of engagement with health-related content on social media (e.g. following fitness, exercise and healthy eating content), in which the

praćenje sadržaja o fitnesu, tjelovježbi i zdravoj prehrani), a da pri tome sociokulturni pritisci koje one doživljavaju vezano uz izgled imaju medijatorsku ulogu.

METODA

Ispitanici i postupak

Ispitanice su 352 mlade žene u dobi između 18 i 21 godina (*M* = 19,97; *SD* = 1,08), iz različitih županija Republike Hrvatske. U istraživanju je sudjelovalo 47 žena (13,35 %) iz Istarske županije, 85 (24,15 %) iz Primorsko-goranske županije, 14 (3,98 %) iz Ličko-senjske županije, 61 (17,33 %) iz Zadarske županije, 28 (7,95 %) iz Šibensko-kninske županije, 94 (26,70 %) iz Splitsko-dalmatinske te 23 (6,53 %) mlade djevojke iz Dubrovačko-neretvanske županije. Korišten je prigodan, neprobabilistički uzorak.

Podatci su prikupljeni *online* upitnikom u razdoblju od travnja do svibnja 2021. godine. Upitnici su ispitanicima podijeljeni putem platformi društvenih mreža (*Instagram* i *Facebook*) ciljanim *Facebook* grupama koje srednjoškolci i studenti koriste za komunikaciju o školi i fakultetskim obavezama. Za prezentiranje ovog istraživanja korišteni su i plaćeni oglasi *Instagram* i *Facebook* kako bi se sakupio veći broj mladih djevojaka. Osim toga, ispitanici su odabrani i putem osobnih kontakata u različitim srednjim školama, veleučilištima i sveučilištima u Hrvatskoj. Istraživanje je odobrilo Etičko povjerenstvo Filozofskog fakulteta u Zagrebu te je provedeno u skladu s etičkim standardima provođenja istraživanja s mladima.

Mjere

Osim sociodemografskih podataka ispitanici su odgovarali i na dihotomno pitanje s ponuđenim odgovorima „da“ i „ne“ koje se odnosi na *iskustvo provođenja dijete* (“Jeste li trenutno na dijeti s ciljem smanjenja tjelesne težine?”).

sociocultural pressures they experience with regard to their appearance have a mediating role.

METHOD

Participants and procedure

A total of 352 young women between 18 and 21 years of age (*M* = 19.97; *SD* = 1.08) from different counties in the Republic of Croatia participated in the study. Specifically, the study included a total of 47 (13.35%) women from Istria County, 85 (24.15%) from Primorje-Gorski Kotar County, 14 (3.98%) from Lika-Senj County, 61 (17.33%) from Zadar County, 28 (7.95%) from Šibenik-Knin County, 94 (26.70%) from Split-Dalmatia County and 23 (6.53%) young women from Dubrovnik-Neretva County. Convenience/non-probability sampling was used.

The data were collected using an online questionnaire in the period from April to May 2021. The questionnaires were administered to participants by means of social media platforms (Instagram and Facebook) to targeted Facebook groups often used by highschoolers or students for the purpose of communicating about school or study obligations. Paid ads on Facebook and Instagram were also used to advertise this study, in order to gather a larger number of young women. In addition, the participants were also recruited through personal contacts in various secondary schools, polytechnics and universities in Croatia. The study was conducted in accordance with the ethical standards on research with young people as participants, and was approved by the Ethics Committee of the Faculty of Humanities and Social Sciences at the University of Zagreb.

Measures

In addition to sociodemographic data, the participants also answered a dichotomous question with two possible answers – “yes” or “no”,

Korištenje društvenih medija izmjereno je pitanjima kojima se ispituje vrsta društvene mreže koju ispitanici prate te pitanjima o učestalosti praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom. Sadržaj vezan uz zdravu prehranu i zdrav život operacionaliziran je praćenjem stranica o fitnesu, vježbanju i zdravoj prehrani na društvenim medijima. Ispitanici su trebali označiti *koju platformu društvenih mreža najviše koriste za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom* (*Facebook; Instagram; YouTube; TikTok; LinedIn; Twitter; Pinterest*). Osim toga, trebali su procijeniti *učestalost praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama*: broj različitih platformi društvenih mreža (broj od 0 do 99), dnevno korištenje društvenih mreža (ništa; manje od 15 minuta; 15 do 30 minuta; 30 do 60 minuta; 1-2 sata; 2-3 sata; više od 3 sata), te broj ljudi ili stranica na društvenim mrežama putem kojih se prati sadržaj vezan uz zdravu prehranu i zdrav život (broj od 0 do 99).

Upitnik sociokulturnih stavova prema tjelesnom izgledu (engl. *Sociocultural Attitudes towards Appearance Questionnaire* - SATAQ-4 (53), sadrži u originalu 5 podljestvica koje mjere različite sociokulturne pritiske vezane uz tjelesni izgled (internalizacija mršavosti/niske količine tjelesne masnoće; internalizacija atletske/mišićave građe; pritisak obitelji; pritisak vršnjaka; pritisak medija). U ovom istraživanju korištene su 2 podljestvice tog upitnika, i to 2 podljestvice koje se odnose na doživljeni sociokulturni pritisak medija i vršnjaka. Doživljeni pritisak vršnjaka i doživljeni pritisak medija izmjereni su s ukupno 8 čestica, 4 čestice za svaku podljestvicu (primjerice, *Osjećam pritisak od svojih vršnjaka da smanjim razinu tjelesne masnoće; Osjećam pritisak od strane medija da izgledam mršavije)*. Zadatak ispitanika bio je da na ljestvici Likertovog tipa označe (ne)slaganje s ponuđenim tvrdnjama (1 - u potpunosti se ne slažem; 5 - u potpunosti se slažem) koje se odnose na doživljavanje pritiska za mršavošću od medija i vršnjaka. Ukupan rezultat računa se kao prosječan odgovor, s mogu-

which referred to their *dieting experience* ("Are you currently on a diet with the primary goal of losing weight?").

The use of social media was measured through questions examining the type of social media the participants engaged with, and questions on the frequency of following health-related content. Health-related content was operationalized through the following of fitness, exercise and healthy eating accounts on social media. The participants were asked to indicate *which social media platforms they mostly use in order to follow health-related content* (Facebook; Instagram; YouTube; TikTok; LinkedIn; Twitter; Pinterest). They were also asked to evaluate the *frequency of health-related content consumption on social media platforms*: the number of different social media platforms (from 0 to 99), daily use of social media (none; less than 15 minutes; 15 to 30 minutes; 30 to 60 minutes; 1-2 hours; 2-3 hours; more than 3 hours), and the number of people or pages they followed on different social media platforms in terms of health-related content (number from 0 to 99).

The Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-4) (53) was used, originally consisting of five subscales which measure the different sociocultural pressures relating to one's appearance (internalization of thinness/low body fat; internalization of muscular/athletic built; family pressures; peer pressures; media pressures). Two subscales from this questionnaire were used in our study, more specifically, the subscales that refer to the perceived media and peer pressures. The perceived peer and media pressures were measured using a total of eight items, four items per each scale (e.g., *I feel pressure from my peers to reduce my body fat level*; *I feel pressure from the media to look thinner*). The participants had to indicate their (dis)agreement with various offered statements referring to the peer and media pressures to be thin (1 – strongly disagree; 5 – strongly agree) on a five-point Likert scale. The total score was

ćim rasponom od 1 do 5 pri čemu viši rezultat ukazuje na veći doživljaj pritiska za mršavošću od vršnjaka i medija. Potvrđena je očekivana faktorska struktura, zadovoljavajuća pouzdanost te konvergentna valjanost ovih dviju ljestvica na uzorcima u SAD-u, Italiji, Engleskoj i Australiji (53). Ljestvica je korištena na hrvatskim uzorcima te su potvrđena zadovoljavajuća psihometrijska svojstva izvorne verzije ljestvice (47,49,51), ali i verzije ljestvice SATAQ-4 koja je korištena u ovom istraživanju (46,54). Pokazatelji unutarnje konzistencije, Cronbachovi alfa koeficijenti iznose ,90 za podljestvicu pritiska od vršnjaka, te ,94 za podljestvicu pritiska od medija, ukazujući na visoku unutarnju pouzdanost.

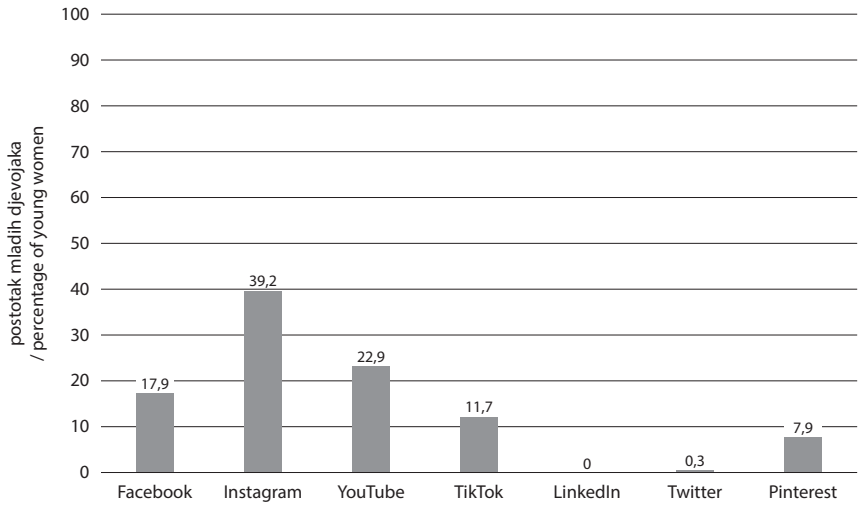
REZULTATI

Rezultati ukazuju da mlade žene pretežito koriste *Instagram* (39,2 %; *n* = 272) kao platformu za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom (slika 1). Osim *Instagram*-a, mlade žene za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom koriste i *YouTube* (22,9 %; *n* = 159) te *Facebook* (17,9 %; *n* = 124). U nešto manjoj mjeri ove sadržaje prate i na *TikTok*-u (11,7 %; *n* = 81) i *Pinterest*u (7,9 %; *n* = 55), dok im ostale

calculated as the average of responses, and was ranged from 1 to 5, with a higher score indicating higher perceived peer and media pressures to be thin. The expected factor structure was confirmed, as well as sufficient reliability and convergent validity of these two scales with regard to samples in the USA, Italy, England and Australia (53). The scale was used in Croatian samples and the satisfactory psychometric properties of the original version of the scale were confirmed (47, 49, 51), as well as those of the version of the SATAQ-4 scale applied in this study (46, 54). Internal consistency indicators, the Cronbach alpha coefficients amounted to .90 for peer pressure subscale, and .94 for media pressures subscale, indicating high internal reliability.

RESULTS

The results indicate that young women generally use Instagram (39.2%; *n* = 272) as a platform for following health-related content (Figure 1). In addition to Instagram, they also use YouTube (22.9%; *n* = 159) and Facebook (17.9%; *n* = 124) to follow health-related content. To a somewhat lesser extent, they follow such content on TikTok (11.7%; *n* = 81) and Pinterest



SLIKA 1. Postotak mladih žena koje prate sadržaje povezan sa zdravom prehranom i zdravim životom na različitim platformama društvenih mreža (N=352)

FIGURE 1. Percentage of young women following health-related content on different social media platforms (N = 352)

platforme društvenih mreža poput *Twitter*-a (0,3%; *n* = 2) i *LinkedIn*-a (0 %; *n* = 0) nisu toliko važne za praćenje ove vrste sadržaja.

Većina mladih žena sadržaje povezane sa zdravom prehranom i zdravim životom prati na samo jednoj ili dvije platforme (55,7), 21,6 % ovu vrstu sadržaja prati na do tri platforme, dok ih 10,3 % istovremeno prati 4 ili više platformi (tablica 1). Što se tiče vremena provedenog na platformama za društvene mreže, pokazalo se da većina mladih žena (64,7 %) prateći ovaj sadržaj provede do 30 minuta, 16,8 % provede 30 do 60 minuta, a 8 % ih provede više od 1 sata/dan prateći sadržaj vezan uz zdravu prehranu i zdrav život. Mlade žene prate do 26 ljudi ili stranica koje promiču sadržaje poveza-

(7.9%; *n* = 55), while they do not consider other social media platforms such as Twitter (0.3%; *n* = 2) and LinkedIn (0%; *n* = 0) as relevant when it comes to following this type of content.

Most young women follow health-related content on only one or two platforms (55.7%), while 21.6% follow this type of content on up to three platforms, and 10.3% follow this content on four or more platforms simultaneously (Table 1). As regards the time spent on social media platforms, it has been observed that the majority of young women (64.7%) spend up to 30 minutes per day following this type of content, while 16.8% of young women spend 30 to 60 minutes, and only 8% spend more than one hour per day following health-related content.

TABLICA 1. Deskriptivni podatci o praćenju sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama i o sociokulturnom pritisku za mršavošću među mladim ženama (N=352)
TABLE 1. Descriptive statistics of health-related social media content consumption and sociocultural pressures to be thin among young women (N = 352)

Praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama / Health-related social media content consumption		
Broj PDM (*N*; %) / Number of SMPs (*N*; %)	Niti jedna / None	44; 12,5
	Jedna / One	80; 22,7
	Dvije / Two	116; 33,0
	Tri / Three	76; 21,6
	Četiri / Four	27; 7,7
	Pet / Five	9; 2,6
Dnevno korištenje PDM (*N*; %) / Daily SMP usage (*N*; %)	Uopće ne / None	37; 10,5
	Manje od 15 minuta / Less than 15 minutes	130; 36,9
	15 do 30 minuta / 15-30 minutes	98; 27,8
	30 do 60 minuta / 30-60 minutes	59; 16,8
	1 do 2 sata / 1-2 hours	18; 5,1
	2 do 3 sata / 2-3 hours	7; 2,0
	Više od 3 sata / More than 3 hours	3; 0,9
Broj ljudi/stranica na DM (*M*±*SD*) / Number of people/pages on SM (*M*±*SD*)	Broj ljudi/stranica na DM / Number of people/ pages on SM	5,52±5,80
Dijeta (*N*; %) / Dieting (*N*; %)	Ne / No	209; 59,4
	Da / Yes	143; 40,6
Sociokulturni pritisci (*M*±*SD*) / Sociocultural pressures (*M*±*SD*)	Pritisak vršnjaka / Peer pressure	1,46±0,72
	Pritisak medija / Media pressure	2,51±1,05

Napomena. Broj PDM – Broj platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom.; Dnevno korištenje PDM – Dnevno korištenje platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom.; Broj ljudi/stranica na DM – Broj ljudi i/ili stranica na društvenim mrežama putem kojih se prati sadržaj vezan uz zdravu prehranu i zdrav život.
/ *Note*. Number of SMPs – Number of social media platforms for following health-related content; Daily SMP usage – Daily social media platform usage for following health-related content; Number of P/P on SM – Number of people and/or pages on social media whose health-related content is followed

ne sa zdravom prehranom i zdravim životom, a u prosjeku prate 5 ljudi ili stranica. U pogledu provođenja dijete i doživljavanja sociokulturnog pritiska pokazalo se da 40 % mladih žena trenutno provode dijetu s ciljem smanjenja tjelesne težine, te da doživljavaju relativno nizak pritisak vršnjaka (*M* = 1,46; *SD* = 0,72) i umjeren pritisak medija (*M* = 2,51; *SD* = 1,05).

U tablici 2 vidljivo je da je provođenje dijete u umjerenoj pozitivnoj korelaciji s većim pritiskom vršnjaka i medija vezano uz izgled te s izraženijim praćenjem sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama, što se očituje korištenjem većeg broja platformi, višednevnim korištenjem te praćenjem većeg broja ljudi ili stranica na društvenim mrežama. Osim toga, pokazalo se da je veći pritisak medija i vršnjaka povezan s korištenjem većeg broja platformi društvenih mreža, dok je samo pritisak medija povezan s učestalijim praćenjem sadržaja povezanog sa zdravom prehranom i zdravim životom na dnevnoj razini.

Kako bi se provjerio model koji predviđa rizik od provođenja dijete na temelju praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama, uz medijaciju sociokulturnih pritisaka prema tjelesnom izgledu, korišteno je strukturno modeliranje (slika 2) s WLSMV načinom procjene parametara te

Young women generally follow up to 26 people or pages that promote health-related content, averaging in 5 people or pages. In terms of dieting and experiencing sociocultural pressures, it has been observed that 40% of young women are currently on a diet with the goal of reducing body weight, and are experiencing relatively low peer pressure (*M* = 1.46; *SD* = 0.72) and moderate media pressure (*M* = 2.51; *SD* = 1.05).

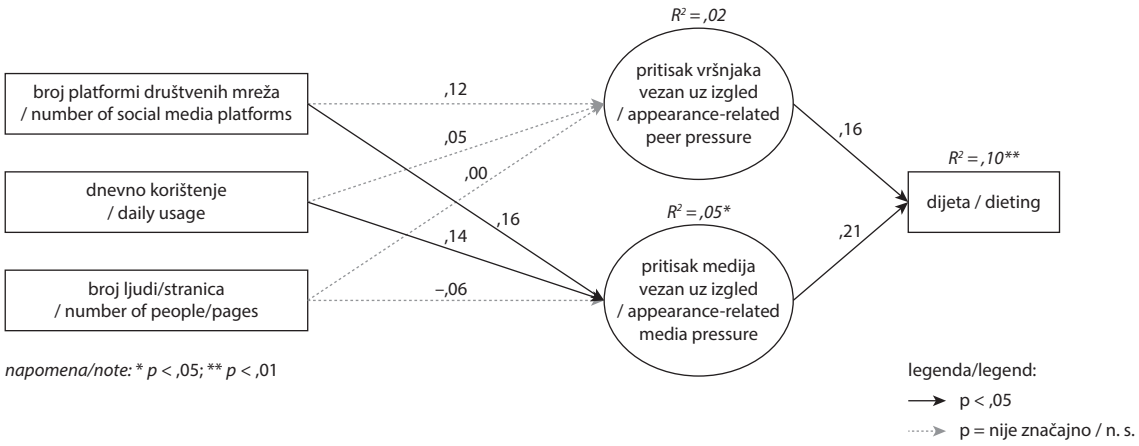
As presented in Table 2, dieting has a moderate positive correlation with stronger appearance-related peer and media pressures, and with more pronounced health-related social media content consumption, which is evident in the use of more platforms, multi-day usage and a larger number of people or pages followed. Moreover, it has been proved that stronger media and peer pressure was correlated with the use of more social media platforms, while only media pressure was correlated with more frequent daily usage of health-related content.

In order to test the model predicting the risk of dieting based on the health-related social media content consumption, in addition to mediation of appearance-based sociocultural pressures, structural equation modeling was conducted (Figure 2) with the WLSMV method of parameter estimation and FIML method

TABLICA 2. Pearsonovi koeficijenti korelacije između praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama i sociokulturnog pritiska za mršavošću kod mladih žena (N = 352)
TABLE 2. Pearson's correlation coefficients between health-related social media content consumption and sociocultural pressures to be thin among young women (N = 352)

	Pritisak vršnjaka / Peer pressure	Pritisak medija / Media pressure	Broj PDM / Number of SMPs	Dnevno korištenje PDM / Daily SMP usage	Broj LJS na DM / Number of PP on SM
Provođenje dijete / Dieting	,20**	,25**	,27**	,25**	,25**
Pritisak vršnjaka / Peer pressure	–	,38**	,14**	,09	,07
Pritisak medija / Media pressure	–	–	,20**	,17**	,08
Broj PDM / Number of SMPs	–	–	–	,54**	,45**
Dnevno korištenje PDM / Daily SMP usage	–	–	–	–	,50**
Broj LJS na DM / Number of PP on SM	–	–	–	–	–

Napomena. Broj PDM – Broj platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom.; Dnevno korištenje PDM – Dnevno korištenje platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom.; Broj LJS na DM – Broj ljudi i/ili stranica na društvenim mrežama putem kojih se prati sadržaj vezan uz zdravu prehranu i zdrav život; * $p < ,05$; ** $p < ,01$.
/ *Note*. Number of SMPs – Number of social media platforms for following health-related content; Daily SMP usage – Daily social media platform usage for following health-related content; Number of PP on SM – Number of people and/or pages on social media whose health-related content is followed; * $p < .05$; ** $p < .01$.



SLIKA 2. Model predviđanja rizika provođenja dijete na temelju praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama sa sociokulturnim pritiscima vezanim uz izgled kao medijatorima
FIGURE 2. Model of predicting the risk of dieting based on health-related social media content consumption that is mediated by appearance-based sociocultural pressures

FIML metodom tretiranja nedostajućih vrijednosti u podatcima koji su posljedica nedovršavanja ispunjavanja upitnika od ispitanika. Rezultati strukturnog modeliranja, prema kriterijima Hu i Bentlera (55), ukazuju na vrlo dobro pristajanje modela podatcima ($\chi2(44) = 109{,}18$, $p < {,}001$; $\chi2/df = 2{,}48$; CFI = ,972; TLI = ,961; RMSEA = 0,065 (90% CI [0,050, 0,081], $p_{close} = {,}052$); SRMR = 0,045). Testirani model ukazuje na to da je praćenjem sadržaja povezanog sa zdravom prehranom i zdravim životom putem društvenih mreža moguće objasniti 5,4 % ($p = {,}028$) varijance pritiska od medija vezanog uz izgled, a iako neznačajno, ipak je moguće objasniti i 2,4 % pritiska doživljenog od vršnjaka ($p = {,}161$). Također, pritiskom medija i vršnjaka zajedno moguće je objasniti 9,7 % ($p = {,}002$) držanja dijete.

Što se tiče izravnih efekata u modelu (tablica 3), pokazalo se da broj društvenih mreža ($\beta = {,}16$, $p = {,}017$) i dnevno korištenje društvenih mreža ($\beta = {,}14$, $p = {,}047$) značajno predviđaju pritisak vezan uz izgled doživljen od medija. To znači da korištenje većeg broja platformi društvenih mreža i češće korištenje društvenih mreža tijekom dana kod mladih žena predviđaju jači pritisak vezan uz tjelesni izgled doživljen od medija. Uz to, jači pritisak vršnjaka ($\beta = {,}16$, $p = {,}009$), ali i pritisak medija ($\beta = {,}21$, $p < {,}001$) značajno predviđaju provođenje dijete među mladim ženama.

for treating missing values in the data due to the participants' non-completion of questionnaires. Structural equation modeling results indicated a very good model data fit ($\chi2(44) = 109.18$, $p < .001$; $\chi2/df = 2.48$; CFI = .972; TLI = .961; RMSEA = 0.065 (90% CI [0.050, 0.081], $p_{close} = .052$); SRMR = 0.045) according to Hu and Bentlers' criteria (55). The tested model indicates that through health-related social media content consumption it is possible to explain 5.4% ($p = .028$) of variance in terms of appearance-related media pressures, and, albeit non-significantly, it is also possible to explain the 2.4% of perceived peer pressure ($p = .161$). Furthermore, media and peer pressures together can explain 9.7% ($p = .002$) of dieting.

As regards the direct effects in the model (Table 3), it was observed that the number of social media platforms ($\beta = .16$, $p = .017$) and daily use of social media ($\beta = .14$, $p = .047$) significantly predict appearance-related media pressure. This means that the use of multiple social media platforms and more frequent usage of social media during the day are predictors of stronger appearance-related media pressure among young women. At the same time, stronger peer pressure ($\beta = .16$, $p = .009$) and media pressure ($\beta = .21$, $p < .001$), significantly predict dieting among young women.

TABLICA 3. Izravni efekti između praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom putem društvenih mreža, sociokulturnog pritiska za mršavošću i držanja dijete među mladim ženama. (N = 350)
TABLE 3. Direct effects between health-related social media content consumption, sociocultural pressures to be thin and dieting among young women (N = 350)

	Pritisak vršnjaka / Peer pressure			Pritisak medija / Media pressure		
	β	*p*	95% CI	β	*p*	95% CI
Broj PDM / Number of SMPs	,12	,073	[-,01; ,26]	,16*	,017	[,03; ,29]
Dnevno korištenje PDM / Daily SMP usage	,05	,511	[-,09; ,19]	,14*	,047	[,00; ,27]
Broj LJS na DM / Number of PP on SM	,00	,967	[-,13; ,13]	-,06	,331	[-,19; ,06]
	R^2	*p*		R^2	*p*	
Ukupni model / Model summary	,024	,161		,054*	,028	
Provođenje dijete / Dieting						
	β	*p*	95% CI			
Pritisak vršnjaka / Peer pressure	,16**	,009	[,04; ,27]			
Pritisak medija / Media pressure	,21**	< ,001	[,10; ,33]			
	R^2	*P*				
Ukupni model / Model summary	,097**	,002				

Napomena. Broj PDS – Broj platformi društvenih medija za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom; Dnevno korištenje PDM – Dnevno korištenje platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom.; Broj LJS na DM – Broj ljudi i/ili stranica na društvenim mrežama putem kojih se prati sadržaj vezan uz zdravu prehranu i zdrav život.; *p < ,05; **p < ,01; CI –interval pouzdanosti.
/ *Note*. Number of SMPs – Number of social media platforms for following health-related content; Daily SMP usage – Daily social media platform usage for following health-related content; Number of PP on SM – Number of people and/or pages on social media whose health-related content is followed; * p < .05; **p < .01. CI – Confidence interval

Većina neizravnih efekata, kao što je praćenje sadržaja na društvenim mrežama, provođenje dijete te pritisak vezan uz tjelesni izgled doživljen od vršnjaka i medija nisu se pokazali značajnim (p > ,05; tablica 4). Jedino se broj platformi društvenih mreža koje se koriste za

The majority of indirect effects, such as social media content consumption, dieting or experiencing appearance-related media and peer pressures, did not prove to be significant (p > .05; Table 4). The only exception is the number of social media platforms used to follow

TABLICA 4. Neizravni efekti između konzumacije sadržaja povezanog sa zdravom prehranom i zdravim životom putem društvenih medija i provođenja dijete putem sociokulturnog pritiska za mršavošću (N = 350)
TABLE 4. Indirect effects between health-related social media content consumption and dieting through sociocultural pressures to be thin (N = 350)

		Provođenje dijete / Dieting		
Praćenje PDM / SMC consumption	**Sociokulturni pritisci / Sociocultural pressures**	**β**	***p***	**95% CI**
Broj PDM / Number of SMPs	→ Pritisak vršnjaka / Peer pressure	,02	,142	[-,01; ,05]
Dnevno korištenje PDM / Daily SMP usage		,01	,525	[-,02; ,03]
Broj LJS na DM / Number of PP on SM		,00	,967	[-,02; ,02]
Broj PDM / Number of SMPs	→ Pritisak medija / Media pressure	,03	,047	[,00; ,07]
Dnevno korištenje PDM / Daily SMP usage		,03	,083	[-,00; ,06]
Broj LJS na DM / Number of PP on SM		-,01	,347	[-,04; ,01]

Napomena. Praćenje PDM – praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom putem društvenih mreža ; Broj PDM – Broj platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom; Dnevno korištenje PDM – Dnevno korištenje platformi društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom; Broj LJS na DM – Broj ljudi i/ili stranica na društvenim mrežama putem kojih se prati sadržaj vezan uz zdravu prehranu i zdrav život; * p < ,05; **p < ,01; CI – interval pouzdanosti.
/ *Note*. SMC consumption - Health-related social media content consumption; Number of SMPs – Number of social media platforms for following health-related content; Daily SMP usage – Daily social media platform usage for following health-related content; Number of PP on SM – Number of people and/or pages on social media whose health-related content is followed; * p < .05; **p < .01. **p < ,01; CI – Confidence interval

praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom pokazao značajnim neizravnim efektom na provođenje dijete putem pritiska vezanog uz tjelesni izgled, doživljenog od medija (β = ,03, *p* = ,047; 95% CI [,00; ,07]). Drugim riječima, više korištenje društvenih mreža za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom predviđa provođenje dijete kod mladih žena neizravno, putem percipiranog jačeg pritiska vezanog uz tjelesni izgled doživljenog od medija.

RASPRAVA

Provedeno istraživanje pruža nove spoznaje o praćenju sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama od mladih žena, te posebno na *Instragram*-uu, *YouTube*-u i *Facebook*-u. Ove platforme pokazale su se važnima za promicanje i oblikovanje društvenih standarda ljepote. Cilj ovog istraživanja bio je ispitati kako korištenje sadržaja povezanog sa zdravom prehranom i zdravim životom doprinosi objašnjenju doživljaja pritiska medija i vršnjaka za mršavošću i provođenju dijete kod mladih žena u Hrvatskoj.

Prvo, utvrdili smo da među platformama društvenih mreža mlade žene najviše prate sadržaje povezane sa zdravom prehranom i zdravim životom na *Instagram*-u (39 %), zatim na *YouTube*-u (23 %) i *Facebook*-u (18 %). U manjoj mjeri koriste druge platforme. kao što su *TikTok* (12 %), *Pinterest* (8 %), dok gotovo uopće ne prate takav sadržaj na *Twitter*-u i *LinkedIn*-u (manje od 1 %). Ovaj nalaz je u skladu s nalazima ranijih istraživanja koja pokazuje da žene češće koriste visoko vizualne platforme društvenih medija (56) i istraživanjima koje navode *Instagram*, *YouTube* i *Facebook* kao najpopularnije platforme za mlade (57). Ovaj nalaz sugerira da *Instagram* kao platforma društvenih medija ima središnju ulogu u oblikovanju *online* sadržaja povezanog sa zdravom prehranom i zdravim životom koji je dostupan mladim ženama u Hrvatskoj.

health-related content, which was proved to have a significant indirect effect on dieting through the appearance-related media pressure (β = .03, *p* = .047; 95% CI [.00, .07]). In other words, more frequent use of social media platforms for the purpose of following health-related content indirectly predicts dieting among young women, by creating stronger perceived appearance-related media pressure.

DISCUSSION

The conducted study offers new insights into the health-related social media content consumption among young women, particularly on Instagram, YouTube and Facebook. It was observed that these platforms are important when it comes to promoting and shaping social beauty standards. The aim of this study was to examine how engagement with health-related content might contribute to the perception of pressures imposed by the media and peers in terms of pursuing thinness and dieting among young women in Croatia.

First, we determined that Instagram (39%) is the predominant platform for young women to engage with health-related content, followed by YouTube (23%) and Facebook (18%). Other platforms, such as TikTok (12%) and Pinterest (8%) are used to a lesser extent, while this type of content is barely followed on Twitter and LinkedIn (less than 1%). This finding aligns with the previous studies indicating that women tend to use highly visual social media platforms more frequently (56), as well as the studies indicating that Instagram, YouTube, and Facebook are the most popular platforms among young people (57). This finding suggests that Instagram as a social media platform has a central role in shaping the online health-related content available to young women in Croatia.

Such findings could represent a cause for concern, as other studies have shown that plat-

Ovaj bi nalaz mogao biti razlog za zabrinutost jer su druga istraživanja pokazala da bi platforme koje se više fokusiraju na vizualni sadržaj i samoprezentaciju korisnika (58,59) mogle voditi pogoršanju internalizacije ideala mršavosti kod gledanja vizualnog sadržaja, što bi zatim moglo dovesti do veće usredotočenosti žena na vlastito tijelo i zabrinutosti oko tjelesnog izgleda, što može voditi do provođenja nezdravih dijeta i razvoja poremećaja prehrane (4-6,60, 61). *Instagram*, kao dominantno vizualna platforma, potiče objektivizaciju pojedinaca pri objavi fotografije sebe ili svog života s namjerom da se slika gleda i komentira (6). Za razliku od toga, *Facebook*, primjerice, nije toliko fokusiran na posve vizualni sadržaj, jer ima više tekstualnog sadržaja koji se odnosi na samoizražavanje, a dijeljenje informacija i društvene interakcije malo su drugačije jer se ljudi više poznaju i izvan mreže (62). Istraživanja pokazuju da žene koje koriste *Instagram* doživljavaju veći pritisak povezan s izgledom, više svoj izgled uspoređuju s drugima, više su usredotočene na svoje tijelo te imaju negativniju sliku o svom tijelu od žena koje koriste *Facebook* (22,34,64,66). Dakle, ako mlade žene u Hrvatskoj prate sadržaje povezane sa zdravom prehranom i zdravim životom većinom na *Instagramu*, to bi moglo pogoršati sve negativne ishode koji se odnose na doživljavanje vlastitog tijela pa tako i potaknuti provođenje dijete. Isto je je potvrdilo i drugo istraživanje provedeno u Hrvatskoj, u kojem je dobivena značajna povezanost između češćeg praćenja *Instagram* profila vezanih uz fitnes, zdravlje i prehranu sa željom za mršavošću i idealizacijom vitkog tijela (52).

Kad govorimo o učestalosti praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama, naše je istraživanje pokazalo da više od polovice mladih žena prati ovu vrstu sadržaja na najviše dvije platforme društvenih mreža istovremeno, pri tome provedu do 30 minuta/dan pregledavajući takav sadržaj i prateći u prosjeku 5 osoba ili stra-

forms which place more focus on visual content and self-presentation of its users (58, 59) could exacerbate the internalization of the ideals of thinness associated with viewing visual content, which could then lead to women being more focused on their own bodies and developing body image concerns, resulting in unhealthy diets and the development of eating disorders (4-6, 60, 61). As a predominantly visual platform, Instagram encourages the objectification of individuals as they post photographs of themselves or their lives with the intent to be looked at and commented on (6). At the same time, e.g. Facebook is not so focused on purely visual content since it contains more textual content relating to self-expression, with information sharing and social interactions that are somewhat different because people are more familiar with each other offline (62). Studies have shown that women who use Instagram experience more appearance-related pressures, compare their appearance to others more often, place more focus on their bodies, and have a more negative image of their bodies than women using Facebook (22, 34, 64, 66). Therefore, if young women in Croatia follow health-related content mostly on Instagram, this could exacerbate all of the negative outcomes relating to their own body perception, and thus encourage dieting. This was confirmed by another study conducted in Croatia, which observed a significant association between more frequent following of Instagram accounts dedicated to fitness, health and eating, and the desire to be thin and idealizing a slender physique (52).

Furthermore, when it comes to the frequency of following health-related content on social media platforms, the results of our study indicate that more than a half of young women follow this type of content on up to two social media platforms simultaneously, thereby spending up to 30 minutes per day browsing such

nica koje promiču sadržaj vezan uz zdravu prehranu i zdrav život. To ukazuje na koncentriran i promišljen pristup u traženju informacija o zdravoj prehrani i zdravom životu na internetu, pri čemu mlade žene daju prednosti određenim platformama društvenih medija. Naši su nalazi u skladu s drugim istraživanjima koja ukazuju da se mlade žene često oslanjaju na društvene medije kao primarni izvor informacija o zdravlju i fitnesu (43) s ciljem postizanja mršavog i 'fit' izgleda (15). Prema tomu, dobiveni rezultati o navikama korištenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim medijima naglašavaju ključnu ulogu koju te platforme društvenih medija imaju u oblikovanju stavova i ponašanja povezanih sa zdravljem među mladim ženama u Hrvatskoj. Nadalje, rezultati strukturnog modeliranja doprinose razumijevanju rizičnih čimbenika povezanih s provođenjem dijete. Model je pokazao da učestalost praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama značajno objašnjava 5,4 % doživljenog pritiska vezanog uz tjelesni izgled, doživljenog od medija. Konkretno, broj platformi društvenih medija i svakodnevno korištenje društvenih medija pokazali su se kao značajni prediktori doživljenog medijskog pritiska povezanog s izgledom. Ovi nalazi ukazuju da su učestalost i praćenje većeg broja različitih platformi sa sadržajem vezanim uz zdravu prehranu i zdrav život povezani s doživljenim medijskim pritiskom mladih žena da budu mršave. Također, broj platformi društvenih medija koje se koriste za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom povezan je s većim rizikom od provođenja dijete, neizravno, jače doživljenim medijskim pritiskom povezanim s izgledom.

Ovi su nalazi u skladu s prethodnim istraživanjima koja pokazuju da češće korištenje društvenih mreža dovodi do doživljaja većeg sociokulturnog pritiska za mršavošću i do negativnih ishoda kod mladih žena kao što su briga ve-

content and, on average, following five people or pages that promote health-related content. This indicates a concentrated and deliberate approach to seeking health information online, with young women giving preference to specific social media platforms. Our findings are in line with other studies that suggest that young women often rely on social media as the primary source of health and fitness information (43) with the aim to achieve a thin and fit appearance (15). Accordingly, the obtained results on the habits involving health-related social media content consumption emphasize the crucial role these social media platforms have when it comes to shaping the health-related attitudes and behaviors among young women in Croatia. Furthermore, the results of structural equation modeling contribute to a more comprehensive understanding of the underlying risk factors associated with dieting. The model demonstrated that the frequency of health-related social media content consumption significantly explains 5.4% of appearance-related media pressures. Specifically, the number of social media platforms and daily social media usage emerged as significant predictors of perceived appearance-related media pressure. These findings imply that frequent use and following of a larger number of platforms with health-related content are associated with media pressures experienced by young women encouraging them to be thin. Moreover, the number of social media platforms used for following health-related content is associated with a higher risk of going on a diet, and indirectly, stronger perceived appearance-related media pressure.

These findings are in line with the previous studies indicating that increased social media usage leads to stronger sociocultural pressures to be thin, which, in turn, contributes to negative outcomes for young women, such as body image concerns and the adoption of unhealthy eating behaviors (5, 6, 8, 9, 22, 32, 33). Numer-

zana uz sliku o vlastitom tijelu i nezadovoljstvo vlastitim tijelom (5-6,8,9,22,32,33). Brojna su istraživanja potvrdila da je češće korištenje društvenih medija povezano s većim nezadovoljstvom vlastitim tijelom i više nezdravih navika u prehrani kod mladih žena (33,52,67). Istraživanja potvrđuju i da sociokulturni pritisak za mršavošću može dovesti do poremećaja u prehrani kod mladih žena (49,50), dok internalizacija ideala mršavog izgleda tijela može dovesti do povećanog socijalnog uspoređivanja, što može dovesti do većeg nezadovoljstva vlastitim tijelom ili prihvaćanja nezdravih ponašanja vezanih uz prehranu i tjelovježbu (8,15,47).

Kada smo ispitali izravnu povezanost između doživljenog pritisaka od vršnjaka i medija vezano uz izgled s provođenjem dijete, naši su nalazi pokazali da doživljeni pritisak od vršnjaka i medija zajedno statistički značajno objašnjavaju 9,7 % varijance provođenja dijete među mladim ženama. Međutim, kada se promatraju prosječne razine doživljenih sociokulturnih pritisaka povezanih s izgledom, razvidno je da mlade žene u prosjeku doživljavaju samo nisku razinu sociokulturnog pritiska od vršnjaka i srednju razinu medijskog pritiska.

Ovaj nalaz, zajedno sa shvaćanjem da pritisci vršnjaka i medija vezani uz izgled značajno predviđaju restriktivnu prehranu među mladim ženama, ukazuje da su sociokulturni utjecaji doista prisutni među mladim ženama u Hrvatskoj, ali oni možda nisu uvijek izravni. Moguće je pretpostaviti da sociokulturni pritisci djeluju na suptilnije načine, oblikujući percepcije i ponašanja pojedinaca u vezi s restriktivnom prehranom implicitnim društvenim normama i očekivanja u pogledu standarda ljepote. Kada se ove društvene norme i očekivanja prenose putem medija, reklama i društvenih interakcija, pojedinci ih mogu internalizirati i doživjeti neizravni pritisak da svoje tijelo prilagode određenim oblicima i veličinama, a da pri tome ove norme i očekivanja izravno niti ne doživljavaju kao pritisak niti su ih svjesni (13).

ous studies have confirmed that more frequent social media usage is associated with higher body dissatisfaction and more unhealthy eating practices among young women (33, 52, 67). Studies have also confirmed that sociocultural pressures to be thin can lead to the development of eating disorders among young women (49, 50), while the internalisation of the ideals of thinness may lead to increased social comparison, thus resulting in greater dissatisfaction with one's own body or the adoption of unhealthy dieting and exercise behaviors (8, 15, 47).

When we examined the direct association between appearance-related peer and media pressures and dieting, our findings showed that perceived peer and media pressures collectively explain 9.7% of the variance in terms of dieting among young women. However, when considering the average levels of perceived sociocultural appearance-related pressures, it is evident that young women on average experience only low levels of sociocultural peer pressure and moderate levels of media pressure.

This observation, along with the understanding that appearance-related peer and media pressures significantly predict restrictive dieting among young women, suggests that sociocultural influences are indeed present among young women in Croatia, but they are perhaps not always direct. It is reasonable to assume that sociocultural pressures likely operate in more subtle ways, by shaping the individuals' perceptions and behaviors with regard to restrictive dieting through implicit social norms and expectations in terms of beauty standards. When such social norms and expectations are conveyed through the media, advertisements and social interactions, individuals may internalize them and experience indirect pressure to conform to specific body shapes and sizes, without explicitly perceiving or acknowledging these norms and expectations as pressure (13).

Istraživanja dalje podupiru ovu ideju pokazujući da su žene iz Hrvatske koje su internalizirale ideal mršavosti manje zadovoljne svojim izgledom i veličinom tijela (46). Uz to, sociokulturni pritisci značajno su povezani s restriktivnom prehranom, i to izravno i neizravno internalizacijom ideala mršavosti (47). Svi ovi nalazi ukazuju na to da sociokulturni pritisci imaju veći neizravni nego izravni utjecaj na stavove prema dijeti. Dakle, socijalnokulturni pritisak je više sastavni dio doživljaja i ponašanja pojedinaca, primjerice kod provođenja dijete, nego što je sastavni dio doživljenog osjećaja pritiska koji ispitanici iskazuju.

Međutim, kada se radi o pritisku vršnjaka vezano uz izgled, suprotno našim očekivanjima, češće korištenje društvenih medija za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom nije u izravnoj vezi s doživljenim pritiskom vršnjaka vezanim uz izgled, iako doživljeni pritisak vršnjaka izravno predviđa provođenje dijete. To ukazuje na zaključak da pritisak vršnjaka na drugačiji način, bez povezanosti s pritiskom medija, predviđa provođenje dijete kod mladih žena. Čini se da mlade žene doživljavaju pritisak vršnjaka bez obzira na učestalost korištenja društvenih medija, i da taj doživljeni pritisak mijenja ponašanje mladih žena na način da su one spremnije provoditi dijetu. Iako razvojno-sociokulturni okvir (3) ukazuje da društveni mediji, sa svojim idealiziranim slikama vršnjaka i interakcijama koje su vidljive svima, mogu pojačati pritiske za mršavošću i pogoršati nezdravu praksu prehrane među ženama, naši rezultati to nisu potvrdili.

Ograničenja provedenog istraživanja

Moguća objašnjenja za naše neočekivane nalaze o dobivenoj neznačajnoj povezanosti između korištenja društvenih medija i pritisaka vršnjaka vezani uz izgled mogu se pronaći u načinu

Studies further support this notion, indicating that women in Croatia who internalized the ideal of thinness were more dissatisfied with their body image and size (46). Additionally, sociocultural pressures were significantly associated with restrictive dieting, both directly and indirectly, through the internalization of the ideal of thinness (47). All of these findings suggest that the influence of sociocultural pressures on dieting attitudes is more indirect than direct. Sociocultural pressure is, therefore, more subtly integrated into the individuals' perceptions and behaviors, e.g. when engaging in dieting, rather than being explicitly perceived through the feelings of pressure in individuals.

However, when it comes to appearance-related peer pressure, contrary to our expectations, more frequent social media usage in following health-related content was not directly associated with appearance-related peer pressure, although perceived peer pressure directly predicts going on a diet. This indicates that peer pressure predicts dieting in young women in a different manner, which is not related to media pressure. It seems that young women experience peer pressure regardless of the frequency of social media usage, and this pressure shapes their behavior by making them more prone to dieting. Although the developmental-sociocultural framework (3) suggests that social media, with their idealized images of peers and interactions that are visible to everybody, can intensify pressures to be thin and exacerbate unhealthy dieting practices among women, this was not confirmed by our results.

Limitations of the study

Our unexpected findings regarding the non-significant association between social media usage and appearance-related peer pressure might be explained by the manner in which this study

provođenja ovog istraživanja i u mogućim ograničenjima istraživanja. Kao prvo, mlade žene u ovom istraživanju su djevojke u kasnoj fazi adolescencije koje upravo ulaze u mlađu odraslu dob (18-21 godina). U tom razdoblju utjecaj vršnjaka slabi kako vršnjaci postepeno prestaju biti toliko važan izvor povratnih informacija pri čemu slabi i konformiranje s vršnjacima (17-20). U ranijim istraživanjima se pokazalo da mlade žene doživljavaju veći društveni pritisak u pogledu vlastitog izgleda i da više teže društvenom idealu ljepote, te da su u većem riziku za razvoj iskrivljene slike vlastitog tijela i nezadovoljstva vlastitim tijelom (3, 21-24). Drugo, u ovom istraživanju nisu kontrolirane vrste interakcije s vršnjacima (npr. frekvencija, važnost i valencija interakcija s vršnjacima), što bi moglo za posljedicu imati različite osjećaje pritiska vršnjaka. Treće, mlade žene u našem istraživanju doživjele su samo blagi društveni pritisak vršnjaka, što je suzilo varijabilitet odgovora i potencijalno oslabilo korelaciju s korištenjem društvenih mreža i provođenje dijete. Četvrto, moguće je da je određena skupina mladih žena osjetljivija na pritisak vršnjaka, a takve mlade žene možda nisu sudjelovale u istraživanju. Primjerice, neka istraživanja ukazuju na to da su žene koje su sklonije socijalnoj usporedbi, ili one koje svoju tjelesnu težinu percipiraju kao prekomjernu, manje zadovoljne vlastitim tijelom (9,12, 48,49, 68,69). Na taj bi način one mogle biti podložnije pritisku vršnjaka. Na kraju, opće ograničenje provedenog istraživanja je provođenje istraživanja *online* s prigodnim uzorkom, što otežava mogućnost generalizacije rezultata na sve mlade žene u Hrvatskoj. Također, transverzalni istraživački nacrt, za razliku od longitudinalnog nacrta, ne dopušta donošenje zaključaka o razvojnom putu ili o kauzalnim odnosima tijekom vremena između korištenja društvenih mreža i pritiska vezanog uz izgled doživljenog od strane vršnjaka i medija te ponašanja koja se odnose na provođenje dijete.

was conducted and the possible limitations of this study. First, the young women who participated in the study are late adolescents who are just entering young adulthood (18-21 years old). Peer influences tend to weaken in this period, as peers gradually stop being such an important source of feedback, and conformity to peers weakens (17-20). Previous studies have demonstrated that young women tend to experience more social pressure regarding their appearance, they are more inclined to conform to the social beauty ideals, and are also at a higher risk of developing a distorted body image and body dissatisfaction (3, 21-24). Second, this study did not control the types of peer interactions (e.g. the frequency, importance, or valence of peer interactions), which could lead to different feelings of peer pressure. Third, the young women who participated in our study reported experiencing only mild social peer pressure, which narrowed the variability of responses and potentially weakened the correlation with social media use and dieting. Fourth, it is possible that a certain group of young women is more susceptible to peer pressure, and such young women perhaps did not participate in this study. For example, some studies indicate that women who are more prone to social comparison or who perceive themselves as overweight, are more dissatisfied with their bodies (9, 12, 48, 49, 68, 69). Such characteristics could make them more susceptible to experiencing peer pressure. Finally, the general limitation of our study is the fact that it was conducted online, through convenience sampling, which limits the the possibility of generalizing the results to all young women in Croatia. Furthermore, the cross-sectional design, as opposed to the longitudinal one, makes it impossible to draw any conclusions about the developmental trajectories or temporal causal relationships between social media usage and appearance-related peer and media pressures, as well as dieting-related behaviors.

Buduća istraživanja

U budućim istraživanjima bilo bi korisno usporediti utjecaje različitih platformi društvenih mreža na percipirani sociokulturni pritisak i na provođenje dijete, odnosno na razvoj poremećaja hranjenja. Budući da različite platforme društvenih mreža omogućuju raznovrsne oblike interakcija i imaju različite karakteristike, kao što je primjerice komentiranje, objavljivanje statusa ili *chat*, bilo bi dobro u budućim istraživanjima uzeti u obzir druga društvena ponašanja u *online* svijetu, koja su se u drugim istraživanja pokazala važnima u težnji za mršavošću, a ne istraživati samo općenitu izloženost sadržaja vezanog uz zdravu prehranu i zdrav život putem društvenih mreža (70). Buduća istraživanja trebaju se usmjeriti ne samo na učestalost korištenja društvenih mreža, već i na način kako je to vrijeme provedeno i na to kako se ostvaruju socijalne interakcije. Također, osim pritiska za mršavošću, u budućim istraživanjima valjalo bi razmotriti i pritisak za mišićavošću za koji postoje naznake da može voditi do još više negativnih ishoda za mlade žene poput toga da trebaju biti 'fit'. Primjerice, mladim ženama teže je ostvariti cilj da budu istovremeno mršave i jake od toga da budu „samo" mršave (44). Također, bilo bi dobro da se osim držanja dijete, razmotre i drugi psihološki ishodi povezani s poremećajima hranjenja, kao što su, primjerice, stavovi o hranjenju ili nezadovoljstvo vlastitim tijelom.

U budućim istraživanjima valjalo bi longitudinalno ispitati povezanost među konstruktima u modelu ili detaljnije istražiti korištenje platformi društvenih mreža u pogledu praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom. Ponajprije bi trebalo razmotriti mogući utjecaj pritiska doživljenog od strane vršnjaka na ovim platformama, pri čemu valja uzeti u obzir i vrstu doživljenog pritiska od strane vršnjaka (važnost, valenciju, frekvenciju interakcije među vršnjacima i povratne informacije) i pokušati pronaći specifična, sociodemografska ili psihološka obilježja ili obilježja ličnosti žena

Future studies

In terms of future studies, it would be beneficial to compare the influences of different social media platforms on the perceived sociocultural pressure and dieting, i.e. on the development of eating disorders. Since different social media platforms enable diverse interactions and have different characteristics, such as commenting, posting, status updating or chatting, future studies could benefit from evaluating other online social behaviors, which in other studies were found to have a significant correlation with the desire for thinness, as opposed to only assessing the general exposure to health-related content on social media (70). Future studies should focus not only on the frequency of social media use, but also on how that time is spent and the manner in which social interactions are achieved. Furthermore, besides the pressure to be thin, future studies should additionally examine the pressure to be muscular, for which there are indications that it could lead to even more negative outcomes for young women, such as the pressure to be fit. For example, it is more difficult for young women to achieve the goal of being both thin and strong, as opposed to "just" being thin (44). It would also be beneficial if, in addition to dieting, other psychological outcomes related to eating disorders were examined, such as eating attitudes or body dissatisfaction.

Future studies should also conduct longitudinal testing of the associations between the model constructs or examine in more detail the use of social media platforms in terms of health-related content consumption. First and foremost, the potential impact of peer pressure on such platforms should be examined, whereby the type of perceived peer pressure should also be taken into account (importance, valence, frequency of peer interactions and feedback), and attempts should be made to find the specific, sociodemographic, psychological or personality

koja bi mogla imati moderatorski ili medijacijski utjecaj na ovaj odnos. To bi moglo pomoći u osmišljavanju intervencija koje bi bile namijenjene određenim profilima mladih žena koje su možda više podložne doživljaju pritiska vezanog uz tjelesni izgled od strane vršnjaka ili medija i rizičnom ponašanju vezanom uz hranjenje.

Implikacije provedenog istraživanja

Za razliku od prijašnjih istraživanja koja su bila usmjerena u prvom redu na *Instagram* i *Facebook,* naše istraživanje je prošireno te su u obzir uzete različite platforme društvenih medija (*Instagram, YouTube, Facebook, TikTok, Pinterest, Twitter, LinkedIn*) kako bismo dobili sveobuhvatnije razumijevanje o korištenju sadržaja povezanog sa zdravom prehranom i zdravim životom mladih žena.

Instagram se pokazao dominantnom mrežom za praćenje sadržaja vezanog u zdravu prehranu i zdrav život među mladim ženama. Taj nalaz doprinio je boljem razumijevanju uloge *Instagram*-a u oblikovanju *online* sadržaja povezanog sa zdravom prehranom i zdravim životom. Korištenjem naprednog metodološkog pristupa, modeliranja strukturnim jednadžbama, ovo istraživanje doprinijelo je većem razumijevanju složenog odnosa između različitih konstrukata vezanih uz zdravu prehranu i zdrav život. Istražili smo medijacijski utjecaj doživljenog pritiska od strane vršnjaka i medija na odnos korištenja socijalnih medija i rizika provođenja dijete.

Naše istraživanje ima i nekoliko praktičnih implikacija koje mogu biti korisne za razvoj različitih zdravstvenih intervencija. Dobiveni rezultati ukazuju da su mlade žene koje više koriste društvene mreže izloženije riziku za sociokulturni pritisak za mršavošću i tome da prakticiraju dijetno ponašanje, a za koje se zna da je rizični faktor za razvoj poremećaja prehrane. Gotovo polovina mladih žena u našem istraživanju (40 %) provodile su dijetu. Ovaj nalaz je posebcharacteristics of women which could moderate or mediate such relationships. This could help in the creation of interventions which would be intended for specific profiles of young women who are possibly more susceptible to peer and media appearance-related pressures and risky eating behaviors.

Implications of the study

Unlike prior studies which primarily focused on Instagram or Facebook, our study was extended to take into account multiple social media platforms (Instagram, YouTube, Facebook, TikTok, Pinterest, Twitter, LinkedIn) in order to provide a more comprehensive understanding of young women's engagement with health-related content.

Instagram was identified as the predominant platform for health-related content consumption among young women. This finding contributed to the better understanding of the platform's role in the shaping of health-related content online. By applying an advanced methodological approach, i.e. structural equation modeling, this study contributed to a better understanding of the complex relationship between different constructs relating to healthy eating and healthy lifestyle. We examined the mediating role of perceived media and peer pressures in the relationship between social media usage and the risk of engaging in dieting.

Our study also has several practical implications that may be useful for the development of different health intervention strategies. The obtained results indicate that young women who use social media more frequently are at a greater risk of experiencing sociocultural pressures to be thin and engaging in dietary behavior, which is known to be a risk factor for the development of different eating disorders. Almost half of the young women involved in our study reported having engaged in dieting

no važan kada se razmatra u kontekstu ranijih istraživanja, koja su pokazala da je prakticiranje dijetnog ponašanja rizični faktor za razvoj poremećaja prehrane (41). U literaturi se konzistentno naglašava kako je provođenja dijete povezano s osjećajem deprivacije i manjka kontrole, što doprinosi razvoju nezdravih navika hranjenja (37,38,41). Prevalencija provođenja dijeta u našoj studiji naglašava potrebu da kliničari i drugi praktičari koji rade s mladim ženama prepoznaju potencijalne rizike povezane s korištenjem društvenih medija. Točnije, čak i kada se društveni mediji koriste za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom, to ne dovodi nužno do zdravih ishoda za mlade žene.

Rezultati ukazuju na postojanje potrebe za ciljanim intervencijama i preventivnim mjerama usmjerenim na promicanje zdravijih stavova o prehrani i smanjenju potencijalnog razvoja nezdravog ponašanja u prehrani ili poremećaja u prehrani kod mladih žena u Hrvatskoj. Prepoznajući ulogu *Instagram*-a u oblikovanju *online* sadržaja povezanog sa zdravom prehranom i zdravim životom, koji je pretežno vizualna platforma, postoji jasna potreba za specifičnim intervencijama za specifičnu vrstu platforme, kako bi se smanjili potencijalni negativni ishodi povezani s nezdravom prehranom. Također, intervencije se ne bi trebale baviti isključivo vremenom koje mlade žene provode na društvenim mrežama, već bi se trebale usredotočiti i na smanjenje doživljenog pritiska medija i vršnjaka, kao i na ciljanje dijeta. Nadalje, intervencije bi mogle uključivati edukaciju mladih žena o mogućim negativnim posljedicama praćenja sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim medijima, osobito u kontekstu provođenja dijete.

ZAKLJUČAK

Rezultati ukazuju da mlade žene u Hrvatskoj doista koriste društvene mreže za praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom i da ih većina prati takav sa-

(40%). This finding is particularly noteworthy in light of the previous studies indicating that a history of dieting is a risk factor for the development of eating disorders (41). It is consistently emphasized in literature that dieting often leads to feelings of deprivation and loss of control, thereby fostering unhealthy eating habits (37, 38, 41). The prevalence of dieting behaviors in our study highlights the need for clinicians and other practitioners working with young women, to recognize the potential risks associated with social media use. More precisely, even in cases when social media is used for health-related content consumption, it does not necessarily lead to healthy outcomes for young women.

Our findings, therefore, highlight the need for targeted interventions and preventative measures aimed towards promoting healthier attitudes with regard to diet, and reducing the potential development of unhealthy eating behaviors or eating disorders among young women in Croatia. By recognizing the role of Instagram, which is a predominantly visual platform, in the shaping of health-related content online, it is evident that there is a clear need for platform-specific interventions in order to reduce the potential negative outcomes related to unhealthy dieting behaviors. Moreover, interventions should not only address the overall time young women spend on social media, but should also focus on reducing the perceived media and peer pressures, and on targeting dieting behaviors. Furthermore, interventions could involve educating young women about the potential negative consequences of health-related content consumption on social media, particularly in the context of dieting.

CONCLUSION

Our results indicate that young women in Croatia do indeed use social-media platforms in order to follow health-related content, and

držaj često i svakodnevno. Također, češće praćenje sadržaja povezanog sa zdravom prehranom i zdravim životom na društvenim mrežama predvidjelo je snažnije osjećaje pritiska za mršavošću doživljene od medija, što je zatim predvidjelo veći rizik od držanja dijete. U isto vrijeme, snažniji pritisci vezani uz izgled doživljeni od strane vršnjaka predviđali su provođenje dijete neovisno o korištenju društvenih mreža. Postoji potreba za daljnjim istraživanjem potencijalnog negativnog utjecaja sadržaja društvenih mreža povezanog sa zdravom prehranom i zdravim životom na brigu vezanu uz sliku o vlastitom tijelu kod mladih žena. Potreban je oprez u vezi s promicanjem „zdravog" načina života na društvenim mrežama, jer takav sadržaj može dovesti do doživljaja sociokulturnog pritiska povezanog s izgledom i do restriktivnije prehrane koja je prepoznati čimbenik rizika za razvoj različitih poremećaja hranjenja.

that the majority of them follow such content frequently and on a daily basis. Furthermore, more frequent engagement with health-related content on social media platforms predicted stronger appearance-related pressures from the media to be thin, which then predicted a higher risk of going on a diet. At the same time, stronger appearance-related peer pressures predicted going on a diet regardless of social media usage. The need exists for further exploration of the potential negative impact of health-related social media content on the self-perceived body image of young women. Our study highlights the need for special caution with regard to the promotion of a "healthy" lifestyle on social media, since such content can lead to appearance-related sociocultural pressures, as well as to more restrictive dieting, which is a well-established risk factor for the development of various eating disorders.

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Nasilje u intimnim vezama mladih

/ Intimate Partner Violence Among Young People

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Nasiljem u intimnim vezama smatra se svako ponašanje kojem je cilj na bilo koji način ugroziti fizičku i psihičku sigurnost partnera. Istraživanja pokazuju znatno povećanu stopu nasilja u intimnim vezama mladih. Ovim radom htjeli smo ukazati na pojavu nasilja u intimnim vezama mladih iz perspektive spola i vrste počinjenog nasilja. U istraživanju je sudjelovalo 100 ispitanika u dobi od 15 do 25 godina, oba spola. Ispitivanje je provedeno strukturiranim upitnikom koji je sadržavao sociodemografske podatke ispitanika u jednom dijelu, dok su u drugom dijelu ispitivane karakteristike intimnih veza, vrste nasilja u vezama, trajanje nasilja, osjećaji tijekom proživljavanja nasilja u vezi, mišljenje ispitanika o udrugama koje pomažu žrtvama nasilja. Rezultati našeg istraživanja pokazali su da je ukupno 24 % ispitanika doživjelo nasilje u intimnim vezama. Od toga je najveći postotak doživljenog nasilja psihičko nasilje (54,16 %). Fizičko nasilje je prijavilo 25 % ispitanika, dok ih je 20,84 % bilo žrtva *cyber* (elektroničkog/virtualnog) nasilja. Nijedan ispitanik nije prijavio seksualno nasilje u vezama. Bolja informiranost mladih koja bi omogućila jasniju percepciju pojave, vrste, posljedica i zaštite od nasilja kao i sveobuhvatniji preventivni programi prilagođeni mladima izuzetno su važni i mogli bi pomoći u sprječavanju i smanjenju nasilja u vezama mladih.

/ Intimate partner violence is any type of behavior that is aimed at threatening the physical and psychological safety of one's partner in any way. Studies have shown a significant increase in the rate of intimate partner violence among young people. The aim of this paper was to draw attention to the occurrence of intimate partner violence among young people from the perspectives of gender and type of violence committed. A total of 100 respondents between 15 and 25 years of age and of both genders took part in the study. The study was conducted by means of a structured questionnaire which contained sociodemographic data on the respondents in one part, while in the second part the characteristics of intimate relationships, types of violence in relationships, duration of violence, feelings while experiencing partner violence, and the respondents' opinions about the organizations providing assistance to victims of violence were examined. According to the results of our study, a total of 24% of the respondents have experienced intimate partner violence, and the highest percentage of violence experienced pertained to psychological violence (54.16%). A total of 25% of the respondents reported having experienced physical violence, while 20.84 % were victims of cyber (electronic/virtual) violence. None of the respondents reported experiencing sexual violence in their relationships. Ensuring that young people are better informed, thus enabling a clearer perception of the occurrence, type, consequences of violence and protection from violence, as well as providing more comprehensive preventive programs adapted to young people, are of extreme importance and could help prevent and reduce partner violence among young people.

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KLJUČNE RIJEČI / *KEY WORDS*:
Nasilje u vezama / *Partner Violence*
Oblici nasilja / *Features of Violence*
Intimne veze / *Intimate Relationships*
Mladi / *Young People*

TO LINK TO THIS ARTICLE: https://doi.org/10.24869/spsih.2024.134

UVOD

Interpersonalnom nasilju kao socijalnom pitanju sve se više pozornosti počelo pridavati nakon Drugog svjetskog rata. Ovaj je problem prepoznat 1970-ih godina prošlog stoljeća potaknut feminističkim pokretom te je privukao dodatnu pažnju na rodnu dimenziju međuljudskih odnosa i učinio ga važnim pitanjem u socijalnim odnosima muškaraca i žena. To je dovelo do promjene u strukturi civilnog društva, prepoznavanju potrebe za organizirano djelovanje za sprječavanje nasilja u obitelji i pružanju podrške žrtvama nasilja.

Standard društveno prihvatljivog ponašanja u intimnim vezama se tijekom povijesti stalno mijenjao, te su mnoga ponašanja koja se danas karakteriziraju kao nasilje u intimnim vezama nekad bila legalna i društveno prihvatljiva (1). Svako društvo, dakle, za sebe definira pojam nasilja i nasilje vide kao odraz cjelokupne situacije u društvu jer na pojavu nasilja utječu događaji u političkim, socijalnim, znanstvenim, obrazovnim i drugim strukturama društva pa se tako i samo nasilje može na neki način smatrati dijelom sociokulturnih i društvenih normi (2,3).

Već i ovaj kratki povijesni osvrt ilustrira da se radi o kompleksnom području bilo o pokušaju definiranja ili pokušaju klasificiranja partnerskog nasilja. Definiranje nasilja u partnerskim vezama se razlikuje od istraživanja do istraži-

INTRODUCTION

Interpersonal violence as a social issue started gaining increasing attention after World War II. This problem was recognized in the 1970s, encouraged by the feminist movement, and it attracted additional attention to the gender dimension of interpersonal relationships, making it an important issue in the social relations of men and women. This led to changes in the structure of the civil society, recognition of the need for organized action and prevention of domestic violence, as well as provision of support for victims of such violence.

The standard of socially acceptable behavior in intimate relationships has constantly changed throughout history, and many types of behavior which are today characterized as intimate partner violence were once legal and socially acceptable (1). Every society, therefore, has its own definition of violence and views violence as a reflection of the overall situation within the society because events occurring in the political, social, scientific, educational and other structures of the society have an impact on the occurrence of violence, so violence itself can in some way be considered part of the sociocultural and social norms (2, 3).

Even this brief historical review illustrates that this is a complex issue, whether we are attempting to define or to classify partner violence. The definition of intimate partner violence differs from study to study. This is the result of a lack of consensus among the researchers on how to

vanja. Posljedica je to nepostojanja suglasnosti između istraživača o načinu definiranja samog pojma partnerskog nasilja. Jedan od uzroka neslaganja odnosi se na to treba li definiciju nasilja u partnerskim vezama isključivo ograničiti na nasilna ponašanja koja su učinjena s namjerom ili percipiranom namjerom da se nanese tjelesna bol ili ozljeda drugoj osobi. Takav pristup svakako strogo definira partnersko nasilje koje se može lako operacionalizirati i ignorira brojna psihološka ponašanja koja osoba može koristiti kako bi kontrolirala i zastrašivala drugu osobu u kontekstu intimne veze. Pri definiranju nasilja u intimnim partnerskim vezama mladih važno je razmotriti i kontekst veze kao i funkciju nasilja u vezi. Veliki broj empirijskih istraživanja ukazao je na činjenicu da postoje različiti oblici nasilja u partnerskim vezama (4,5). Određeni broj znanstvenika smatra da nije znanstveno i etički prihvatljivo govoriti o partnerskom nasilju bez specificiranja o kojem se od oblika nasilnog ponašanja raspravlja (6-8).

Nasilje se definira kao obrazac zlostavljanja uključujući širok spektar fizičkog, seksualnog i psihološkog maltretiranja koje jedna osoba koristi u prisnom odnosu protiv druge kako bi neovlašteno stekla moć te uspostavila kontrolu i autoritet nad drugom osobom. Navedeno rezultira ili može rezultirati psihološkim i tjelesnim ozljedama ili čak smrću (9).

Nasilje je obrazac napadačkih i prisilnih ponašanja uključujući fizičke, seksualne i psihološke napade, kao i ekonomsku prisilu, koju odrasli ili adolescenti koriste protiv svojih intimnih partnera (10).

Interpersonalno nasilje je namjerna uporaba fizičke sile ili moći, prijetnjom ili stvarnim činom protiv druge osobe ili skupine ili zajednice, koje rezultira ili postoji velika mogućnost da rezultira povredom, smrću, psihološkim posljedicama, neadekvatnim razvojem ili oduzimanjem slobode (11). Prema Svjetskoj zdravstvenoj organizaciji nasilje se definira kao namjerna

define the very notion of partner violence. One of the causes of disagreement is whether the definition of partner violence should be limited exclusively to violent behaviors that are committed with the intention or perceived intention of inflicting physical pain or injury to another person. Such an approach surely provides a strict definition of partner violence which can be easily operationalized, and ignores the many psychological behaviors that a person can use in order to control and intimidate another person in the context of an intimate relationship. When defining intimate partner violence among young people, it is important to consider both the context of the relationship and the function of violence in the relationship. Many empirical studies have pointed to the fact that there are different forms of violence that can occur in intimate relationships (4, 5). A number of scientists believe that it is not scientifically and ethically acceptable to talk about partner violence without specifying which form of violent behavior is being discussed (6-8).

Violence is defined as a pattern of abuse that involves a wide range of physical, sexual and psychological harassment used by one person in an intimate relationship against the other, in order to gain unauthorized power and to establish control and authority over the other person. This results, or can result, in psychological and physical injuries or even death (9).

Violence is a pattern of aggressive and coercive behaviors that includes physical, sexual and psychological attacks, as well as economic coercion, which are used by adults or adolescents against their intimate partners (10).

Interpersonal violence is the intentional use of physical force or power, using threats or actual acts against another person or group or community, which results or has a high likelihood of resulting in injury, death, psychological consequences, maldevelopment, or deprivation of liberty (11). The World Health Organization defines violence as “the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood

upotreba sile ili moći, prijetnjom ili stvarnim djelovanjem, protiv sebe, druge osobe ili protiv skupine ili zajednice, što dovodi ili postoji velika vjerojatnost da će dovesti do povrede, smrti, psiholoških posljedica, neadekvatnog razvoja ili oduzimanja sloboda (12).

Walker (9) napominje da se pojam može koristiti drugačije. Tako izvorni izrazi u američkim studijama za utvrđivanje nasilja uključuju zlostavljanje žene, zlostavljanje supruge i zlostavljanje partnera. Autor također objašnjava kontekst nasilja i navodi razliku kada se radi o fizičkom, seksualnom i psihičkom zlostavljanju između partnera ili kada se radi o nasilju koje je usmjereno protiv djece što onda ima drugi kontekst, a i zakonsku regulativu (9).

Nasilje u vezama se često definira u kontekstu stabilnijeg emocionalnog odnosa, i to kao prijetnja ili stvarna upotreba seksualnog, tjelesnog ili verbalnog zlostavljanja od jednog člana vjenčanog ili nevjenčanog para prema drugome, a u kontekstu ljubavne veze (13). No, sve više autora navodi da taj odnos ne mora biti nužno stabilan, štoviše može biti tek jednokratni izlazak (14). Zajedničko svim definicijama nasilja u vezama jest razlikovanje pojavnih oblika nasilja. Najčešći oblik nasilja u mladenačkim vezama je psihičko nasilje koje je početna razina nasilja u vezama mladih. Psihičko nasilje podrazumijeva ponižavanje, vrijeđanje, zastrašivanje prekidom veze, kritiziranje ili stvaranje osjećaja krivnje kod partnera, namjerno uzrujavanje partnera, verbalne i emocionalne prijetnje, nazivanje različitim pogrdnim imenima i govorenje uvredljivih riječi, izolacija od obitelji i prijatelja, kao i kontroliranje odijevanja, ponašanja i kretanja. Psihičko nasilje podrazumijeva postupke koji narušavaju samopoštovanje osobe, te postupke zbog kojih se žrtva osjeća krivom ili misli loše o sebi.

Emocionalno nasilje se koristi kao sinonim emocionalne boli koju žrtva osjeća zbog zlostavljačkih ponašanja. Psihičko nasilje je čimbenik rizika za pojavu fizičkog nasilja (13).

of resulting in injury, death, psychological harm, maldevelopment, or deprivation" (12).

Walker (9) observed that the term may be used differently. In this regard, the original terms used to identify violence in American studies include mistreatment of women, wife abuse, and partner abuse. The author also explains the context of violence and makes a distinction between physical, sexual and psychological abuse between partners or when violence is directed against children, which then involves a different context and different legal regulations (9).

Partner violence is often defined within the context of a more stable emotional relationship as the threat or actual use of sexual, physical or verbal abuse by one member of a married or unmarried couple against the other, all in the context of a romantic relationship (13). An increasing number of authors, however, argue that such a relationship does not necessarily have to be stable, but may even be a one-time outing (14). What all definitions of partner violence have in common is the distinction between manifested forms of violence. The most common form of violence in relationships among young people is psychological violence, which is the initial level of partner violence among young people. Psychological violence includes humiliating, insulting, intimidating by threatening to end the relationship, criticizing or creating a sense of guilt in a partner, deliberately upsetting a partner, making verbal and emotional threats, using various derogatory names and saying offensive words, isolating a partner from family and friends, as well as controlling their clothing, behavior and movements. Psychological violence involves actions that damage a person's self-esteem, as well as actions that make the victim feel guilty or think badly about themselves.

Emotional violence is used as a synonym for the emotional pain felt by the victim after experiencing abusive behavior. Psychological violence represents a risk factor for the occurrence of physical violence (13). Physical violence refers to actions that cause physical pain and injury, i.e. various behaviors such as rough pushing, slap-

Fizičko se nasilje odnosi na postupke koji uzrokuju fizičku bol i ozljedu, tj. različita ponašanja kao što su primjerice grubo guranje, pljuskanje, udaranje rukama, nogama i predmetima, bacanje predmeta na partnera, ugrizi i slično. Seksualno nasilje su neugodna i neželjena ponašanja seksualne prirode (14).

Situacijsko nasilje se najčešće opisuje kao izvor svih drugih oblika nasilja. Događa se u bračnim i izvanbračnim zajednicama, a počinitelji nasilja su i muškarci i žene u jednakoj mjeri. Situacijsko nasilje se događa u određenim okolnostima ili tijekom rasprava koja prerastu u tjelesno nasilje između osoba koje su u vezi. Zloporaba intimnog partnerstva može se naći u svim odnosima, istospolnim i heteroseksualnim (15). No, iako se nasilje može dogoditi u bilo kojoj intimnoj vezi, velika većinu počinjenog nasilja počinili su muškarci odnosno mladići nad djevojkama odnosno ženama (16).

Statistički podatci potvrđuju težinu, raširenost i strukturnu uvjetovanost rodno utemeljenog nasilja. Prema najnovijem izvješću Ujedinjenih naroda procjenjuje se da je tijekom 2021. godine ubijeno 81.100 žena i djevojčica na svijetu. Većina ubojstava rodno je motivirana pa je tako u 2021. godini oko 45.000 žena i djevojčica ubijeno od intimnih partnera ili drugih članova obitelji (17). Statistika u Hrvatskoj o nasilju u partnerskim vezama ne odstupa od globalne slike. Više od 30 % slučajeva ubojstva žena su počinili su suprug, partner, bivši suprug ili druge bliske osobe. Broj ubijenih žena na godinu je između deset i dvadeset, od kojih je broj žena koje su ubili intimni partneri u pravilu veći od 50 %. Ovi podatci su iznimno zabrinjavajući iz aspekta stalnog, kao i naglog rasta broja nasilnog ponašanja prema ženama. Osim toga, Hrvatska bilježi stalan i povećan broj nasilja u odnosu i u usporedbi s drugim europskim državama (18-21).

Europske i međunarodne organizacije, poput Europske komisije, Vijeća Europe i Ujedinjenih naroda, obratile su pozornost na nasilje nad

ping, punching, kicking and hitting with objects, throwing objects at one's partner, biting etc. Sexual violence includes unpleasant and unwanted behaviors of sexual nature (14).

Situational violence is predominantly described as the source of all other forms of violence. It occurs in marital and extramarital relationships, and perpetrators are equally men and women. Situational violence occurs under specific circumstances or during arguments which escalate into physical violence between individuals involved in a relationship. Intimate partner abuse can be found in all relationships, both homosexual and heterosexual (15). However, even though violence can occur in any intimate relationship, the vast majority of perpetrated violence is committed by men or young men against girls or women (16).

Statistical data confirm the severity, prevalence and structural conditioning of gender-based violence. According to the most recent United Nations report, an estimated 81,100 women and girls worldwide were killed intentionally in 2021. Most of the homicides were gender-related, therefore, in 2021 around 45,000 women and girls were killed by intimate partners or other family members (17). The Croatian statistics in terms of intimate partner violence do not differ from the global reports. More than 30% of femicides were committed by husbands, partners, ex-husbands or other close individuals. The number of women killed in a year varies between ten and twenty, and generally more than 50% of these femicides were committed by intimate partners. These data are a major cause of concern from the aspect of a constant, as well as sudden, increase in the occurrence of violent behaviors towards women. In addition, Croatia has been recording steady and increasing rates of violence in relation to and in comparison with other European countries (18-21).

European and international organizations, such as the European Commission, the Council of Europe and the United Nations, have addressed violence against women by adopting directives, resolutions and other official documents the purpose of which is to develop policies, particularly

ženskim spolom usvajanjem direktiva, rezolucija i drugih službenih dokumenata, čija je svrha razvijanje politika, posebno u područjima sprječavanja nasilja kao i daljnjih istraživanja teme nasilja (12).

UZROCI I POSLJEDICE NASILJA U VEZAMA

Postoji nekoliko grupa čimbenika rizika za doživljavanje i činjenje nasilja u vezama mladih. To su: individualni čimbenici, interpersonalni čimbenici rizika na razini zajednice, nedovoljno iskustvo mladih u vezama i nedostatak znanja.

Individualni čimbenici nasilja u vezama mladih podrazumijevaju nisko samopouzdanje i samopoštovanje, nesigurnu ili preokupiranu privrženost ljubavnom partneru, stereotipna uvjerenja o muško ženskim odnosima, iskustvo viktimizacije u primarnoj obitelji, potrebu za dokazivanjem u vezi pod "svaku cijenu", neprepoznavanje određenih ponašanja u vezi kao nasilja, nepoznavanje svojih i tuđih prava u vezi, pozitivan stav o nasilju kao načinu rješavanja nesuglasica i konzumacija alkohola i/ili droge.

Među interpersonalne čimbenike se ubrajaju slabe komunikacijske vještine i teškoće u izražavanju osjećaja kao i slabe vještine rješavanja sukoba pregovaranjem.

Čimbenici rizika na razini zajednice odnosno društva su pozitivan odnos vršnjaka prema nasilju, medijske poruke o prihvatljivosti nasilja u partnerskim odnosima, količina nasilja u društvu i tolerantan odnos društva prema nasilju (10,22,23).

Nedovoljno iskustvo mladih u vezama kao uzročni čimbenik nasilja u vezama objašnjava da mladi najčešće ne znaju kako da se ponašaju u prvim romantičnim vezama, ne znaju što je „normalno" i što trebaju tolerirati partneru, a što ne.

in the fields of violence prevention and further research of the topic of violence (12).

CAUSES AND CONSEQUENCES OF PARTNER VIOLENCE

There are several groups of risk factors associated with experiencing and committing partner violence among young people. They include the following: individual factors, interpersonal risk factors at community level, insufficient experience of young people when it comes to relationships, and a lack of knowledge.

Individual risk factors for partner violence among young people include low self-confidence and self-esteem, insecure or preoccupied attachment to the intimate partner, stereotypical beliefs with regard to male-female relationships, experience of victimization in the primary family, need to prove oneself in a relationship at any cost, failure to recognize certain relationship behaviors as violence, not knowing one's own rights in a relationship or the rights of others, positive attitude towards violence as a means of settling disputes, and consummation of alcohol and/or drug use.

Interpersonal factors include poor communication skills and difficulties in expressing feelings, as well as poor conflict resolution skills by means of negotiation.

Risk factors at the community, i.e. society levels include a positive attitude of peers towards violence, media messages on the acceptability of partner violence, the amount of violence in the society, and a tolerant attitude of the society towards violence (10, 22, 23).

Insufficient experience of young people in relationships as a causal factor of violence in relationships explains why young people most often do not know how to behave in their first romantic relationships, why they do not know what is considered "normal", and what they should or should not tolerate in a partner.

A lack of knowledge and unclear beliefs among the young in what constitutes a good and safe re-

Nedostatak znanja i nejasna uvjerenja mladih o dobroj i sigurnoj vezi odnosi se na to da mladi ne znaju da svaku vezu stabilnom čini međusobna tolerancija, uzajamno poštivanje potreba svakog partnera, međusobno povjerenje, određena sloboda svakog partnera za vlastitu organizaciju slobodnog vremena s prijateljima, obitelji i slično. Nedostatak znanja o dobroj vezi uzrokuje i posesivnu vezanost u okviru koje mladi partneri često iskazuju nesigurnu privrženost prema partneru.

Prisutan je veliki broj nepovoljnih utjecaja zbog nasilja u vezama mladih: od poremećaja uzimanja hrane, povećane zloporabe sredstava ovisnosti, rizičnog seksualnog ponašanja pa do pokušaja samoubojstva. Posljedice nasilja u vezama mladih su i loša slika o sebi i gubitak samopouzdanja, depresija, gubitak povjerenja u mogućnost dobre veze, povlačenje od prijatelja, teškoće s koncentracijom, teškoće sa spavanjem, povećano pijenje alkohola i povećano uzimanje sredstava za smirenje (24).

Djevojke u nasilnim vezama nalaze se u značajno većem riziku od razvoja ovisnosti i rizičnog spolnog ponašanja. Tako su primjerice srednjoškolke koje su žrtve nasilja u vezama osam do devet puta češće u riziku da pokušaju samoubojstvo te četiri do šest puta češće u riziku da će neplanirano zatrudnjeti nego njihove vršnjakinje koje nisu u nasilnoj vezi (25). Djevojke koje su doživjele nasilje u vezi češće izjavljuju da se osjećaju beznadno i tužno te da su razmišljale o pokušaju ili su pokušale samoubojstvo. Mladići koji su doživjeli nasilje u vezi imaju veći rizik od upuštanja u tučnjave, te su kao i djevojke skloniji iskazivati da osjećaju tugu, beznadnost i u većem su riziku za razvoj svih oblika ovisnosti, depresije i posttraumatskog stresnog poremećaja (10).

Kod djevojaka se javljaju i neki specifični dugoročni nepovoljni ishodi poput kronične boli, gastrointestinalnih problema, depresije, samoozljeđivanja, posttraumatskog stresnog poremećaja, neželjene i rizične trudnoće. Prediktori

lationship relate to the fact that young people do not know that the most important factors in creating a stable relationship are mutual tolerance, mutual respect of each partner's needs, mutual trust, a certain amount of freedom for each partner to organize free time with their friends, family etc. A lack of knowledge on what makes a good relationship also causes possessive attachment within which young people often express insecure commitment towards their partner.

There are also many adverse effects caused by partner violence among young people: from food disorders, increased substance abuse, risky sexual behavior, all the way to suicide attempts. The consequences of partner violence among young people also include a negative self-image and loss of self-confidence, depression, loss of confidence in the possibility of a good relationship, withdrawal from friends, difficulty concentrating, difficulty sleeping, increased alcohol consumption and increased use of tranquilizers (24).

Young women in violent relationships are at a far greater risk of developing addiction and engaging in risky sexual behavior. In this way, for example, high school girls who are victims of partner violence are eight to nine times more likely to attempt suicide, and four to six times more likely to have an unplanned pregnancy than their peers who are not involved in a violent relationship (25). Young women who have experienced partner violence are more likely to report feeling hopeless and sad, and having thought about attempting or having attempted suicide. Young men who have experienced partner violence are at a higher risk of getting into fights, and like young women, are more likely to express feelings of sadness or hopelessness, while also being at a higher risk of developing all forms of addiction, depression and post-traumatic stress disorder (10).

Young women also experience some specific long-term adverse outcomes such as chronic pain, gastrointestinal problems, depression, self-harm, post-traumatic stress disorder, as well as unwanted and high-risk pregnancies. Predictors of sexual violence against young women also include depression and peer experience of violence on a rela-

seksualnog nasilja nad djevojkama su i depresija i iskustvo vršnjakinja s nasiljem u vezi. Kod mladića su prediktori fizičkog nasilja ranija viktimizacija, iskustva vršnjaka s nasiljem, nisko samopouzdanje i zloporaba alkohola. Nasilje u vezama mladih je svakako značajan čimbenik rizika za tjelesno i psihičko zdravlje mladih pa zbog toga treba biti prepoznato kao važan javnozdravstveni problem (10,26).

CILJ ISTRAŽIVANJA

Cilj ovoga rada bio je analizirati nasilje u intimnim vezama mladih iz perspektive spola i vrste počinjenog nasilja. S obzirom na cilj istraživanja ispitali smo seksualnu orijentaciju i seksualno iskustvo mladih, analizirali iskustvo mladih vezano za nasilje u vezama i usporedili pretrpljeno nasilje mladih u intimnim vezama s obzirom na spol i učestalost vrsta nasilja u vezama. Cilj istraživanja bio je i dobiti uvid o informiranosti i mišljenju mladih o udrugama koje pružaju pomoć žrtvama nasilja.

ISPITANICI I METODE

U ispitivanju je sudjelovalo ukupno 100 ispitanika oba spola. Ispitanici su bili studenti Sveučilišta u Dubrovniku, a maloljetni su ispitanici bili učenici gimnazijskih i strukovnih škola u Dubrovniku. Ispitanici su dobrovoljno ispunili upitnik, dok je za maloljetne ispitanike uz njihov pristanak zatražen i pisani pristanak njihovih roditelja ili skrbnika. Ispitanici su morali zadovoljiti sljedeće kriterije za uključivanje u istraživanje: dob od 15 do 25 godina i postojanje intimne partnerske veze, bez obzira na duljinu trajanja partnerskog odnosa.

Za potrebe ovog istraživanja izrađen je strukturirani upitnik koji je obuhvaćao 13 pitanja, koja se odnose na karakteristike samih ispitanika i njihovih uspostavljenih intimnih veza. Ispitivanje je bilo anonimno.

tionship. Predictors of physical violence in young men include previous victimization, peer experience with violence, low self-confidence and alcohol abuse. Intimate partner violence among young people is certainly a significant risk factor when it comes to the physical and mental health of young people, and should therefore be recognized as a significant public health problem (10, 26).

AIM

The aim of this paper was to analyze intimate partner violence among young people from the perspectives of gender and type of violence committed. Considering the aim of the study, we examined the sexual orientation and sexual experience of young people, analyzed their experience in relation to partner violence, and compared the intimate partner violence experienced by young people with regard to their gender and the frequency of the types of violence in relationships. The aim of the study was to gain insight into the knowledge and opinions of young people with regard to the organizations providing assistance to victims of violence.

RESPONDENTS AND METHODS

A total of 100 respondents of both genders took part in the study. The respondents included students of the University of Dubrovnik, as well as minors who were students of grammar and vocational schools in Dubrovnik. The respondents completed the questionnaire on a voluntary basis, and a written consent was requested from the parents or guardians of the students who were minors, in addition to their own consent. The respondents had to meet the following criteria in order to be included in the study: age between 15 and 25, and involvement in an intimate partner relationship, regardless of its duration.

A structured questionnaire was prepared for the purposes of this study, which included 13 questions referring to the characteristics of the respondents themselves and their established intimate relationships. The questionnaire was anonymous.

Prvi dio upitnika odnosio se na sociodemografske podatke ispitanika (spol i dob). U drugom dijelu upitnika mladi su ispitivani o karakteristikama intimnih veza, nasilja u vezama, vremenskom trajanju nasilja, osjećajima tijekom proživljavanja nasilja u vezi, te o njihovom mišljenju o udrugama koje pomažu žrtvama nasilja. Podatci su uneseni u program *Microsoft Office Excel*, te su potom obrađeni. Za analizu podataka koristile su se procentualne vrijednosti, a rezultati su prikazani u tablicama.

REZULTATI

Struktura ispitanika prema spolu i dobi

U istraživanju je sudjelovalo 100 ispitanika u dobi od 15 do 25 godina. Od toga je bilo 63 ispitanika ženskog spola (63 %) i 37 ispitanika muškog spola (37 %). Odnos između spolova ispitanika prikazan je u tablici 1.

U istraživanju je sudjelovalo ukupno 29 mladih u dobi 15-17 godina (od toga je većina pripadala ženskom spolu (21), dok je muških ispitanika bilo ukupno 8; potom ukupno 21 mladih u dobi od 18 do 20 godina (12 osoba muškog i 9 osoba ženskog spola), ukupno 31 mladih u dobi 21-23 godine (muških ispitanika 10, ženskih 21) i ukupno 19 mladih u dobi 24-25 godina (muških ispitanika 7, ženskih 12). Odnos između dobi među spolovima predstavljen je u tablici 1. Primjećuje se da je u svim dobnim

The first part of the questionnaire referred to the sociodemographic data of the respondents (gender and age). In the second part of the questionnaire, the respondents were questioned about the characteristics of intimate relationships, violence in relationships, duration of violence, feelings while experiencing partner violence, and their opinions about the organizations providing assistance to victims of violence. The data were entered into the Microsoft Office Excel program, and were then processed. Percentage values were used to analyze the data, and the results are presented in tables.

RESULTS

The structure of respondents according to gender and age

A total of 100 respondents between 15 and 25 years of age took part in the study. Among these respondents, 63 were female (63%) and 37 were male (37%). The gender ratio of the respondents is presented in Table 1.

The study included a total of 29 respondents between 15 and 17 years of age, of which the majority were female (21), while the number of male respondents was 8; this was followed by a total of 21 respondents between 18 and 20 years of age (12 were male and 9 were female); a total of 31 respondents between 21 and 23 years of age (10 were male and 21 were female); and a total of 19 respondents between 24 and 25 years of age (7 were male and 12 were female). The age-to-gender ratio is presented in Table 1. It was observed that

TABLICA 1. Struktura ispitanika prrema spolu i dobi
TABLE 1. The structure of respondents according to gender and age

SPOL / GENDER			
Dob / Age	**Muški / Male**	**Ženski / Female**	**Ukupno / Total**
15-17	8	21	29
18-20	12	9	21
21-23	10	21	31
24-25	7	12	19
Ukupno / Total	37	63	100

skupinama, osim u dobnoj skupini 18 do 20 godina, većina ispitanika pripadalo ženskom spolu.

Karakteristike intimnih veza

Svi ispitanici imali su heteroseksualne veze. Na pitanje koliko je dugo veza trajala najveći broj ispitanika je odgovorio jednu do dvije godine, a ostali su imali vezu od nekoliko mjeseci.

Sljedeće pitanje se odnosilo na spolne odnose u vezama. Rezultati pokazuju da je ukupno 74 % ispitanika imalo spolne odnose, a ukupno 26 % ispitanika nije imalo spolne odnose. Od ispitanika koji su imali spolne odnose više je bilo osoba ženskog spola (n=39), dok je muških ispitanika koji su imali spolne odnose bilo 34. Suprotno od toga, od osoba koje nisu imale spolni odnos bilo je manje muških ispitanika (n=2), dok je ženskih ispitanika bilo 24. Navedeno je prikazano u tablici 2.

Vrste nasilja u vezama mladih

Da bi se provjerila percepcija mladih o različitim oblicima nasilja (fizičkog, seksualnog, *cyber* (virtualnog /elektroničkog) i psihološkog nasilja) u intimnoj vezi, odgovore su davali potvrdnim i negativnim tvrdnjama „da“ ili „ne“. Rezultati pokazuju da je najviše ispitanika (76 %) odgovorilo da nisu doživjeli nasilje u vezama, dok ih je 24 % doživjelo nasilje u vezama.

Izdvojili smo skupinu ispitanika koji su doživjeli nasilje (24) pa smo te ispitanike grupirali prema vrsti pretrpljenog nasilja (gdje se ukupan broj osoba koje su pretrpjele nasilje označava

in all age groups, except for the age group involving respondents between 18 and 20 years of age, the majority of the respondents were female.

Characteristics of intimate relationships

All respondents were involved in heterosexual relationships. As regards the question about the duration of their relationships, the answer provided by the majority of the respondents was one to two years, while the others were involved in relationships lasting several months.

The next question referred to intercourse in relationships. The results show that a total of 74% of the respondents had intercourse, while 26% did not have intercourse. In terms of the respondents who had intercourse, more of them were female (n=39), while the number of male respondents who had intercourse was 34. In contrast, among the respondents who did not have intercourse, fewer of them were male (n=2), and the number of female respondents amounted to 24. The aforementioned is presented in Table 2.

Types of partner violence among young people

In order to analyze the perceptions of young people when it comes to the different forms of intimate partner violence (physical, sexual, cyber (virtual/electronic) and psychological), the respondents answered with affirmative or negative statements – “yes” or “no”. The results show that the majority of the respondents (76%) answered that they have not experienced partner violence, while 24% have experienced partner violence.

TABLICA 2. Spolni odnosi u vezama prema spolu ispitanika
TABLE 2. Intercourse in relationships according to the respondents' gender

Spol / Gender	Ispitanici koji su imali spolne odnose / Respondents who had intercourse	Ispitanici koji nisu imali spolne odnose / Respondents who did not have intercourse
Muški / Male	35	2
Ženski / Female	39	24
Ukupno / Total	74	26

sa 100 %) čime je procentualni odnos između spolova vezan za pretrpljene oblike nasilja, što je prikazano u tablici 3.

Kada se razmotri učestalost počinjenog nasilja prema spolu, najveći broj osoba koje su pretrpjele nasilje u vezi su osobe ženskog spola (91,67 %). Što se tiče vrsta nasilja, najveći broj ispitanika je doživio psihičko nasilje u vezi (45,83 %), fizičko nasilje je doživjelo ukupno 25 % ispitanika, dok je 20,84 % ispitanika imalo iskustvo *cyber* (elektroničkog/virtualnog) nasilja, dok niti jedan ispitanik nije imao iskustvo seksualnog nasilja u vezi.

Rezultati pokazuju da je psihičko nasilje u vezama mladih imalo najdulje trajanje od 7 do 18 mjeseci. Potom slijedi fizičko nasilje koje je trajalo od 1 do 5 mjeseci, te *cyber* (elektroničko/virtualno) nasilje u trajanju od 1 do 3 mjeseca. Najčešće zabilježene emocije tijekom doživljenog nasilja u vezama bile su: ljutnja, depresivnost, potištenost i bijes.

Rezultati pokazuju da je od ukupnog broja ispitanika koji su pretrpjeli nasilje (n=24), samo 4 (6,6 %) prijavilo nasilje.

Svi ispitanici koji su prijavili nasilje također su rekli da su dobili podršku i savjete od udruga i institucija kojima su prijavili nasilje. Ostali ispitanici koji nisu prijavili pretrpljeno nasilje u vezi izjasnili su se da to nisu napravili zbog straha i srama.

Od ukupnog broja svih sudionika istraživanja (n=100), samo je 20 odgovorilo da zna za neku udrugu koja pruža pomoć žrtvama nasilja.

We singled out the group of respondents who experienced violence (24) and we grouped them according to the type of violence they suffered (wherein the total number of individuals who have experienced violence was indicated as 100%), whereby the percentage ratio between the genders related to the forms of violence experienced, as presented in Table 3.

When considering the frequency of violence committed according to gender, the majority of individuals who experienced partner violence were female (91.67%). As regards the types of violence, the majority of the respondents experienced psychological partner violence (45.83%), while a total of 25% experienced physical violence, 20.84% experienced cyber (electronic/virtual) violence, and none experienced sexual partner violence.

The results indicate that psychological partner violence among young people lasted between 7 and 18 months. This is followed by physical violence that lasted between 1 and 5 months, and cyber (electronic/virtual) violence that lasted between 1 and 3 months. The most frequently observed emotions while experiencing partner violence included anger, depression, sadness and rage. The results indicate that out of the total number of the respondents who experienced violence (n=24), only four of them (6.6%) also reported such violence.

All of the respondents who reported violence also said that they were provided with support and advice from the organizations and institutions to which they reported the violence. The other respondents, who did not report the experienced partner violence, declared that they did not do so out of fear and shame.

TABLICA 3. Ispitanici koji su doživjeli nasilje u vezama prikazani prema vrstama nasilja i spolu
TABLE 3. The respondents who experienced partner violence presented according to the type of violence and gender

Varijable / Variables	Ženski spol / Female		Muški spol / Male		Ukupno / Total	
	n	%	n	%	n	%
Doživljeno nasilje u vezi / Experienced partner violence	22	91,67	2	9,33	24	100
Fizičko nasilje / Physical violence	6	25	0	0	6	25
Psihičko nasilje / Psychological violence	11	45,83	2	8,33	13	54,16
Cyber nasilje (elektroničko/virtualno) / Cyber violence (electronic/virtual)	5	20,84	0	0	5	20,84
Seksualno nasilje / Sexual violence	0	0	0	0	0	0

Sudionici koji su znali za postojanje ovakvih udruga uglavnom su navodili sljedeće poznate udruge: Plavi telefon, SOS telefon, Bijeli krug i Ženska soba.

Na pitanje „Mislite li da bi Vam udruge mogle pomoći?“, čak 97 % od ukupnog broja ispitanika je odgovorilo potvrdno. 3 % ispitanika je odgovorilo s „možda“, dok niti jedan ispitanik ne smatra da udruge ne mogu pomoći.

Navedeni rezultati pokazuju da mladi imaju povjerenje u udruge koje pružaju pomoć žrtvama nasilja, ali su isto tako nedovoljno informirani o broju i mogućnostima pomoći takvih udruga.

RASPRAVA

Klasifikacija mladih prema godinama može varirati ovisno o kontekstu i zemlji. Zakonska regulativa u Republici Hrvatskoj podrazumijeva da je mlada osoba u dobi od 15 do 30 godina (27). Navedeno objašnjava naš izbor ispitanika unatoč činjenicama da postoji velika razlika u poimanju i u doživljavanju intimnih veza kao i drugih ispitivanih karakteristika kod adolescenata i mlađih odraslih ispitanika.

Analizirajući intimne odnose Fernandez-Fuertes i Fuertes (28) utvrdili su da većina mladih reproducira aktualne društvene i socijalne norme i trendove koji su povezani s izborom seksualne orijentacije, spolom pa tako i nasiljem. Njihovo istraživanje se razlikovalo od većine ostalih istraživanja u pronalaženju većeg broja sudionika koji su tvrdili da su imali heteroseksualne, ali i homoseksualne i biseksualne seksualne odnose. Međutim, u našem istraživanju je utvrđeno da prevladava heterogena seksualna orijentiranost, gdje su se svi ispitanici izjasnili da su heteroseksualno opredijeljeni.

Trećina američkog nacionalnog uzorka heteroseksualnih adolescenata doživjela je neki oblik nasilja u vezi, a 12 % ih je doživjelo fizičko nasilje. Veliko međunarodno istraživanje na više

Out of all of the respondents who took part in the study (n=100), only 20 answered that they knew about an organization providing assistance to victims of violence. The respondents who were familiar with such organizations mainly named the following well-known organizations: *Plavi telefon* (Blue Phone), *SOS telefon* (SOS Telephone), *Bijeli krug* (White Circle) and *Ženska soba* (Women's Room).

A total of 97% of the respondents answered affirmatively to the question "Do you think that the organizations could help you?". Only 3% of the respondents answered "Maybe", while there were no respondents who believed that the organizations would not be able to help.

The results indicate that young people trust the organizations providing assistance to victims of violence, however, they are at the same time insufficiently informed about the number of such organizations and their abilities to provide assistance.

DISCUSSION

The classification of young people according to age may vary depending on the context and the country. The legal regulations in the Republic of Croatia imply that young persons are individuals between the ages of 15 and 30 (27). The aforementioned explains our selection of respondents, despite the fact that there is a significant difference in the understanding and perception of intimate relationships and other characteristics examined between respondents who are adolescents and those who are young adults.

In their analysis of intimate relationships, Fernandez-Fuertes and Fuertes (28) determined that the majority of young people reproduce the current social and societal norms and trends associated with sexual orientation and gender, and thus also, violence. Their study differed from most of the other studies in the fact that they found a larger number of respondents who claimed to have been involved in heterosexual, but also homosexual and bisexual sexual relationships. In our study, on the other hand, it was determined that heterogeneous sexual orientation prevailed, and all respondents declared that they were heterosexual.

od 13 000 studenata u 32 zemlje pokazalo je da je gotovo 1/3 djevojaka i isto toliko mladića fizički napalo partnera (22,29). Smith i suradnici (30) navode da je poseban problem što osobe, a posebno djevojke u adolescenciji koje dožive nasilje s partnerom, imaju znatno veći rizik da budu ponovo viktimizirane u odrasloj dobi, uključujući i seksualno nasilje (31).

Podatci o učestalosti nasilja u vezama mladih ljudi pokazuju da je 50 % mladih bilo izloženo nasilju u intimnim vezama. Rezultati našeg istraživanja pokazuju da je nasilje u vezi pretrpjelo 24 % ispitanika, što je za polovicu manje od rezultata do kojih su došli Wolfe i suradnici (32,33).

Rezultati istraživanja (34) provedenih u Sjedinjenim Američkim Državama i Kanadi pokazuju da nasilje u vezama nije rijetka pojava, odnosno da je između 22,5 % i 39,1 % mladića te između 37,8 % i 43,6 % djevojaka počinilo neki oblik nasilja u vezi. Fokus našeg istraživanja je stavljen samo na doživljeno odnosno pretrpljeno nasilje u vezama.

Istraživanja potvrđuju češću izloženost nasilju djevojaka od partnera, dok su mladići češće počinitelji nasilnih djela (2,35). To isto potvrđuju rezultati našeg istraživanja koji pokazuju da je više djevojaka pretrpjelo nasilje u vezi u odnosu na mladiće.

Od svih vrsta nasilja, udio psihičkog nasilja u vezama mladih je najveći te se procjenjuje da je više od 90 % mladih u vezi barem jednom doživjelo neki oblik psihičkog nasilja (13). Rezultati našeg istraživanja su također pokazali da je najčešće počinjeno nasilje upravo psihičko nasilje, što je potvrdilo 45,83 % sudionika iz skupine koja je pretrpjela nasilje. Također, prema našim rezultatima, od ukupnog broja mladih koji su doživjeli nasilje ukupno 20,84 % su bili žrtve *cyber* (elektroničkog /virtualnog) nasilja.

Prema rezultatima našeg istraživanja pretrpljeno fizičko nasilje odnosilo se na 25 % su-

One third of the American national sample of heterosexual adolescents have experienced some form of partner violence, while 12% of them have experienced physical violence. A major international study involving over 13,000 students from 32 countries showed that almost a third of both young women and young men have physically assaulted their partners (22, 29). Smith et al. (30) observed that a particular problem lies in the fact that individuals, especially adolescent girls who have experienced partner violence, are at a significantly higher risk of being victimized again as adults, which also includes sexual violence (31).

Data on the frequency of the occurrence of partner violence among young people indicate that 50% of young people have been exposed to intimate partner violence. The results of our study indicate that 24% of the respondents have experienced partner violence, which is half less than the results obtained by Wolfe et al. (32, 33).

The results of studies (34) conducted in the United States of America and Canada show that partner violence is not a rare occurrence, i.e. between 22.5% and 39.1% of young men, and between 37.8% and 43.6% of young women have committed some form of partner violence. In our study, we focused only on the partner violence that was experienced, i.e. suffered by the respondents.

Studies have confirmed that young women are exposed to partner violence more often, while young men are more likely to be the perpetrators of violent acts (2, 35). This is also confirmed by the results of our study, which indicate that more young women have suffered partner violence compared to young men.

When taking into account all types of violence, psychological partner violence among young people is the most common, and it is estimated that over 90% of young people involved in a relationship have experienced some form of psychological violence at least once (13). The results of our study also showed that psychological violence is the most common form of violence committed in relationships, which was confirmed by 45.83% of the participants from the group which reported having experienced violence. Furthermore, according

dionika. U istraživanju provedenom na Novom Zelandu intervjuiran je velik reprezentativni uzorak mladih prosječne dobi od 21 godine o iskustvima nasilja u romantičnim odnosima. Rezultati su pokazali da je 21,8 % mladića manifestiralo jedan od oblika fizičkog nasilja prema partnerici, dok je kod djevojaka to učinilo 37,2 % (23). Suprotno od toga, naši rezultati pokazuju da su mladići u većem postotku počinili tjelesno nasilje nad partnericom pa to znači da su sve ispitanice koje su doživjele fizičko nasilje osobe ženskog spola.

Navedeno možemo tumačiti još uvijek različitom spolnom ulogom između ženskog i muškog spola u smislu društvenog i socijalnog okruženja naših ispitanika, odgojnih stavova i odrastanja u kojem se dječacima odnosno mladićima još uvijek pripisuje dominanta uloga u partnerskim odnosima i veća tolerancija svih oblika agresivnih ponašanja, pa tako i fizičkog nasilja. Ove stereotipne rodne slike često se reafirmiraju putem medija u kojima se mladići odnosno muškarci često prikazuju kao nasilni, i moćni. Takve slike svakako utječu na percepciju mladih (36).

U našem istraživanju pretrpljeno seksualno nasilje su najrjeđe prijavljivali mladi. Niti jedan ispitanik koji je pretrpio nasilje nije se izjasnio da je doživio ovaj oblik nasilja. To je u skladu s rezultatima Bella i suradnika (13) da je seksualno nasilje najmanje korišteni oblik zlostavljanja, te su procijenili da se udio seksualnog zlostavljanja u vezama kreće između 2,7 % do 14,8 %.

ZAKLJUČAK

Nasilje u vezama mladih je zabrinjavajući problem kako na nacionalnoj, tako i na globalnoj razini. No, unatoč razmjerima i posljedicama nasilja u intimnim vezama mladih, ono još uvijek nije dovoljno prepoznato niti istaknuto kao važan problem.

to our results, out of all of the young people in our study who experienced violence, a total of 20.84% were victims of cyber (electronic/virtual) violence.

According to our study results, 25% of participants have experienced physical violence. In a study conducted in New Zealand, a large representative sample of young people with an average age of 21 was interviewed about their experiences with regard to violence in romantic relationships. The results showed that 21.8% of young men have manifested some form of physical violence towards their partner, while 37.2% of young women have done the same (23). In contrast, our results show that a higher percentage of young men have committed physical violence against their partners, meaning that all of the respondents who have experienced physical violence are female.

The aforementioned can be interpreted through the still differing gender roles between men and women in terms of the social and societal surroundings of our respondents, their educational attitudes and their upbringing, in which boys, i.e. young men, are still attributed a dominant role in intimate relationships, as well as a higher tolerance for all types of aggressive behaviors, including physical violence. These stereotypical gender images are often reaffirmed in the media, where young men, i.e. men, are often presented as violent and powerful. Such images surely influence the perception of young people (36).

In our study, young people were least likely to report having experienced sexual violence. None of the respondents who experienced violence reported suffering this type of violence. This corresponds to the results obtained by Bell et al. (13), which showed that sexual violence was the least likely form of abuse, and they estimated that the prevalence of sexual abuse in relationships ranged from 2.7% to 14.8%.

CONCLUSION

Partner violence among young people is a worrisome problem both on a national and global level. However, despite the extent and consequences of

Rezultati našeg istraživanja su pokazali da je ukupno 24 % ispitanika doživjelo nasilje u intimnim vezama. Najveći postotak doživljenog nasilja se odnosi na psihičko nasilje (ukupno 54,16 % iz skupine osoba koje su doživjele nasilje u vezi). Ukupno 25 % ispitanika iz skupine koja je pretrpjela nasilje u vezama doživjelo je fizičko nasilje, a 20,84 % su bili žrtve *cyber* (elektroničkog/virtualnog) nasilja. Pozitivna činjenica našega istraživanja jest da nijedan ispitanik nije doživio seksualno nasilje u vezama.

Samo je 16,67 % od ukupnog broja sudionika prijavilo pretrpljeno nasilje u vezama. Ostali ispitanici koji nisu prijavili doživljeno nasilje u najvećem broju slučajeva to nisu napravili zbog straha i srama. Osim toga samo je 20 % ispitanika znalo nabrojati neku od udruga koja pruža pomoć žrtvama nasilja. Čak 97 % mladih vjeruje da im ovakve udruge mogu pomoći. Mladi vjeruju u korisnost udruga ove vrste, ali su o njima nedovoljno informirani.

Ključna preventivna intervencija je bolja informiranost mladih o nasilju. Prevencija, integrirani pristup ovoj problematici, više nacionalnih i međunarodnih strategija koje bi imale sveobuhvatnije preventivne programe prilagođene mladima izrazito je važno i moglo bi pomoći u sprječavanju i smanjenju nasilja u vezama mladih.

Ograničenja ovog istraživanja najvećim dijelom proizlaze iz metoda. Što se tiče ispitanika svakako bi istraživanje trebalo provesti na većem broju mladih. Ovo istraživanje bilo je usmjereno na mlade osobe između 15 i 25 godina, a razlike u poimanju intimnih veza i nasilja u rasponu takve dobne skupine mogu biti velike. Nadalje, istraživanje je provedeno na mladima u jednom području Hrvatske, a uzorak na kojem su podatci prikupljeni čini urbana populacija zbog čega je i generalizacija istraživanja moguća samo na sličnu populaciju. Provedbom istraživanja na više sudionika različite dobi u različitim područjima dobio bi

intimate partner violence among young people, it is still not sufficiently recognized or highlighted as an important problem.

According to the results of our study, a total of 24% of the respondents have experienced intimate partner violence. The highest percentage of experienced violence refers to psychological violence (a total of 54.16% of the respondents from the group of individuals who have experienced partner violence). In total, 25% of the respondents from the group that experienced partner violence suffered physical violence, and 20.84% were victims of cyber (electronic/virtual) violence. A positive aspect of our study is the fact that none of the respondents experienced sexual violence.

Only 16.67% of the total number of respondents actually reported the partner violence they experienced. The other respondents, who did not report the experienced violence, did not do so out of fear and shame. In addition, only 20% of the respondents could name some of the organizations that provide assistance to victims of violence. As many as 97% of young people believe that such organizations could help them. Young people believe that these organizations are useful, but they are not sufficiently informed about them.

A key preventive intervention is to better inform young people about violence. Prevention, an integrated approach to this issue, and a higher number of national and international strategies which would include more comprehensive preventive programs adapted to the young, are of utmost importance and could help prevent and reduce partner violence among young people.

The limitations of this study stem largely from its methods. As for the respondents, a study should certainly be conducted involving a larger number of young people. This study was focused on young people between the ages of 15 and 25, and differences in the perception of intimate relationships and violence within this age range can be substantial. Furthermore, the young people participating in the study were all from one area of Croatia, and the sample on which the data were collected is comprised of urban population, which makes it possible

se jasniji uvid o nasilju mladih u njihovim intimnim vezama. Svakako bi u budućim istraživanjima bilo korisno ispitati i druge čimbenike koji bi mogli biti rizični ili protektivni poput optimizma, religioznosti, visokog samopoštovanja i sl. Nedostatak znanja, sram kao i nedovoljna informiranost doprinose pojavi nasilja u vezama mladih. Mnoge mlade osobe nemaju pristup kvalitetnim i njima prilagođenim informacijama koje bi im omogućile jasniju percepciju pojave, oblika te posljedica i zaštite od nasilja.

to generalize the study only to a similar population. Conducting a study with more participants of different ages in different areas would provide a clearer insight into the intimate partner violence among young people. It would surely be beneficial if future studies also examined other potentially risky or protective factors such as optimism, religiousness, high self-esteem, etc. A lack of knowledge, shame and insufficient information contribute to the occurrence of partner violence among young people. Many young individuals do not have access to quality information adapted to them, which would enable them to have a clearer perception of the occurrence, forms and consequences of violence, as well as how to protect themselves from violence.

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Terapijski rezistentna depresija: nove spoznaje u etiopatogenezi i uloga esketamina u liječenju

/ Treatment-Resistant Depression: New Insights into the Etiopathogenesis and the Role of Esketamine in Treatment

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Terapijski rezistentna depresija (TRD) javlja se u oko 30 % bolesnika koji boluju od velikog depresivnog poremećaja i kod kojih se ne postigne adekvatan terapijski odgovor nakon dvije ili više linija liječenja antidepresivima, uz uvjet da su svaki izabrani antidepresiv uzimali dovoljno dugo i u odgovarajućoj dozi. Brojni su čimbenici povezani s etiopatogenezom TRD, a jedan od značajnih je neurotransmiter glutamat. Glutamat u prekomjernoj koncentraciji u ekstracelularnom prostoru uzrokuje ekscitotoksičnost koja dalje dovodi do otpuštanja proinflamatornih citokina i razvoja neuroupale. To ima za posljedicu oštećenje neurona u područjima mozga koja su odgovorna za emocionalno ponašanje i reguliranje raspoloženja što se klinički može manifestirati kao TRD. Liječenje TRD-a je veliki izazov za kliničare jer unatoč brojnim dosadašnjim farmakološkim i nefarmakološkim metodama liječenja postoji velika potreba za novim učinkovitijim strategijama liječenja. Esketamin je nova terapijska mogućnost u liječenju TRD-a. Za razliku od dosadašnjih antidepresiva djeluje kao antagonist glutamatnih NMDA receptora, primjenjuje se intranazalno i ima akutno djelovanje. Zahvaljujući jedinstvenom mehanizmu djelovanja može biti učinkovit u liječenju TRD-a tako što pojačava signalizaciju neurotrofičnih čimbenika i sinaptogenezu. Esketamin se danas sve više smatra dobrodošlom novom farmakološkom strategijom u liječenju TRD-a, a inhibicija ekscitotoksičnog učinka glutamata stavlja ovaj neurotransmiter sve više u središte znanstvenih istraživanja.

***/** Treatment-resistant depression (TRD) occurs in about 30% of patients with major depressive disorder who have not achieved an adequate therapeutic response after two or more lines of treatment with antidepressants, provided that they have taken each selected antidepressant for a sufficient period of time and at the appropriate dose. Numerous factors are associated with the etiopathogenesis of TRD, one of the significant ones being the neurotransmitter glutamate. In excessive concentrations in the extracellular space, glutamate causes excitotoxicity, further leading to the release of proinflammatory cytokines and the development of neuroinflammation. This results in damage to neurons in brain regions responsible for emotional behavior and mood regulation, which may clinically manifest as TRD. Treating TRD poses a great challenge for clinicians because, despite the numerous current pharmacological and non-pharmacological treatment methods, there is a great need for new and more effective treatment strategies. Esketamine represents a new therapeutic possibility in the treatment of TRD. Unlike traditional antidepressants, it acts as an antagonist to glutamatergic NMDA receptors, it is administered intranasally, and has acute effects. Due to its unique mechanism of action, it can be effective in treating TRD by enhancing the signaling of neurotrophic factors and synaptogenesis. Esketamine is increasingly considered as a welcome new pharmacological strategy in the treatment of TRD, while the inhibition of the excitotoxic effects of glutamate places this neurotransmitter increasingly at the center of scientific research.*

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KLJUČNE RIJEČI / ***KEY WORDS:***
Terapijski rezistentna depresija / *Treatment-Resistant Depression*
Glutamat / *Glutamate*
Neuroupala / *Neuroinflammation*
Esketamin / *Esketamine*

TO LINK TO THIS ARTICLE: https://doi.org/10.24869/spsih.2024.151

UVOD

Značajan udio oboljelih od depresije tijekom liječenja prolazi relativno dugo razdoblje nakon primjene antidepresiva do postizanja vidljivih poboljšanja simptoma. Kada se ne postigne adekvatan terapijski odgovor niti nakon nekoliko linija liječenja (dvije ili više), postavlja se sumnja na terapijski rezistentnu depresiju (TRD) (1).

Povratni (rekurentni) depresivni poremećaj, sukladno MKB-10 klasifikaciji, karakteriziran je povratnim depresivnim epizodama, bez povijesti neovisnih epizoda povišenog raspoloženja ili prekomjerne aktivnosti, što bi ispunjavalo kriterije manije (2) te bez povijesti hipomanih ili mješovitih afektivnih epizoda. Oko 30 % bolesnika koji boluju od povratnog depresivnog poremećaja neće postići adekvatan terapijski odgovor niti nakon dvije ili više linija liječenja antidepresivima, uz uvjet da su svaki izabrani antidepresiv uzimali dovoljno dugo i u odgovarajućoj dozi, te će se kod njih raditi o terapijski rezistentnoj depresiji (TRD) (1). TRD je često udružen s: kroničnim depresivnim raspoloženjem, pogoršanjem cjelokupnog zdravlja i dobrobiti, značajno reduciranim psihosocijalnim funkcioniranjem i povišenim mortalitetom (3). S obzirom na visok udio bolesnika s TRD-om, iznimno ih je važno prepoznati i pružiti odgovarajuću skrb, tj. izabrati odgovarajuću strategiju liječenja.

INTRODUCTION

During their treatment, a significant portion of individuals with depression go through a relatively long period after administration of antidepressants before experiencing visible improvements in their symptoms. When an adequate therapeutic response is not achieved even after several lines of treatment (two or more), suspicion arises of treatment-resistant depression (TRD) (1).

Recurrent depressive disorder, according to the ICD-10 classification, is characterized by recurrent depressive episodes, without a history of independent episodes of elevated mood or excessive activity, which would meet the criteria for mania (2), and without a history of hypomanic or mixed affective episodes. Around 30% of patients with recurrent depressive disorder will not achieve an adequate therapeutic response even after two or more lines of treatment with antidepressants, provided that they have taken each selected antidepressant for a sufficient period of time and at the appropriate dose, thus leading to the diagnosis of treatment-resistant depression (TRD) (1). TRD is often associated with chronic depressive mood, worsening of the overall health and well-being, significantly reduced psychosocial functioning, and increased mortality (3). Given the high proportion of patients with TRD, it

Optimalni ciljevi u liječenju depresije su uspostava pune remisije i potpunog funkcionalnog oporavka bolesnika, dok je realni cilj u svakodnevnoj kliničkoj praksi često postizanje adekvatnog terapijskog odgovora uz zadovoljavajući stupanj funkcionalnog oporavka.

Terapijski odgovor na antidepresive je u brojnim dosadašnjim istraživanjima ocijenjen u četiri stupnja: (4,5):

- nema odgovora: kada je poboljšanje <25 %
- parcijalni odgovor: kada je poboljšanje 25 - 49 %
- odgovor (adekvatan terapijski odgovor): kada je poboljšanje 50 % ili više ali manje od praga za remisiju
- remisija: zadovoljavajući rezultat na ocjenskim ljestvicama za depresiju, npr. rezultat 7 ili manje na MADRS (engl. *Montgomery-Asberg Depression Rating Scale*).

Poznato je da se stopa remisije ne razlikuje značajno nakon prve i druge linije liječenja, ali pada sve više i više nakon treće ili četvrte (na svega 14 do 13 %) (6,7). Treba istaknuti i da se ponekad uzrok terapijske rezistencije nalazi u neodgovarajućoj dozi ili nedovoljnoj duljini primjene antidepresiva, pa je tada riječ o tzv. pseudorezistenciji (8,9). Teško je jednoznačno definirati TRD, a danas je najbolje prihvaćena i najčešće primjenjivana definicija koju najčešće koriste Američka agencija za hranu i lijekove (engl. *US Food and Drug Administration*, FDA) (10) i Europska agencija za lijekove (engl. *European Medicines Agency*, EMA) (11). Prema toj definiciji TRD se može utvrditi ako kod osobe uočimo izostanak adekvatnog terapijskog odgovora na dva ili više antidepresiva, uz uvjet da je svaki izabrani antidepresiv bio propisan u odgovarajućoj dozi i dovoljno dugo, te da je adherencija bila adekvatna (10,11). Osim toga, u zadnje se vrijeme uvodi i pojam ultrarezistentne depresije (URD) kada bolesnik ne odgovori zadovoljavajuće na brojne linije liječe-

is extremely important to recognize them and provide them with appropriate care, that is, to choose an appropriate treatment strategy.

The optimal goals in the treatment of depression include achieving full remission and complete functional recovery of the patient, while the realistic goal in everyday clinical practice is often to achieve an adequate therapeutic response with a satisfactory level of functional recovery. Therapeutic response to antidepressants has been assessed in numerous previous studies through four stages (4, 5):

- Non-response: when improvement is <25%
- Partial response: when improvement is 25 - 49%
- Response (adequate therapeutic response): when improvement is 50% or more, but less than the threshold for remission
- Remission: satisfactory result on depression rating scales, e.g. a score of 7 or less on MADRS (Montgomery-Asberg Depression Rating Scale).

It is known that the remission rate does not differ significantly after the first and second lines of treatment, but it decreases more and more after the third or fourth (to as low as 14 to 13%) (6, 7). It should also be noted that sometimes the cause of treatment resistance lies in an inappropriate dose or insufficient duration of antidepressant use, leading to the so-called pseudo-resistance (8, 9). Defining TRD unequivocally is difficult, and the most widely accepted and commonly applied definition today is the one most often used by the US Food and Drug Administration (FDA) (10) and the European Medicines Agency (EMA) (11). According to this definition, TRD can be diagnosed if a person does not have an adequate therapeutic response to two or more antidepressants, provided that each selected antidepressant was prescribed at an appropriate dose and for a sufficient period of time, and that adherence was adequate (10, 11). Additionally, the concept of ultra-resistant depression (URD) has

nja (uglavnom oko pet različitih linija liječenja) (12).

Cilj ovog narativnog preglednog rada je prikazati nove spoznaje u etiopatogenezi i liječenju terapijski rezistentne depresije, s osvrtom na ulogu esketamina.

NOVOSTI U ETIOPATOGENEZI TERAPIJSKI REZISTENTNE DEPRESIJE

Etiopatogeneza TRD-a još uvijek nije u potpunosti razjašnjena te brojne teorije, od kojih su najznačajnije neuroanatomska, monoaminska, psihoneuroimunološka, psihoneuroendokrinološka i genetička, treba razmotriti u tom kontekstu. Tri najčešća neurotransmiterska sustava istraživana u etiopatogenezi depresije su serotonergički, noradrenergički i dopaminergički, te se upravo putem njih ostvaruje antidepresivni odgovor velikog broja današnjih antidepresiva. U posljednja dva desetljeća glutamatergički sustav, posebice disfunkcija NMDA receptora, zauzima sve značajniju poziciju u etiopatogenezi TRD-a (13). Zbog toga naglašavamo novije aspekte, kao što je uloga glutamata, omjera GABA/glutamat i neuroupale.

Glutamatna hipoteza u zadnje vrijeme je sve više u središtu zanimanja što se tiče razumijevanja, nastanka i liječenja terapijske rezistencije kod oboljelih od depresije. Glutamat je glavni ekscitatorni neurotransmiter u središnjem živčanom sustavu koji je po svom kemijskom sastavu aminokiselina i u tom je svojstvu građevna jedinica za biosintezu proteina (14). Kao neurotransmiter, sintetizira se iz glutamina koji potječe iz glija stanica koje također pomažu u recikliranju i regeneraciji viška glutamata nakon njegovog otpuštanja tijekom neurotransmisije. Nakon otpuštanja iz sinaptičkih vezikula glutamatnog neurona glutamat stupa u interakciju s receptorima i

recently been introduced, and it refers to cases where a patient does not have a satisfactory response to numerous lines of treatment (typically around five different lines of treatment) (12).

The aim of this review article is to present new insights into the etiopathogenesis and treatment of treatment-resistant depression, with a focus on the role of esketamine.

NOVELTIES IN THE ETIOPATHOGENESIS OF TREATMENT-RESISTANT DEPRESSION

The exact etiopathogenesis of TRD is still not fully elucidated, and numerous theories, including the most significant ones such as neuroanatomical, monoamine, psychoneuroimmunological, psychoneuroendocrinological and genetic theories, need to be considered in this context. The three most common neurotransmitter systems investigated in the etiopathogenesis of depression are the serotonergic, noradrenergic and dopaminergic systems, through which the antidepressant response of many current antidepressants is achieved. In the last two decades, the glutamatergic system, particularly the dysfunction of NMDA receptors, has become increasingly important in the etiopathogenesis of TRD (13). Therefore, the focus will be on newer aspects, such as the role of glutamate, the GABA/glutamate ratio and neuroinflammation.

The glutamatergic hypothesis has lately increasingly become the focus of attention in terms of understanding, onset and treatment of treatment resistance in individuals with depression. Glutamate serves as the primary excitatory neurotransmitter in the central nervous system, chemically classified as an amino acid, and in this capacity it represents a building block for protein biosynthesis (14). As a neurotransmitter, it is synthesized from glutamine originating from glial cells which also assist in the recycling

potom se transportira u susjednu gliju preko ekscitatornog aminokiselinskog transportera (engl. *excitatory amino acid transporter*, EAAT). Nakon ponovne pohrane u glija stanice glutamat se konvertira u glutamin posredovanjem enzima glutamin sintetaze. Naime, glutamin se otpušta/transportira iz glija stanica preko specifičnog glijalnog neutralnog aminokiselinskog transportera (engl. *specific neutral amino acid transporter*, SNAT) procesom reverznog transporta, a zatim ga preuzimaju SNAT-ovi na glutamatnim neuronima te posredovanjem mitohondrijskog enzima glutaminaze konvertiraju u glutamat.

U širem smislu, receptori koji reguliraju glutamatergičku neurotransmisiju uključuju: ekscitatorni aminokiselinski transporter (EAAT) koji se nalazi presinaptički i odgovoran je za odstranjivanje viška glutamata iz sinapse, vezikularni transporter za glutamat (vGluT) koji prenosi glutamat u sinaptičke vezikule gdje ih pohranjuje za korištenje u neurotransmisiji te metabotropne glutamatne receptore povezane s G proteinima koji se mogu nalaziti presinaptički ili postsinaptički (15). Tri tipa postsinaptičkih glutamatnih receptora povezani su s ionskim kanalima i poznati su kao kanali otvarani ligandom: NMDA receptori (engl. *N-methyl-D-aspartate*), AMPA receptori (engl. *α-amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid*) i kainatni receptori.

Ionotropni postsinaptički receptori moduliraju ekscitatornu postsinaptičku neurotransmisiju potaknutu glutamatom. Naročito AMPA i kainatni receptori mogu posredovati brzu, ekscitatornu neurotransmisiju, dopuštajući ulazak natrija u stanicu i posljedičnu depolarizaciju (16). NMDA receptori u stanju mirovanja su normalno blokirani magnezijem koji začepi kalcijev kanal. Da bi došlo do glutamatergičke neutrotransmisije na NMDA receptorima potrebna su tri događaja istovremeno: vezanje glutamata na njegovom veznom mjestu na NMDA receptoru, vezanje glicina ili D-serina

and regeneration of excess glutamate after its release during neurotransmission. After being released from the synaptic vesicles of glutamatergic neurons, glutamate interacts with receptors and is subsequently transported into adjacent glia via excitatory amino acid transporters (EAATs). After reuptake into glial cells, glutamate is converted to glutamine by means of the glutamine synthetase enzyme. Specifically, glutamine is released/transported from glial cells via a specific glial neutral amino acid transporter (SNAT) through a process of reverse transport, and is then taken up by SNATs on glutamatergic neurons, where it is converted to glutamate by means of the mitochondrial enzyme glutaminase.

In a broader sense, receptors that regulate glutamatergic neurotransmission include the following: the excitatory amino acid transporter (EAAT) which is located presynaptically and is responsible for removing excess glutamate from the synapse; the vesicular glutamate transporter (vGluT) which transports glutamate into synaptic vesicles where it is stored for use in neurotransmission; and metabotropic glutamate receptors linked to G proteins which can be found either presynaptically or postsynaptically (15). Three types of postsynaptic glutamate receptors are connected with ion channels, and are known as ligand-gated channels: NMDA receptors (N-methyl-D-aspartate receptors), AMPA receptors (α-amino-3-hydroxy-5-methyl-4-isoxazole-propionic acid receptors), and kainate receptors.

Ionotropic postsynaptic receptors modulate the excitatory postsynaptic neurotransmission mediated by glutamate. Specifically, AMPA and kainate receptors can mediate fast, excitatory neurotransmission, allowing sodium entry into the cell and subsequent depolarization (16). NMDA receptors at rest are normally blocked by magnesium, which plugs the calcium channel. For glutamatergic neurotransmission to occur on NMDA receptors, three events need to occur simultaneously: glutamate binding at its binding site on the NMDA receptor, glycine or D-serine

na njegovom veznom mjestu na NMDA receptoru te depolarizacija što omogućuje uklanjanje magnezijevog „čepa“ (17). Neki od značajnih signala koji su posredovani NMDA receptorima koji su aktivirani kada su NMDA kalcijevi kanali otvoreni, uključuju dugoročnu potencijaciju i sinaptičku plastičnost (17,18).

Povećana razina glutamata u sinaptičkoj pukotini odgovorna je za njegovo neurotoksično djelovanje pri čemu se upravo egzocitotoksičnost smatra okidačem terapijske rezistencije. Naime, tri su mehanizma kojima glutamat, točnije rečeno višak glutamata, ostvaruje svoju neurotoksičnost.

S jedne strane, preveliko otpuštanje glutamata dovodi do pretjeranog vezanja na NMDA receptore, što posljedično uzrokuje pretjeranu aktivaciju receptora i utoka kalcija u stanice (19). Višak kalcija intracelularno dovodi do oštećenja stanica, a posljedično i do apoptoze. Stanično oštećenje podloga je za nastanak simptoma depresije. S druge strane, veliki učinak pretjeranog otpuštanja glutamata jest “izljev” viška glutamata u ekstracelularne prostore, a ovo pak dovodi do blokiranja i sinteze i otpuštanja BDNF-a (engl. *brain-derived neurotrophic factor*) (18,19). Do spomenutoga dolazi zbog učinka ekstracelularnih NMDA receptora, koji aktivacijom ekstracelularnim glutamatom dovode do gore navedenog učinka, što ima velike posljedice za normalnu funkciju neurona. Poznato je da je upravo BDNF ključan čimbenik u stvaranju otpornosti ili neurorezilijencije za nastanak različitih poremećaja, djeluje neuroprotektivno te smanjuje neuroinflamaciju. Također, BDNF djeluje kao pozitivni čimbenik neuroplastičnosti (20), a kada je inhibiran dovodi do simptoma anksioznosti i depresije te na taj način doprinosi kliničkoj slici terapijski rezistentne depresije. Konačno, neurotoksičnost glutamata u ekstracelularnom prostoru očituje se u povećanom vezanju na mikroglijalne stanice, što uzrokuje povećano otpuštanje upalnih citokina što se

binding at its binding site on the NMDA receptor, and depolarization, which enables the removal of the magnesium “plug” (17). Some of the significant signals mediated by NMDA receptors that are activated when NMDA calcium channels are open include long-term potentiation and synaptic plasticity (17, 18).

Increased levels of glutamate in the synaptic cleft are responsible for its neurotoxic effects, with excitotoxicity being considered the trigger for therapeutic resistance. Specifically, there are three mechanisms through which glutamate, or more precisely, excess glutamate, exerts its neurotoxicity.

On the one hand, excessive release of glutamate leads to its overbinding to NMDA receptors, subsequently resulting in receptor overactivation and calcium influx into cells (19). Excess intracellular calcium leads to cell damage and, ultimately, apoptosis. Cellular damage serves as the basis for the onset of depressive symptoms. On the other hand, a significant consequence of excessive glutamate release is the “spillover” of excess glutamate into extracellular spaces, leading to blockade, synthesis and a release of brain-derived neurotrophic factor (BDNF) (18, 19). This occurs due to the effect of extracellular NMDA receptors, which, upon activation by extracellular glutamate, lead to the aforementioned effect, having significant consequences for the normal function of neurons. It is known that precisely BDNF is a crucial factor in the development of resilience or neuroresilience for the onset of various disorders, it has a neuroprotective effect and reduces neuroinflammation. Additionally, BDNF acts as a positive factor in neuroplasticity (20), and when inhibited, it leads to symptoms of anxiety and depression, thereby contributing to the clinical presentation of treatment-resistant depression. Finally, the neurotoxicity of glutamate in the extracellular space manifests in increased binding to microglial cells, causing an increased release of inflammatory cytokines, thus further resulting in neuroinflammation (21), which will be discussed further in the text.

dalje očituje neuroupalom (21) o čemu će biti govora u nastavku.

Osim glutamata, u razvoju TRD iznimno je važna i uloga GABA-e. GABA je glavni inhibitorni neurotransmiter središnjeg živčanog sustava (22). GABA i glutamat nalaze se u stanju ravnoteže, što znači da u stanjima kada dolazi do povišene razine GABA-e, kompenzatorno dolazi do povećanja koncentracije glutamata (23). Upravo zbog ovog mehanizma dokazano je da je alkohol, kao sredstvo koje dovodi do pojačanog otpuštanja GABA-e (jer etanol djeluje GABA-ergički), rizični čimbenik koji može dovesti do pogoršanja kliničke slike depresije. Povišene razine GABA-e dovode do kompenzatorno povišene razine glutamata, što uzrokuje glutamatnu ekscitotoksičnost te dolazi do neuroupale koja je okosnica nastanka TRD.

Posebno zanimljive u zadnje vrijeme su i spoznaje proizašle iz istraživanja omjera GABA-e i glutamata u oboljelih od depresije. Studije MR spektroskopijom su pokazale povišenu razinu glutamata i nisku razinu GABA-e u okcipitalnom korteksu oboljelih (24). Nadalje, dokazano je povećanje glutamata u bazalnim ganglijima, što je bilo povezano s anhedonijom i psihomotornom usporenošću. Pretjerano smanjenje omjera glutamata i GABA-e pronađeno je u prefrontalnom korteksu neliječenih osoba, što je pokazalo da omjer ovih dvaju neurotransmitera varira u pojedinim moždanim regijama i potencijalno uvjetuje kakvom će se kliničkom slikom prezentirati pojedinci (24). Konačno, recentna istraživanja u središte zbivanja stavljaju neuroupalu (25,26). Upalni citokini koji se oslobađaju u stanjima upale dvojako dovode do glutamatne ekscitotoksičnosti, koja je prethodno objašnjena. S jedne strane, upalni citokini svojim vezanjem na mikrogliju remete njezinu sposobnost da puferira koncentraciju glutamata, čime dolazi do pretjeranog otpuštanja glutamata iz intracelularnog u ekstracelularni prostor, gdje glutamat djeluje toksično (25). Isto tako, upalni citokini djeluju i na transkrip-

In addition to glutamate, the role of GABA is extremely important in the development of TRD. GABA is the main inhibitory neurotransmitter of the central nervous system (22). GABA and glutamate are in a state of balance, meaning that in conditions where there is an elevated level of GABA, there is a compensatory increase in glutamate concentration (23). Precisely because of this mechanism, it has been proved that alcohol, as a substance that leads to an increased release of GABA (since ethanol acts GABAergically), represents a risk factor that can worsen the clinical presentation of depression. Elevated levels of GABA lead to compensatory elevated levels of glutamate, causing glutamate excitotoxicity and resulting in neuroinflammation, which is central to the development of TRD.

Particularly interesting lately are the findings arising from research on the ratio of GABA to glutamate in individuals with depression. MR spectroscopy studies have shown elevated levels of glutamate and low levels of GABA in the occipital cortex of affected individuals (24). Furthermore, an increase in glutamate in the basal ganglia has been proved, which was linked to anhedonia and psychomotor slowness. Excessive reduction in the ratio of glutamate to GABA was found in the prefrontal cortex of untreated individuals, indicating that the ratio of these two neurotransmitters varies in different brain regions and potentially influences the clinical presentation of individuals (24). Finally, recent studies have focused on neuroinflammation (25, 26). Inflammatory cytokines released during inflammation contribute to glutamate excitotoxicity in two ways, as previously explained. On the one hand, inflammatory cytokines disrupt the ability of microglia to buffer glutamate concentration by binding to them, thus leading to an excessive release of glutamate from intracellular to extracellular space, where glutamate exerts its toxic effects (25). Similarly, inflammatory cytokines also act at the transcriptional level, resulting in an increased expression of glutamate transporters on cells, thus further contributing

tornoj razini dovodeći do povećane ekspresije glutamatnih transportera na stanicama, što dodatno doprinosi prelasku glutamata iz intracelularnog u ekstracelularni prostor (26). Vezanjem na ekstracelularne NMDA receptore glutamat dovodi do stanične smrti i smanjene proizvodnje BDNF-a.

Pravi uzroci nastanka neuroupale do danas nisu u potpunosti razjašnjeni te se etiološki razmatraju genetski i okolišni čimbenici. Također, epigenetika je sve više uključena u etiopatogenetska razmatranja (26). Psihosocijalni stres je veliki okidač neuroupale te djeluje na transkriptornoj razini, najvjerojatnije preko citotoksičnosti uzrokovane glutamatom i na taj način dovodi do smanjene proizvodnje BDNF-a (27). S druge strane, istraživanja su pokazala da dio oboljelih od kronične depresije u DNK svojih astrocita iskazuju uzroke metilacije u obliku promjena u genima uključenima u razvoj kronične upale, poput C-reaktivnog proteina i proinflamatornog citokina IL-6 (28), što se ponovno vraća na epigenetiku kao pozadinu nastanka terapijske rezistencije. Isto se tako trauma i ishemija te upale središnjeg živčanog sustava navode kao potencijalni uzroci (29). Uzroka je mnogo, ali zajednički nazivnik je proces nastanka neuroupale i utjecaj upalnih citokina na glijalne stanice što dovodi do glutamatne ekscitotoksičnosti. Najčešće istraživani i najznačaniji proinflamatorni citokini u etiopatogenezi TRD-a upravo su interleukini IL-1 i IL-6, tumor-nekrotizirajući faktor alfa (TNF-α), kao i njihovi topljivi receptori, te protein akutne faze upale, C-reaktivni protein (CRP). Uz navedene, analiza sline, plazme i cerebrospinalne tekućine oboljelih od terapijski rezistentne depresije otkrila je i povišene razine prostaglandina E2 (30). Nasuprot tome, važno je napomenuti da su neki drugi interleukini, poput IL-8, pokazali suprotno djelovanje te su istraživanja pokazala da djeluju protektivno u oboljelih od depresije i doprinose boljem terapijskom odgovoru (31).

to the transition of glutamate from intracellular to extracellular space (26). By binding to extracellular NMDA receptors, glutamate leads to cell death and reduced production of BDNF.

The true causes of neuroinflammation have not been fully elucidated yet, and etiologically, genetic and environmental factors are considered. Furthermore, epigenetics is being increasingly involved in etiopathogenetic considerations (26). Psychosocial stress represents a significant trigger for neuroinflammation and acts at the transcriptional level, most likely through glutamate-induced cytotoxicity, in this way leading to a reduced production of BDNF (27). On the other hand, studies have shown that some individuals with chronic depression exhibit methylation causes in the DNA of their astrocytes, indicating changes in the genes involved in the development of chronic inflammation, such as C-reactive protein and the proinflammatory cytokine IL-6 (28), which again brings epigenetics to the forefront as the background of treatment resistance. Similarly, trauma, ischemia and inflammations of the central nervous system are cited as potential causes (29). While the causes are numerous, the common denominator is the process of neuroinflammation and the influence of inflammatory cytokines on glial cells, which lead to glutamate excitotoxicity. The most commonly researched and most significant proinflammatory cytokines in the etiopathogenesis of TRD are precisely the interleukins IL-1 and IL-6, tumor necrosis factor-alpha (TNF-α), as well as their soluble receptors, and the acute-phase inflammatory protein, C-reactive protein (CRP). In addition to these, analysis of saliva, plasma and cerebrospinal fluid in individuals with treatment-resistant depression has revealed elevated levels of prostaglandin E2 (30). Conversely, it is important to note that some other interleukins, such as IL-8, have shown opposite effects, and studies have shown that they act protectively in individuals with depression and contribute to a better therapeutic response (31). Understanding the different proinflamma-

Važno je poznavati različite proinflamatorne citokine i njihov različiti utjecaj na etiopatogenezu TRD-a.

NOVOSTI U LIJEČENJU TERAPIJSKI REZISTENTNE DEPRESIJE

Liječenje TRD-a je značajan izazov za kliničare. Prije svega treba isključiti da se ne radi o pseudo-rezistenciji. Kombinirano liječenje može uključivati antipsihotike 2. i 3. generacije te stabilizatore raspoloženja (poglavito litij) kao *add-on* terapiju izabranom antidepresivu (32). Treba spomenuti i augmentativni potencijal tireoidnog hormona (33). Osim toga, u obzir dolaze i nefarmakološke metode liječenja poput repetitivne transkranijske magnetske stimulacije (rTMS) i elektrokonvulzivne terapije (EKT), kao i modernije metode poput fototerapije (34-36).

Inovativna opcija u liječenju TRD-a je esketamin, lijek koji ima svoje posebne indikacije, kontraindikacije, mehanizam djelovanja i nuspojave. Prije uvođenja u kliničku upotrebu primjeni esketamina u liječenju terapijski rezistentne depresije prethodila su brojna istraživanja ketamina (37). Što se tiče razlika u učinku ketamina, lijeka koji nije odobren za liječenje TRD-a, i esketamina, lijeka koji je trenutno u uporabi, studije su pokazale da u usporedbi s intranazalnim esketaminom, intravenski ketamin pokazuje značajniji sveukupni učinak i veći postotak remisije, kao i nižu stopu odustajanja od lijeka zbog nuspojava (37). Također, ketamin je pokazao i bolje kratkotrajne učinke u više kliničkih studija, dok dugoročni učinci nisu dovoljno ispitani (37). Ipak, s obzirom na to da ketamin nije odobren za spomenute indikacije, takva saznanja nisu relevantna za trenutnu kliničku praksu, ali otvaraju vrata za daljnja istraživanja i potencijalnu primjenu lijeka u budućnosti liječenja TRD-a.

tory cytokines and their varied impact on the etiopathogenesis of TRD is important.

NOVELTIES IN THE TREATMENT OF TREATMENT-RESISTANT DEPRESSION

The treatment of TRD poses a significant challenge for clinicians. First, it is necessary to rule out pseudo-resistance. Combined treatment may involve second and third-generation antipsychotics and mood stabilizers (especially lithium) as add-on therapy to the selected antidepressant (32). The augmentative potential of thyroid hormone should also be mentioned (33). Additionally, non-pharmacological treatment methods such as repetitive transcranial magnetic stimulation (rTMS) and electroconvulsive therapy (ECT), as well as more modern methods like phototherapy (34-36), should also be considered.

An innovative option in the treatment of TRD is esketamine, a medication with specific indications, contraindications, mechanisms of action, and side effects. Before being introduced into clinical use, the application of esketamine in the treatment of treatment-resistant depression was preceded by numerous studies on ketamine (37). Regarding the differences in the effects of ketamine, a medication not approved for the treatment of TRD, and esketamine, a medication currently in use, studies have shown that compared to intranasal esketamine, intravenous ketamine exhibits a more significant overall effect and a higher percentage of remission, as well as a lower rate of medication discontinuation due to side effects (37). Furthermore, ketamine has shown better short-term effects in multiple clinical studies, while its long-term effects have not been sufficiently investigated (37). However, considering that ketamine is not approved for the aforementioned indications, such findings are not relevant to the current clinical practice, but they open the door for further research and potential application of the medication in future TRD treatment.

Esketamin je S enantiomer ketamina (racemična smjesa R- i S-ketamina), neselektivni, nekompetitivni antagonist NMDA receptora (38,39). Uz spomenuto, svoje djelovanje ostvaruje i indirektnom stimulacijom AMPA receptora postsinaptički (33,34). Isto tako, esketamin potiče aktivaciju neurotrofičnih faktora, kao što su BDNF i vjerojatno VEGF (engl. *vascular endothelial growth factor*) koji su u stanjima kroničnog stresa i depresije sniženi (38,39). Gubitak BDNF i VEGF su povezani s atrofijom neurona u područjima mozga poput prefrontalnog korteksa i hipokampusa u animalnim modelima kroničnog stresa, kao i kod velikog depresivnog poremećaja. Nadalje, smatra se da kronični stres i depresija snižavaju receptore za BDNF i VEGF poznate kao TRKB (engl. *tyrosine kinase 2*) i FLK1 (engl. *fetal liver kinase 1*). Konačno, esketamin djeluje i otpuštanjem dopamina iz presinaptičkih završetaka u strijatumu, međutim, to nije dokazano u humanim istraživanjima (38,39).

Pojačana signalizacija neurotrofičnih faktora i posljedično pojačanje sinaptogeneze nakon uporabe esketamina uočeno je u regijama mozga zaduženima za emocionalno ponašanje i reguliranje raspoloženja (31), što je glavni argument zbog čega je esketamin djelotvoran u liječenju TRD. Naime, njegovo brzo djelovanje može biti povezano s indirektnim učincima na signalizaciju AMPA receptora. Blokada glutamatnih NMDA receptora vodi u brzu aktivaciju AMPA receptora koja pokreće kaskadu signalne transdukcije ERK i AKT puteva, a što dalje direktno stimulira mTORC1 (engl. *mammalian target of rapamycin complex 1*) signalni put, koji regulacijom sinteze proteina stimulira sinaptogenezu i produkciju BDNF-a i drugih trofičkih čimbenika (39). Kao što se može zaključiti, pojačana sinaptogeneza i produkcija BDNF-a djeluju neuroprotektivno i smanjuju simptome depresije.

Esketamin se primjenjuje isključivo u bolničkim uvjetima intranazalno. Brzodjelujući

Esketamine is the S-enantiomer of ketamine (a racemic mixture of R- and S-ketamine), a non-selective, non-competitive antagonist of NMDA receptors (38, 39). In addition to this, its action is also achieved through indirect stimulation of AMPA receptors postsynaptically (33, 34). Likewise, esketamine promotes the activation of neurotrophic factors, such as BDNF and probably VEGF (vascular endothelial growth factor), which are reduced in chronic stress and depression (38, 39). The loss of BDNF and VEGF is associated with neuronal atrophy in brain regions such as the prefrontal cortex and hippocampus in animal models of chronic stress, as well as in major depressive disorder. Furthermore, it is believed that chronic stress and depression downregulate the receptors for BDNF and VEGF known as TRKB (tyrosine kinase 2) and FLK1 (fetal liver kinase 1). Finally, esketamine also acts by releasing dopamine from presynaptic terminals in the striatum, however, this has not been proved in human studies (38, 39).

Enhanced neurotrophic factor signaling and, consequently, increased synaptogenesis following the use of esketamine have been observed in brain regions responsible for emotional behavior and mood regulation (31), which is the main argument for why esketamine is effective in treating TRD. Specifically, its rapid action may be associated with indirect effects on AMPA receptor signaling. Blocking glutamatergic NMDA receptors leads to rapid activation of AMPA receptors, initiating a cascade of signal transduction via the ERK and AKT pathways, which further directly stimulates the mTORC1 (mammalian target of rapamycin complex 1) signaling pathway. This pathway, by regulating protein synthesis, stimulates synaptogenesis and the production of BDNF and other trophic factors (39). As can be concluded, enhanced synaptogenesis and BDNF production have neuroprotective effects and reduce depression symptoms.

Esketamine is administered exclusively in hospital settings via the intranasal route. It is a

je agens koji dovodi do kratkoročnog i dugoročnog poboljšanja depresivnih simptoma kod bolesnika s TRD. Osim toga, posebno je koristan jer je njegova primjena povezana sa smanjenjem suicidalnih ideja kod ove osobito vulnerabilne skupine bolesnika (40,41). Suicidalne ideje predstavljaju značajan problem kod bolesnika s terapijski rezistentnom depresijom i teško se kupiraju bilo kojim dosadašnjim modalitetom liječenja.

Prednosti esketamina su njegova kratkoročna i dugoročna učinkovitost, primjena kao dodatak oralnoj terapiji, bolja podnošljivost u odnosu na ketamin, intranazalna administracija (jednom na tjedan, dva puta na tjedan, svakih dva tjedna) te dostupnost kao terapija u hitnim slučajevima, jer dovodi do brzog smanjenja simptoma (dekompenzacija kod akutno depresivnih) i suicidalnosti. S druge strane, glavni nedostatci su: visoka cijena lijeka, potreba nadziranja primjene lijeka od strane medicinskog osoblja, dostupnost (primjenjuje se samo u posebnim indikacijama), nedovoljno iskustvo psihijatara s esketaminom te, konačno, rizik zloporabe koji se u potpunosti ne može isključiti (42).

Esketamin je značajni inovativni modalitet liječenja TRD-a zahvaljujući svom jedinstvenom mehanizmu djelovanja - inhibiciji ekscitotoksičnog učinka glutamata, indirektno stavljajući glutamatnu hipotezu nastanka TRD-a u sve važniji fokus istraživanja.

ZAKLJUČAK

U današnje vrijeme TRD je veliki izazov u liječenju, a liječenje suicidalnog bolesnika s TRD-om je izrazito kompleksno, zahtjevno i odgovorno.

Epidemiološki gledano, jedan od tri bolesnika s velikim depresivnim poremećajem potencijalno ima TRD. U liječenju ove skupine bolesnika nužan je timski rad, a uz standardnu terapijsku skrb, od ključne je važnosti da su psihija-

fast-acting agent that leads to short-term and long-term improvement of depressive symptoms in patients with TRD. Additionally, it is particularly useful because its use is associated with a reduction in suicidal ideation in this especially vulnerable group of patients (40, 41). Suicidal ideation represents a significant problem in patients with treatment-resistant depression and is difficult to alleviate with any previous treatment modality.

The advantages of esketamine include its short-term and long-term effectiveness, use as an adjunct to oral therapy, better tolerability compared to ketamine, intranasal administration (once weekly, twice weekly, every two weeks), and availability as emergency therapy, as it leads to a rapid reduction of symptoms (decompensation in acutely depressed patients) and suicidality. On the other hand, the main disadvantages are the high cost of the medication, the need for supervision of drug administration by medical personnel, limited availability (used only in specific indications), insufficient experience of psychiatrists with esketamine, and finally, the risk of abuse which cannot be completely ruled out (42).

Esketamine represents a significant innovative modality in the treatment of TRD thanks to its unique mechanism of action - inhibition of the excitotoxic effect of glutamate, indirectly placing the glutamate hypothesis of TRD development in an increasingly important focus of research.

CONCLUSION

Nowadays, TRD represents a significant challenge in terms of treatment, and treating a suicidal patient with TRD is extremely complex, demanding and responsible.

Epidemiologically speaking, one in three patients with major depressive disorder potentially has TRD. Collaborative teamwork is essential in treating this group of patients, and alongside standard therapeutic care, it is of utmost

tri uključeni u liječenje upoznati s najnovijim istraživanjima i terapijskim mogućnostima uključujući primjenu esketamina. Upravo esketamin i ostali lijekovi koji moduliraju glutamatnu aktivnost otvaraju nove mogućnosti u liječenju TRD-a. Iako toksični učinci glutamata ne mogu razjasniti patogenezu kod svih oboljelih od TRD-a, najnovija istraživanja koja u središte stavljaju neuroupalu pokazuju se izrazito obećavajućima.

Može se zaključiti da inovativni sadašnji (poput primjerice esketamina) i budući modaliteti liječenja TRD-a mogu doprinijeti, kako značajnim kliničkim poboljšanjima, tako i poboljšanjima kvalitete života ove terapijski izazovne skupine bolesnika.

importance that psychiatrists involved in the treatment are familiar with the latest research and therapeutic possibilities, including the use of esketamine. Indeed, esketamine and other drugs that modulate glutamate activity open up new possibilities in the treatment of TRD. Although the toxic effects of glutamate cannot explain the pathogenesis in all patients with TRD, the latest research focusing on neuroinflammation appears to be extremely promising.

In conclusion, it can be stated that the innovative current (e.g. esketamine) and future modalities for TRD treatment can contribute to significant clinical improvements, as well as improvements in the quality of life for this therapeutically challenging group of patients.

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Utjecaj dugodjelujućih antipsihotika na hospitalizaciju oboljelih od shizofrenije u Republici Hrvatskoj

/ The Impact of Long-Acting Antipsychotics on the Hospitalization of Patients with Schizophrenia in the Republic of Croatia

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Shizofrenija je bolest s velikim rizikom od relapsa, koji je još veći ako oboljela osoba ne uzima terapiju antipsihoticima. Mala adherentnost na terapiju je veliki problem u liječenju shizofrenije, ali uporaba dugodjelujućih antipsihotika dokazano povećava adherentnost. Cilj ovog rada bio je utvrditi postoji li veza između uporabe dugodjelujućih antipsihotika i hospitalizacija osoba koje boluju od shizofrenije u Republici Hrvatskoj. Prikupljeni su podatci o potrošnji dugodjelujućih antipsihotika i o hospitalizaciji oboljelih od shizofrenije u četverogodišnjem razdoblju od 2018. do 2021. godine. Statistička analiza učinjena je Pearsonovim testom korelacije. Iz rezultata je vidljivo da se broj hospitalizacija zbog shizofrenije smanjuje iz godine u godinu, a potrošnja svih atipičnih antipsihotika u dugodjelujućoj formulaciji povećava. Rezultati upućuju na snažnu negativnu korelaciju među varijablama: broj hospitaliziranih pacijenata, broj hospitalizacija, duljina bolničkog liječenja i potrošnja dugodjelujućih antipsihotika, ali korelacija ni za jednu varijablu nije statistički značajna. Zaključujemo da povećanje primjene dugodjelujućih antipsihotika kod oboljelih od shizofrenije u Republici Hrvatskoj može utjecati na smanjenje broja hospitaliziranih bolesnika, broja hospitalizacija i trajanja hospitalizacije. Stoga je preporuka da se dugodjelujući atipični antipsihotici kod oboljelih od shizofrenije počnu primjenjivati u što ranijoj fazi bolesti i/ili već u prvoj epizodi.

/ Schizophrenia is an illness with a high risk of relapse, which is even higher if the affected person does not take antipsychotic therapy. Low adherence to therapy represents a major problem in the treatment of schizophrenia, however the use of long-acting antipsychotics has been shown to increase adherence. The aim of this paper was to determine whether there is a connection between the use of long-acting antipsychotics and hospitalizations of individuals suffering from schizophrenia in the Republic of Croatia. Data on the use of long-acting antipsychotics and the hospitalization of patients with schizophrenia were collected over the four-year period from 2018 to 2021. Statistical analysis was performed using the Pearson correlation test. It is evident from the results that the number of hospitalizations due to schizophrenia decreased year after year, while the use of all atypical antipsychotics with long-acting formulation increased. The results indicate a strong negative correlation between the variables: the number of hospitalized patients, the number of hospitalizations, the duration of hospital care and the use of long-acting antipsychotics, but the correlation is not statistically relevant for any variable. We can conclude that an increase in the administration of long-acting antipsychotics in patients with schizophrenia in the Republic of Croatia could result in a decrease in the number of patients hospitalized, the number of hospitalizations and their duration. The recommendation is, therefore, to start administering the long-acting atypical antipsychotics in patients with schizophrenia at the earliest possible stage of the illness and/or as early as the first episode.

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KLJUČNE RIJEČI / ***KEY WORDS:***
Shizofrenija / *Schizophrenia*
Hospitalizacija / *Hospitalization*
Dugodjelujući antipsihotici / *Long-acting Antipsychotics*
Atipični antipsihotici / *Atypical Antipsychotics*

TO LINK TO THIS ARTICLE: https://doi.org/10.24869/spsih.2024.164

UVOD

Shizofrenija je kronična psihička bolest koja pripada u skupinu psihotičnih poremećaja. Simptomi koji ju karakteriziraju svrstavaju se u 5 skupina: pozitivni, negativni, depresivni/anksiozni, kognitivni i agresivno-hostilni simptomi (1). Većina bolesnika suočava se s učestalim relapsima i posljedičnim hospitalizacijama (2). Teret koji nosi shizofrenija očituje se u onesposobljenosti ljudi koji od te bolesti boluju, a 2016. godine shizofrenija je rangirana kao 12. najčešća onesposobljujuća bolest. Fakorede (3) navodi da 7 od 10 osoba oboljelih od shizofrenije pokazuje neki oblik onesposobljenosti u smislu brige o sebi, socijalnog funkcioniranja, radne sposobnosti i mobilnosti. Onesposobljenost se primarno očituje zbog negativnih simptoma bolesti (4). Srisudha i sur. (4) povezuju negativne simptome sa smanjenom kognitivnom funkcijom koja se očituje smanjenom pažnjom, koncentracijom i pamćenjem. Oboljeli imaju veću stopu pretilosti, kardiovaskularnih i metaboličkih bolesti u odnosu na mentalno zdravu populaciju, što doprinosi smanjenoj fizičkoj funkciji i skraćenom životnom vijeku (5).

Incidencija shizofrenije iznosi oko 1 % te se nije značajno mijenjala tijekom posljednjih 200 godina, koliko su podatci dostupni. Također, incidencija je slična u različitim populacijama (6). Prevalencija iznosi od 4 do 7 na 1000 ljudi (7). Može se zaključiti da je shizofrenija bolest sa stalnom incidencijom i prevalencijom u prostoru i vremenu. Početak bolesti u ranoj

INTRODUCTION

Schizophrenia is a chronic mental illness that belongs to the group of psychotic disorders. Its characteristic symptoms are classified into five groups: positive, negative, depression/anxiety, cognitive and aggressive-hostile symptoms (1). Most patients experience frequent relapses and consequent hospitalizations (2). The burden of schizophrenia is reflected in the disability of people suffering from this illness, and in 2016 schizophrenia was ranked as the 12th most common disabling condition. Fakorede (3) states that seven out of ten individuals suffering from schizophrenia display some form of disability in terms of self-care, social functioning, working ability and mobility. Disability is primarily manifested due to the negative symptoms of the illness (4). Srisudha et al. (4) associate the negative symptoms with reduced cognitive function which is reflected in reduced attention, concentration and memory. There is a higher rate of obesity, cardiovascular and metabolic diseases among these patients when compared to the mentally healthy population, which contributes to the reduced physical function and a shorter life expectancy (5).

The incidence of schizophrenia is about 1% and has not significantly changed over the last 200 years, as far as data are available. Furthermore, its incidence is similar in different populations (6). Prevalence amounts to between four and seven per 1000 people (7). It can be concluded that schizophrenia is an illness with constant incidence and prevalence in space and time. The onset of the illness in early adulthood with peak

odrasloj dobi s vrhuncem prevalencije oko 40. godine života (kada bi osoba trebala biti radno aktivna) te niska stopa remisije doprinose težini bolesti (6).

Za liječenje akutne epizode shizofrenije te kao kronična terapija koriste se antipsihotici. Dokazano je da njihova kontinuirana primjena smanjuje rizik od relapsa (8), broj hospitalizacija (8,9), kognitivni i funkcionalni deficit (10), a poboljšava funkcioniranje i kvalitetu života oboljelih (8). Atipični antipsihotici preporučeni su kao terapija prve epizode shizofrenije te kao terapija održavanja (11), koja bi nakon prve psihotične epizode trebala trajati od jedne do tri godine (12), a nakon ponovljenih epizoda doživotno (11). Problem u liječenju je velika neadherentnost pacijenata na terapiju. Posljedice su povećan broj relapsa i hospitalizacija te negativan učinak na tijek bolesti i funkcioniranje osobe. Prema Velliganu i sur. (13) najvažniji uzroci loše adherentnosti su nedostatak uvida u bolest i potrebu za liječenjem, nuspojave, perzistencija simptoma unatoč terapiji, kognitivni deficit, narušen odnos između liječnika i pacijenta, manjak podrške, financijski problemi i nedostatak rutine. Do hospitalizacije oboljelih dolazi zbog pojave akutne psihotične epizode ili agresivnog ponašanja, a najčešće su kratkog trajanja (10). Hospitalizacija u većini zemalja najviše doprinosi trošku koji nosi shizofrenija kao bolest (8). Rizik za relaps nakon prve psihotične epizode i nakon prestanka uzimanja terapije je 80 % u prvih 12 mjeseci i 95 % u 24 mjeseca, a većina relapsa dogodi se u prvih nekoliko tjedana i mjeseci od prestanka uzimanja terapije (2).

Prevencija relapsa i hospitalizacija danas je veliki javnozdravstveni izazov. Antipsihotici u usporedbi s placebom smanjuju rizik od relapsa. Dugodjelujuće formulacije antipsihotika pokazuju se boljima od oralnih formulacija (14–17). Istraživanje iz 2017. godine (18), u koje je bilo uključeno gotovo 30.000 pacijenata, pokazalo je da je uporaba dugodjelujućih antipsihotika i

prevalence around the age of 40 (when an individual should be working), as well as a low rate of remission, contribute to the severity of the illness (6).

Antipsychotics are used to treat acute episodes of schizophrenia, and they are also used as chronic therapy. It has been proved that their continued use decreases the risk of relapse (8), the number of hospitalizations (8, 9), cognitive and functional deficit (10), and also improves the functioning and quality of life of the patients (8). It is recommended to use atypical antipsychotics as therapy in the first episode of schizophrenia, as well as maintenance therapy (11) which, after the first psychotic episode should last for one to three years (12), and after repeated episodes it should be lifelong (11). High non-adherence of patients to therapy represents a problem during treatment. This results in a higher number of relapses and hospitalizations, as well as in a negative effect on the course of the illness and the individual's functioning. According to Velligan et al. (13), the most important causes of poor adherence lie in the lack of insight into the illness and the need for treatment, its side effects, persistence of symptoms despite therapy, cognitive deficit, disrupted doctor-patient relationship, lack of support, financial issues and a lack of routine. Patients are hospitalized due to the onset of acute psychotic episodes or aggressive behavior, which are usually of short duration (10). In most countries, hospitalization accounts for the largest expense that results from schizophrenia as an illness (8). The risk of relapses after the first psychotic episode and after discontinuation of therapy is 80% in the first 12 months, and 95% in the period of 24 months, while most relapses occur in the first several weeks and months after discontinuation of therapy (2).

Nowadays, the prevention of relapses and hospitalizations represents a major public health challenge. When compared to placebo, antipsychotics indeed decrease the risk of relapse. Long-acting formulations of antipsychotics have proved to be a better choice than oral formulations (14-17). The results of a study conducted in 2017 (18), which included almost 30,000 patients

klozapina najbolji izbor za prevenciju relapsa. Drugo istraživanje iz 2017. (19) potvrdilo je da je za povećanje adherencije na terapiju bolja uporaba dugodjelujućih od oralnih antipsihotika.

Učestalost uporabe dugodjelujućih antipsihotika varira od 6,3 % (Kanada) do 80 % (Ujedinjeno Kraljevstvo). Mali broj psihijatara (4 %) odlučuje se za njih kao prvi izbor terapije održavanja (20). S obzirom na svoju sigurnost i efikasnost dugodjelujući antipsihotici se premalo propisuju (21). Neki od mogućih razloga rjeđeg propisivanje su percepcija psihijatara o mogućim ozbiljnim nuspojavama s posljedičnim narušavanjem odnosa s pacijentom, teškoće u predstavljanju dugodjelujućeg oblika kao najpovoljnije terapije održavanja te slaba dostupnost (21).

Istraživanja potrošnje lijekova, pa tako i psihofarmaka, zahtijevaju znanstvenu aktivnost čiji je cilj poboljšanje uporabe lijekova i racionalizacija farmakoterapije (22, 23). Razlikuju se prema obuhvatu, postoje nacionalne i regionalne studije te međunarodni programi kao što je npr. Regionalni ured za Europu Svjetske zdravstvene organizacije (SZO). U svrhu istraživanja rade se i analize potrošnje lijekova pojedinih terapijskih skupina. Model istraživanja odabire se prema istraživačkom pitanju (24–26). Potrošnja lijekova na nekom području (država, regija) prikazuje se brojem definiranih dnevnih doza (DDD, engl. *Defined Daily Dose*) na 1000 stanovnika na dan. Na taj način dobivamo udio stanovništva koji svaki dan koristi pojedini lijek. DDD lijeka je prosječna dnevna doza terapije održavanja za odraslu osobu u najčešćoj indikaciji, prema anatomsko-terapijsko-kemijskoj klasifikaciji (ATK). Važno je napomenuti da DDD nije preporučena terapijska doza ili točna slika terapije, nego je dogovorno utvrđena statistička jedinica mjerenja potrošnje lijekova (27–32). Ako se želi promijeniti i racionalnije propisivati psihofarmake, konkretno dugodjelujuće

have shown that long-acting antipsychotics and clozapine are the best choice for the prevention of relapses. Another study conducted in 2017 (19) confirmed that the use of long-acting antipsychotics is a better choice than oral antipsychotics when it comes to increasing adherence to therapy.

The frequency of long-acting antipsychotics consumption varies between 6.3% (Canada) and 80% (United Kingdom). Few psychiatrists (4%) opt for this medication as the first choice for maintenance therapy (20). Considering the safety and efficiency of their use, long-acting antipsychotics are not prescribed enough (21). Some of the possible reasons for their less frequent prescription lie in the perception of psychiatrists when it comes to their possible side effects and, consequently, a disrupted relationship with their patient, difficulty in presenting the long-acting type of the medication as the most favorable form of maintenance therapy, as well as their low availability (21).

Studies addressing the use of medications, including psychopharmaceuticals, require scientific activities the aim of which is to improve the use of medications and rationalize pharmacotherapy (22, 23). They vary in scope, and national and regional studies exist, as well as international programs such as the World Health Organization (WHO) Regional Office for Europe. Analyses of the medication use of individual therapy groups are also conducted for research purposes. The research model is selected in accordance with the research question (24-26). Medication use in a certain area (country, region) is presented as the number of defined daily doses (DDD) per 1000 inhabitants per day. In this way we can calculate the proportion of the population that uses a particular medication every day. According to the Anatomical Therapeutic Chemical (ATC) classification system, the DDD of a medication is an average daily maintenance dose for a medication used for its main indication in adults. It should be noted that DDD is not a recommended therapeutic dose or an accurate representation of therapy, but is an agreed statistical unit of measurement of medication use (27-32). If we want to change

antipsihotike, neophodne su informacije o njihovoj uporabi (33).

Glavna hipoteza je da povećanje uporabe dugodjelujućih antipsihotika dovodi do smanjenja broja hospitalizacija, kao i dana bolničkog liječenja oboljelih od shizofrenije u Republici Hrvatskoj. Cilj ovog rada bio je utvrditi postoji li veza između navedenih varijabli.

MATERIJALI I METODE

Retrospektivna analiza napravljena je na temelju podataka koji se odnose na Republiku Hrvatsku i obuhvaćaju razdoblje od 2018. do 2021. godine. Prikupljeni su podatci o potrošnji dugodjelujućih antipsihotika i podatci o hospitalizaciji oboljelih od shizofrenije. U navedenom četverogodišnjem razdoblju svi današnji dugodjelujući antipsihotici bili su u upotrebi u Republici Hrvatskoj.

Kao izvor podataka o pokazateljima bolničkog liječenja osoba s dijagnozom shizofrenije korištena je web stranica Hrvatskog zavoda za javno zdravstvo, Registar za psihoze (34). Preuzeti su ovi podatci: broj bolnički liječenih bolesnika, broj hospitalizacija i broj dana bolničkog liječenja osoba oboljelih od shizofrenije. Broj dana bolničkog liječenja izražen je u tisućama ('000) (tablica 1).

Izvor podataka o dostupnim dugodjelujućim antipsihoticima u Republici Hrvatskoj je internetska stranica Hrvatskog zavoda za zdravstveno osiguranje (HZZO), arhiva liste lijekova (35). Lijekovi u tablicama su raspoređeni po sustavu ATK prema kojem su lijekovi za psihoze

and rationally prescribe psychopharmaceuticals, specifically long-acting antipsychotics, information on their use is essential (33).

The main hypothesis is that an increase in the use of long-acting antipsychotics leads to a lower number of hospitalizations and hospital care days of patients suffering from schizophrenia in the Republic of Croatia. The aim of this paper was to determine whether there was a connection between the aforementioned variables.

MATERIALS AND METHODS

A retrospective analysis was conducted based on the data relating to the Republic of Croatia, which encompass the period between 2018 and 2021. The collected data referred to the use of long-acting antipsychotics and the hospitalization of patients suffering from schizophrenia. In the four-year period stated above, all of the long-acting antipsychotics prescribed nowadays were in use in the Republic of Croatia.

The website of the Croatian Institute of Public Health, Croatian Psychoses Registry (34), was used as the source of information on the hospital treatment indicators of patients with schizophrenia. The following data were obtained: number of hospital-treated patients, number of hospitalizations and number of hospital care days of patients suffering from schizophrenia. The number of hospital care days was expressed in thousands ('000) (table 1).

The website of the Croatian Health Insurance Fund (CHIF), the list of medications archive (35), was used as the source of information on the available long-acting antipsychotics in the Repub-

TABLICA 1. Bolnički liječeni pacijenti oboljeli od shizofrenije u razdoblju od 2018. do 2021. godine
TABLE 1. Hospital-treated patients suffering from schizophrenia in the period from 2018 to 2021

Bolnički liječeni pacijenti oboljeli od shizofrenije / Hospital-treated patients suffering from schizophrenia				
Godina / Year	2018.	2019.	2020.	2021.
Broj bolesnika / Number of patients	6352	5945	5208	4923
Broj hospitalizacija / Number of hospitalizations	10040	9228	8345	7943
Broj dana bolničkog liječenja u '000 / Number of hospital care days in '000	441	424	377	375

navedeni pod šifrom N05A (36), a s obzirom da dugodjelujući antipsihotici dolaze u obliku injekcija (37), uzeti su podatci o antipsihoticima dostupnim u tom obliku. To su: haloperidol, flufenazin, risperidon, olanzapin, paliperidon, aripiprazol.

Podatci o potrošnji dugodjelujućih antipsihotika prikupljeni su s internetske stranice Hrvatske agencije za lijekove i medicinske proizvode (38–42). Potrošnja je izražena kao DDD na 1000 stanovnika na dan (DDD/1000/dan). Za svaki zaštićeni oblik lijeka izražena je DDD/1000/dan u pojedinoj godini, a potom su te vrijednosti zbrojene kako bi se dobila DDD/1000/dan za pojedini generički oblik lijeka u pojedinoj godini (29) (tablica 2).

Podatci su uneseni u program *Microsoft Office Excel* te su organizirani za statističku obradu.

Statistička analiza učinjena je Pearsonovim testom korelacije.

REZULTATI

Tablica 1. prikazuje podatke vezane uz bolničko liječenje pacijenata oboljelih od shizofrenije. Iz prikupljenih podataka vidljivo je da se u Republici Hrvatskoj broj bolesnika hospitaliziranih zbog shizofrenije sukcesivno smanjuje iz godine u godinu tijekom promatranog četverogodišnjeg razdoblja (od 2018. do 2021. godine). Broj hospitaliziranih bolesnika 2018. godine iznosio je 6352, a 2021. godine 4923, što je smanjenje od 22,5 %. Broj hospitalizacija se

lic of Croatia. The medications referred to in the tables were arranged according to the ATC system, which lists medications for psychoses under the code N05A (36), and since long-acting antipsychotics are administered in the form of injections (37), data on the antipsychotics available in such form were obtained. These medications include the following: haloperidol, fluphenazine, risperidone, olanzapine, paliperidone, aripiprazole.

Data on the use of long-acting antipsychotics were obtained from the website of the Croatian Agency for Medicinal Products and Medical Devices (38-42). Their use was presented as DDD per 1000 inhabitants per day (DDD/1000/day). For each protected form of a medication, DDD/1000/day for a particular year was presented, and the values were then added together in order to obtain DDD/1000/day for an individual generic form of a medication in a certain year (29) (Table 2).

The data were entered into the Microsoft Office Excel program and organized for statistical analysis purposes. Statistical analysis was performed using the Pearson Correlation Test.

RESULTS

Data relating to the hospital treatment of patients suffering from schizophrenia are presented in Table 1. It is evident from the collected data that the number of patients in the Republic of Croatia hospitalized due to schizophrenia successively decreased from year to year in the four-year period observed (from 2018 to 2021). The number of hospitalized patients amounted to 6352 in

TABLICA 2. Potrošnja dugodjelujućih antipsihotika u DDD/1000/dan u razdoblju od 2018. do 2021. godine.
TABLE 2. The use of long-acting antipsychotics in DDD/1000/day in the period from 2018 to 2021

DDD/1000/dan dugodjelujućih antipsihotika / DDD/1000/day for long-acting antipsychotics							
Godina / Year	Haloperidol	Flufenazin / Fluphenazine	Risperidon / Risperidone	Olanzapin / Olanzapine	Paliperidon / Paliperidone	Aripiprazol / Aripiprazole	Ukupno / Total
2018.	0,104	0,229	0,153	0,213	0,860	0,107	1,665
2019.	0,223	0,375	0,132	0,223	1,030	0,115	2,135
2020.	0,172	0,296	0,117	0,209	1,170	0,191	2,155
2021.	0,119	0,251	0,106	0,217	1,360	0,232	2,286

također sukcesivno smanjuje iz godine u godinu: 2018. godine broj hospitalizacija iznosio je 10.040, a 2021. godine 7943, što je smanjenje od 20,9 %. Broj dana bolničkog liječenja, odnosno duljina hospitalizacije, također se sukcesivno smanjuje tijekom četiri godine: 2018. godine iznosila je 441 dan, a 2021. godine 375 dana na 1000 hospitaliziranih, što je smanjenje od 15 %.

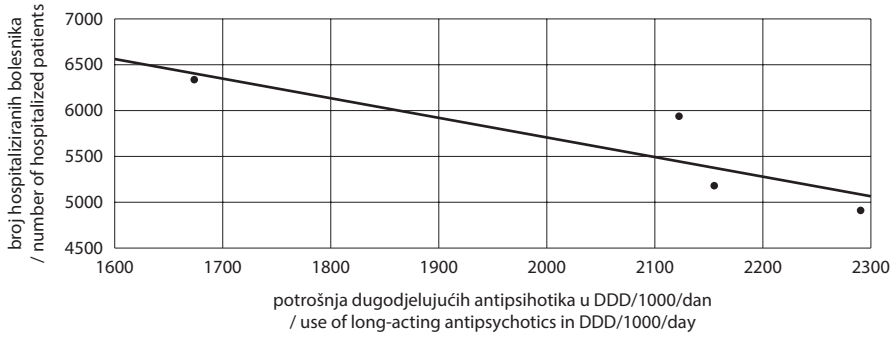
Tablica 2. prikazuje podatke vezane uz potrošnju dugodjelujućih antipsihotika. Potrošnja dugodjelujućih antipsihotika tijekom promatranog četverogodišnjeg razdoblja se sukcesivno povećava: u 2018. godini iznosila je 1,665 DDD/1000/dan, a 2021. godine 2,286 DDD/1000/dan, što je povećanje od 37,3 %. Uočavaju se razlike u potrošnji pojedinih antipsihotika i skupina antipsihotika. Potrošnja klasičnih dugodjelujućih antipsihotika haloperidola i flufenazina te atipičnog antipsihotika olanzapina nije se značajno mijenjala u promatranom razdoblju. Potrošnja dugodjelujućeg atipičnog antipsihotika risperidona sukcesivno se smanjuje, a potrošnja novijih atipičnih dugodjelujućih antipsihotika paliperidona i aripiprazola iz godine u godinu se povećava.

Grafikoni 1., 2. i 3. prikazuju rezultate Pearsonovog testa korelacije. Rezultati Pearsonovog testa korelacije indiciraju da postoji snažna negativna korelacija među varijablama broj hospi-

2018, while in 2021 it was 4923, which is 22.5% less. The number of hospitalizations successively decreased from year to year as well: the number of hospitalizations amounted to 10,040 in 2018, while in 2021 it was 7943, which is 20.9% less. The number of hospital care days, i.e. the duration of hospitalization, successively decreased in the four-year period as well: it amounted to 441 days in 2018, while in 2021 it was 375 days per 1000 hospitalized patients, which is 15% less.

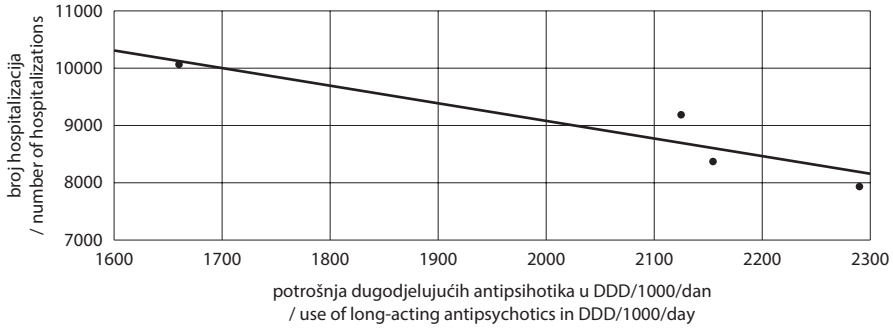
Data relating to the use of long-acting antipsychotics are presented in Table 2. The use of long-acting antipsychotics during the observed four-year period successively increased: it amounted to 1.665 DDD/1000/day in 2018, while in 2021 it was 2.286 DDD/1000/day, which is an increase of 37.3%. Differences in the use of individual antipsychotics and groups of antipsychotics were observed. The use of classic long-acting antipsychotics haloperidol and fluphenazine, and the atypical antipsychotic olanzapine did not significantly change in the observed period. The use of long-acting atypical antipsychotic risperidone successively decreased, while the use of newer atypical long-acting antipsychotics paliperidone and aripiprazole increased from year to year.

The results of the Pearson correlation test are presented in Diagrams 1, 2 and 3. The results of the Pearson correlation test indicate a strong negative correlation between the variables of the number of hospitalized patients and the use of long-acting



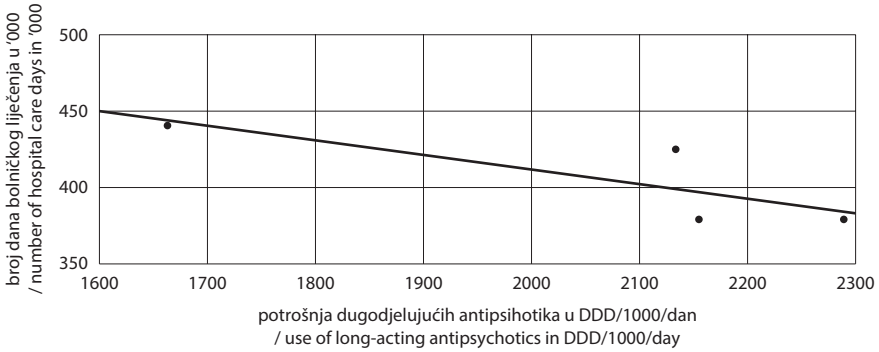
GRAFIKON 1. Korelacija iz među varijabli broj hospitaliziranih bolesnika i potrošnja dugodjelujućih antipsihotika u DDD/1000/dan u razdoblju od 2018. do 2021. godine.

DIAGRAM 1. Correlation between the number of hospitalized patients and the use of long-acting antipsychotics variables in DDD/1000/day in the period from 2018 to 2021.



GRAFIKON 2. Korelacija među varijablama broj hospitalizacija i potrošnja dugodjelujućih antipsihotika u DDD/1000/dan u razdoblju od 2018. do 2021. godine.

DIAGRAM 2. Correlation between the number of hospitalizations and the use of long-acting antipsychotics variables in DDD/1000/day in the period from 2018 to 2021.



GRAFIKON 3. Korelacija među varijablama broj dana bolničkog liječenja u '000 i potrošnja dugodjelujućih antipsihotika u DDD/1000/dan u razdoblju od 2018. do 2021. godine.

DIAGRAM 3. Correlation between the number of hospital care days in '000 and the use of long-acting antipsychotics variables in DDD/1000/day in the period from 2018 to 2021.

taliziranih pacijenata i potrošnja dugodjelujućih antipsihotika. Pearsonov koeficijent korelacije iznosi –0.8606, ali korelacija nije statistički značajna (p-vrijednost je 0,1394).

Utvrđena je i snažna negativna korelacija između varijabli broj hospitalizacija i potrošnja dugodjelujućih antipsihotika. Pearsonov koeficijent korelacije iznosi –0.9096, ali korelacija nije statistički značajna (p-vrijednost je 0.090).

Snažna negativna korelacija postoji i između varijabli duljina bolničkog liječenja i potrošnja dugodjelujućih antipsihotika. Pearsonov koeficijent korelacije iznosi –0.8171, ali korelacija nije statistički značajna (p-vrijednost je 0,1829).

antipsychotics. The Pearson correlation coefficient amounts to -0.8606, however the correlation has no statistical significance (p-value is 0.1394).

A strong negative correlation between the number of hospitalized patients and the use of long-acting antipsychotics variables was observed. The Pearson correlation coefficient amounts to -0.9096, however the correlation has no statistical significance (p-value is 0.090).

There is a strong negative correlation between the duration of hospitalization and the use of long-acting antipsychotics variables. The Pearson correlation coefficient amounts to -0.8171, however the correlation has no statistical significance (p-value is 0.1829).

RASPRAVA

Prevencija relapsa, a time i (re)hospitalizacija je velik terapijski izazov u liječenju osoba oboljelih od shizofrenije (2,9,13,15,16). Ponavljajući relapsi i hospitalizacije negativno utječu na klinički tijek i prognozu bolesti, zdravlje i kvalitetu života oboljelih te na ukupne troškove liječenja. Smanjenje broja hospitalizacija, produljenje vremena bez hospitalizacije i smanjenje trajanja hospitalizacije čimbenici su koji snažno utječu na učinkovitost i ekonomičnost liječenja.

Bolesnici oboljeli od shizofrenije skloni su učestaloj, dugotrajnoj ili stalnoj hospitalizaciji jer ih njihove obitelji najčešće ne mogu kontrolirati zbog težine kliničke slike (praćene razdražljivošću, sumanutim idejama, halucinacijama, autoagresivnim i heteroagresivnim ponašanjima), što je veliko financijsko opterećenje ne samo za njih nego i za sustav zdravstvene i socijalne skrbi. Prema našim saznanjima, duljina bolničkog liječenja i broj hospitalizacija oboljelih od shizofrenije u Republici Hrvatskoj do sada nisu bili u fokusu istraživanja.

Od pokreta „deinstitucionalizacije" za psihijatrijske bolesnike tijekom 1970-ih i pozitivnih učinaka novih atipičnih antipsihotika 1990-ih broj, učestalost i duljina hospitalizacije oboljelih od shizofrenije postupno se smanjuje (43). To je smanjenje, osobito u zemljama s financijskim poteškoćama i neadekvatnim zdravstvenim sustavima, više bilo potaknuto ograničavanjem troškova psihijatrijske skrbi zbog učestale i duge psihijatrijske hospitalizacije oboljelih od shizofrenije, nego otvaranjem programa izvanbolničkog liječenja i funkcionalnog oporavka u zajednicama (44,45). Istraživanja duljine bolničkog liječenja pokazuju kraće trajanje liječenja u zemljama u razvoju nego u razvijenim zemljama: prosječna duljina boravka na bolničkom liječenju pacijenata oboljelih od shizofrenije u Kini je iznosila 73,3 dana (46), 78 dana u Južnoj Koreji (47), 111,79 dana u

DISCUSSION

The prevention of relapses, and consequently (re) hospitalizations, represents a major therapeutic challenge in the treatment of patients suffering from schizophrenia (2, 9, 13, 15, 16). Recurrent relapses and hospitalizations have a negative impact on the clinical course and prognosis of the illness, the health and quality of life of the patients, and the overall costs of treatment. Decreased number of hospitalizations, longer periods without hospitalization and decreased duration of hospitalization are factors that have a strong impact on the efficiency and cost-effectiveness of the treatment.

Patients suffering from schizophrenia are more likely to undergo frequent, long-lasting or permanent hospitalization since their families generally cannot control them due to the severity of their clinical picture (which includes irritability, delusional ideas, hallucinations, auto-aggressive and hetero-aggressive behaviors), which represents a major financial burden not only for them, but also for the healthcare and welfare systems. According to our findings, there have been no studies focusing on the duration of hospital treatment and the number of hospitalizations of patients suffering from schizophrenia in the Republic of Croatia so far.

Since the movement of "deinstitutionalization" of psychiatric patients during the 1970s and the positive effects of new atypical antipsychotics in the 1990s, the number, frequency and duration of hospitalization for patients with schizophrenia have been gradually decreasing (43). This decrease, particularly in countries with financial difficulties and inadequate health facilities, was prompted more by the limitation of psychiatric care expenses due to frequent and long-term psychiatric hospitalizations of schizophrenic patients, than by the establishment of programs of outpatient treatment and functional recovery in communities (44, 45). Studies addressing the duration of hospital treatment indicate shorter treatments in developing countries as opposed to developed countries: the average duration of

Izraelu (44), 96,6 dana u Kanadi (48) i 290,6 dana u Japanu (49, 50).

Iz naših rezultata vidljivo je da se i u Republici Hrvatskoj broj hospitalizacija zbog shizofrenije, broj bolesnika i broj dana bolničkog liječenja sukcesivno smanjuju iz godine u godinu. U promatranom razdoblju od 2018. do 2021. godine nije došlo do bitnih smanjenja bolničkih kapaciteta za tu kategoriju bolesnika niti je osiguravatelj (HZZO) uveo financijska ograničenja koja bi se mogla povezati sa smanjenjem hospitalizacija. Došlo je do određenog povećanja kapaciteta u izvanbolničkom zbrinjavanju pacijenata, ali uglavnom u dnevnim bolnicama, što se smatra hospitalizacijskim tretmanom, a ne izvanbolničkim liječenjem. Nisu oformljeni centri za zbrinjavanje u zajednici niti mobilni timovi koji bi utjecali na smanjenje hospitalizacija. Promatrano razdoblje uključuje i pandemiju COVID-19, no oboljelima od shizofrenije hospitalizacija je bila stalno dostupna i tijekom pandemije, nitko nije bio zakinut za bolničko liječenje, za razliku od oboljelih od drugih psihičkih poremećaja, koji su preusmjeravani na online liječenje i u bolnicu su zaprimani samo u izričito akutnim stanjima. Naše rezultate stoga ne možemo povezati ni s izolacijom ni s drugim mjerama vezanim uz pandemiju COVID-19. S obzirom da je shizofrenija bolest sa stalnom incidencijom i prevalencijom u prostoru i vremenu, razloge smanjenja broja hospitaliziranih bolesnika, ukupnog broja hospitalizacija i duljine bolničkog liječenja morali smo potražiti u drugim mogućim čimbenicima, konkretno u većoj potrošnji dugodjelujućih antipsihotika.

Istraživači su dosad na različitim uzorcima proveli brojne studije (51–54) koje su pokazale niz potencijalno utjecajnih čimbenika na smanjenje broja i duljine hospitalizacije pacijenata oboljelih od shizofrenije. Većina su bili demografske i kliničke varijable, a među kliničkima bila je i antipsihotička terapija. Mi smo izabrali antipsihotičku terapiju kao varijablu za istraži-

hospital treatment of patients suffering from schizophrenia was 73.3 days in China (46), while in South Korea it was 78 days (47), in Israel it was 111.79 days (44), in Canada it was 96.6 days (48), and in Japan it was 290.6 days (49, 50).

It is evident from our results that the number of hospitalizations due to schizophrenia, the number of patients and the number of hospital care days in the Republic of Croatia successively decreased each year. No significant decrease of hospital capacities for this patient category was recorded in the observed period from 2018 to 2021, and the insurance provider (CHIF) also did not introduce any financial limitations which might be associated with the decreased number of hospitalizations. There was some increase in capacity in terms of outpatient care, but it was mainly in day hospitals, which is considered as hospitalization treatment, and not outpatient treatment. No community care centers or mobile units were formed which would affect the decrease in hospitalizations. The observed period also included the COVID-19 pandemic, however hospitalization was available to schizophrenic patients at all times even during the pandemic and no one was deprived of hospital treatment, as opposed to those suffering from other mental disorders who were redirected to treatment online and were only admitted to hospitals in case of extremely acute conditions. Our results, therefore, cannot be associated neither with isolation nor with other measures relating to the COVID-19 pandemic. Considering that schizophrenia is an illness with constant incidence and prevalence in space and time, we had to search for the reasons for the decrease in the number of hospitalized patients, the total number of hospitalizations and the duration of hospital treatment in other possible factors, more specifically in the higher use of long-acting antipsychotics.

Researchers have so far conducted numerous studies on different samples (51-54), which have resulted in a series of factors that could potentially influence the reducing number and duration of hospitalizations of patients suffering from schizophrenia. Most were demographic or clinical variables, and antipsychotic therapy was among

vanje, i to konkretno potrošnju dugodjelujućih antipsihotika.

Kod psihijatrijskih bolesnika oboljelih od shizofrenije često izostaje uvid u bolest: bolesnik negira probleme, simptome i samu bolest, nema realan uvid u svoje stanje i ponašanje, pa ni uzimanje lijekova ne smatra potrebnim. Gotovo sve smjernice i algoritmi za liječenje shizofrenije slažu se u činjenici da ne treba podržavati tzv. povremenu ili intermitentnu terapiju antipsihoticima te preporučuju kontinuiranu antipsihotičku terapiju tijekom jedne do tri godine nakon prve psihotične epizode (12).

Liječenje oboljelih od shizofrenije zahtijeva kontinuirano, dugotrajno, a često i doživotno uzimanje antipsihotika zbog čega je suradljivost pacijenta u procesu liječenja jedan od najvažnijih čimbenika oporavka. Najčešći uzrok relapsa i rehospitalizacija je prestanak uzimanja propisane terapije antipsihoticima. Tiuhonen i sur. (18) pokazali su da 35,7 % bolesnika koji su prvi put zaprimljeni na liječenje lijekove prestane uzimati 30 dana nakon otpusta iz bolnice, a 54,3 % 60 dana nakon otpusta.

Dugodjelujući antipsihotici su posebna formulacija lijeka koja omogućuje održavanje stalne razine lijeka u krvi tijekom duljeg vremena. Dugodjelujući antipsihotici unijeli su veliku novost u psihijatriju jer su uvelike smanjili problem suradljivosti. U usporedbi sa standardnom peroralnom antipsihotičkom terapijom dokazano je da primjena dugodjelujućih formulacija antipsihotika smanjuje rizik od hospitalizacija i bolesnicima u ranim fazama shizofrenije (do pet godina trajanja bolesti) produljuje vrijeme bez hospitalizacije. To se u prvom redu postiže povećanjem adherencije bolesnika na terapiju (55).

Iz naših rezultata vidljivo je da se potrošnja svih atipičnih antipsihotika u dugodjelujućoj formulaciji u Republici Hrvatskoj u promatranom četverogodišnjem razdoblju sukthe clinical ones. We chose antipsychotic therapy as our research variable – more specifically, the use of long-acting antipsychotics.

In psychiatric patients suffering from schizophrenia, there is often a lack of insight into the illness: the patient ignores the problems, the symptoms and the illness itself, has no real insight into their own condition and behavior, and therefore does not consider it necessary to take medications. Almost all guidelines and algorithms for schizophrenia treatment agree on the fact that the so-called occasional or intermittent antipsychotic therapy should not be supported, and they recommend continuous antipsychotic therapy over a period of one to three years following the first psychotic episode (12).

Treatment of patients suffering from schizophrenia requires continuous, long-term, often lifelong use of antipsychotics, thus making patient cooperation in the treatment process one of the most important factors in their recovery. The most common cause of relapses and rehospitalizations is the discontinuation of the prescribed antipsychotic therapy. Tiuhonen et al. (18) observed that 35.7% of patients who were admitted for treatment for the first time stop taking their medications 30 days after being discharged from the hospital, and 54.3% do the same 60 days after their discharge.

Long-acting antipsychotics are a special formulation of the medication that allows a constant level of the medication to be maintained in the blood over a longer period of time. Long-acting antipsychotics were a major breakthrough in psychiatry because they greatly reduced the problem of patient cooperation. Compared to the standard oral antipsychotic therapy, it has been proved that the administration of long-acting formulations of antipsychotics reduces the risk of hospitalization and extends the time without hospitalization for patients in the early stages of schizophrenia (up to five years of illness duration). This is primarily achieved by increasing the adherence of patients to therapy (55).

It is evident from our results that the use of all atypical long-acting antipsychotics in the Republic of Croatia successively increased during the observed four-year period: it amounted to

cesivno povećava: u 2018. godini iznosila je 1,665 DDD/1000/dan, a u 2021. godini 2,286 DDD/1000/dan, što je povećanje od 37,3 %. Postoje razlike u potrošnji između pojedinih antipsihotika i skupina antipsihotika. Potrošnja klasičnih dugodjelujućih antipsihotika haloperidola i flufenazina te atipičnog antipsihotika olanzapina ujednačena je u promatranom četverogodišnjem razdoblju. Potrošnja dugodjelujućeg atipičnog antipsihotika risperidona sukcesivno se smanjuje, a potrošnja novijih atipičnih dugodjelujućih antipsihotika paliperidoina i aripiprazola povećava se iz godine u godinu. Ovakav rezultat u skladu je sa svjetskim trendovima: potrošnja novijih atipičnih antipsihotika se povećava, a klasičnih smanjuje ili stagnira (56). Stagnacija potrošnje atipičnih antipsihotika risperidona i olanzapina u Republici Hrvatskoj može se objasniti pojavom paliperidona, poboljšane inačice risperidona te ograničenjem u primjeni olanzapina, posljedično potrebnoj opservaciji nakon aplikacije injekcije u trajanju od najmanje tri sata te aplikaciji u bolničkim uvjetima umjesto u ambulanti obiteljske medicine.

Rezultati našeg istraživanja upućuju na snažnu negativnu korelaciju među varijablama: broj hospitaliziranih pacijenata (Pearsonov koeficijent korelacije iznosi –0.8606), broj hospitalizacija (Pearsonov koeficijent korelacije iznosi –0.9096), duljina bolničkog liječenja (Pearsonov koeficijent korelacije iznosi –0.8171) i potrošnja dugodjelujućih antipsihotika. Korelacija je jaka za sve tri varijable (najjača za varijablu broj hospitalizacija), ali ni za jednu varijablu nije statistički značajna. Naši rezultati upućuju na povezanost između smanjenja broja hospitaliziranih bolesnika, broja hospitalizacija i duljine hospitalizacija s povećanom potrošnjom dugodjelujućih antipsihotika, napose novih atipičnih formulacija dugodjelujućih antipsihotika. Najjača korelacija uočena je između broja hospitalizacija i potrošnje dugodjelujućih antipsihotika, što potvrđuje pretpostavku da du-

1.665 DDD/1000/day in 2018, while in 2021 it was 2.286 DDD/1000/day, which is an increase of 37.3%. There are differences in the use of individual antipsychotics and groups of antipsychotics. The use of classic long-acting antipsychotics haloperidol and fluphenazine, and the atypical antipsychotic olanzapine, was roughly equal in the observed four-year period. The use of long-acting atypical antipsychotic risperidone successively decreased, while the use of newer atypical long-acting antipsychotics paliperidone and aripiprazole increased from year to year. These results are in line with the global trends: the use of newer atypical antipsychotics is increasing, while the use of classic antipsychotics is decreasing or stagnating (56). The stagnation in the use of atypical antipsychotics risperidone and olanzapine in the Republic of Croatia could be explained by the appearance of paliperidone, an improved version of risperidone, as well as the limitations in olanzapine use, due to the necessary observation after the administration of the injection lasting at least three hours and its administration in hospital settings instead of in a family medicine practice.

The results of our study indicate a strong negative correlation between the following variables: the number of hospitalized patients (Pearson correlation coefficient amounts to -0.8606), the number of hospitalizations (Pearson correlation coefficient amounts to -0.9096), the duration of hospital treatment (Pearson correlation coefficient amounts to -0.8171) and the use of long-acting antipsychotics. The correlation of all three variables is strong (it is the strongest for the number of hospitalizations variable), but represents no statistical significance for any of the variables. Our results indicate that the decrease in the number of hospitalized patients, the number of hospitalizations and the duration of hospitalizations is associated with the increased use of long-acting antipsychotics, particularly the new atypical formulations of long-acting antipsychotics. The strongest correlation was observed between the number of hospitalizations and the use of long-acting antipsychotics, which confirms the hypothesis that long-acting antipsychotics contribute to the treat-

godjelujući antipsihotici svoj doprinos u liječenju oboljelih od shizofrenije daju poboljšanjem adherentnosti, a time i smanjenjem rehospitalizacija, odnosno prevencijom rehospitalizacija. Propisuju se kao lijekovi izbora obično kod ponovljenih epizoda, a rijetko u prvoj epizodi, pa je korelacija jače izražena prema varijabli broj hospitalizacija nego prema broju hospitaliziranih bolesnika.

Rezultati našeg istraživanja u skladu su s dosadašnjim istraživanjima u svijetu koja pokazuju da dugodjelujući antipsihotici potencijalno mogu smanjiti rizik hospitalizacije uz snažnije pridržavanje režima uzimanja lijekova, ali se rijetko uzimaju u obzir za liječenje rane faze shizofrenije ili prve epizode shizofrenije (14). Korištenje dugodjelujućih antipsihotika kod osoba s ranom fazom shizofrenije pokazalo je značajno i klinički značajno smanjenje od 44 % u stopi incidencije prve hospitalizacije i broj bolesnika koje treba liječiti (NNT, eng. *Number needed to treat*) od 7 za prevenciju hospitalizacije (14, 55). NNT je mjera koja se koristi za usporedbu učinkovitosti standardne i nove terapije te označava koliki broj ljudi treba liječiti da bi 1 dodatna osoba imala koristi (57).

Preskripcija dugodjelujućih antipsihotika 2. i 3. generacije donosi značajno povećanje troškova liječenja. Svakako bi bilo bolje kada bismo noviji dugodjelujući antipsihotici bili i cijenom pristupačniji, no već postoje studije koje pokazuju njihovu dugoročnu financijsku korist u zdravstvenom sustavu radi smanjenja broja hospitalizacija, bolje kontrole somatskih bolesti i manjeg broja nuspojava. Važno je da su dostupni putem osnovnog zdravstvenog osiguranja (58).

Ograničenja ovog istraživanja su retrospektivni dizajn, činjenica da nisu promatrane druge kliničke i demografske varijable, nije napravljena analiza jesu li oboljeli od shizofrenije uzimali dugodjelujući antipsihotik kao monoterapiju te nije poznat udio oboljelih od terapijski rezistentne shizofrenije za koju ne postoji dugodjelujuća formulacija antispihotika.

ment of schizophrenic patients by improving adherence, thereby reducing the number of rehospitalizations, i.e. preventing rehospitalizations. They are usually prescribed as medications of choice for recurrent episodes, but rarely for the first episode, therefore the correlation is more expressed for the number of hospitalizations variable than for the number of hospitalized patients.

The results of our study are consistent with the studies conducted globally so far, which have shown that long-acting antipsychotics can potentially decrease the risk of hospitalization with stronger adherence to medication regimens, but are rarely considered for the treatment of the early phase of schizophrenia or during the first episode of schizophrenia (14). The use of long-acting antipsychotics in individuals in the early stage of schizophrenia has resulted in a significant and clinically significant decrease of 44% in the incidence rate of first hospitalization, and the number of patients needed to treat (NNT) amounts to 7 in terms of hospitalization prevention (14, 55). NNT is a measure used to compare the efficiency of standard and new therapies, and identifies the number of people that need to be treated in order for one additional person to experience benefits (57).

The prescription of long-acting antipsychotics of the second and third generation brings about a significant increase in the costs of treatment. It would surely be better if the new long-acting antipsychotics were also more affordable, however there are already studies that have proved their long-term financial benefit to the health system due to a decreased number of hospitalizations, better control of somatic diseases and a reduced number of side effects. What is important is that they are available through the basic health insurance (58).

The limitations of this study lie in its retrospective design, the fact that other clinical and demographic variables were not observed, no analysis was performed as to whether schizophrenic patients were taking long-acting antipsychotics as monotherapy, and there is no data with regard to the share of patients suffering from treatment-resistant schizophrenia for which no long-acting formulation of antipsychotics exists.

ZAKLJUČAK

Jedan od glavnih izazova u liječenju shizofrenije je prevencija relapsa koji rezultira rehospitalizacijom. Najčešći uzrok relapsa je slaba adherencija. Adherenciju poboljšava primjena dugodjelujućih antipsihotika, a naročito novih atipičnih antipsihotika. Povećanje primjene dugodjelujućih antipsihotika kod bolesnika oboljelih od shizofrenije u Hrvatskoj može utjecati na smanjenje broja hospitaliziranih bolesnika, smanjenje broja hospitalizacija i kraće trajanje hospitalizacije. Preporuka je da se dugodjelujući antipsihotici kod oboljelih od shizofrenije počnu primjenjivati u što ranijoj fazi bolesti i/ili već u prvoj epizodi.

CONCLUSION

One of the main challenges in the treatment of schizophrenia is the prevention of relapses resulting in rehospitalization. The most common cause of relapses is low adherence. Adherence is improved by the use of long-acting antipsychotics, particularly the new atypical antipsychotics. An increase in the administration of long-acting antipsychotics in patients suffering from schizophrenia in the Republic of Croatia could result in a decrease in the number of patients hospitalized, the number of hospitalizations and their shorter duration. Our recommendation is to start applying the long-acting antipsychotics in patients with schizophrenia at the earliest possible stage of the illness and/or as early as the first episode.

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Upute autorima

O časopisu

Socijalna psihijatrija je recenzirani časopis koji je namijenjen objavljivanju radova iz područja socijalne psihijatrije, ali i iz kliničke psihijatrije i psihologije, biologijske psihijatrije, psihoterapije, forenzičke psihijatrije, ratne psihijatrije, alkohologije i drugih ovisnosti, zaštite mentalnog zdravlja osoba s intelektualnim teškoćama i razvojnim poremećajima, epidemiologije, deontologije, organizacije psihijatrijske službe. Praktički nema područja psihijatrije iz kojeg do sada nije objavljen pregledni ili stručni rad.

Svi radovi trebaju biti pisani na hrvatskom i engleskom jeziku.

Svi zaprimljeni radovi prolaze kroz isti proces recenzije pod uvjetom da zadovoljavaju i prate kriterije opisane u Uputama za autore i ne izlaze iz okvira rada časopisa.

Uredništvo ne preuzima odgovornost za gledišta u radu - to ostaje isključivom odgovornošću autora.

Časopis objavljuje sljedeće vrste članaka: uvodnike, izvorne znanstvene, stručne i pregledne radove, prikaze bolesnika, lijekova i metoda, kratka priopćenja, osvrte, novosti, prikaze knjiga, pisma uredništvu i druge priloge iz područja socijalne psihijatrije i srodnih struka.

Iznimno Uredništvo časopisa može prihvatiti i drugu vrstu rada (prigodni rad, rad iz povijesti struke i sl.), ako ga ocijeni korisnim za čitateljstvo.

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Instructions to authors

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Exceptionally, the Editorial board can accept other kinds of paper (social psychiatry event paper, social psychiatry history-related paper, etc.).

During the whole peer-reviewed process, the *Socijalna psihijatrija* journal follows the Committee of publication ethics (COPE) guidelines (https://publicationethics.org/files/Code%20of%20Conduct_2.pdf) as well as the "Recommendations for the conduct, reporting editing, and publication of scholarly work in medical journals" set by the International Committee of Medical Journal Editors (ICMJE - http://www.icmje.org/journals-following-the-icmje-recommendations/).

Editors at the *Socijalna psihijatrija* journal pay close attention to the integrity and visibility of scholarly publications as stated in Sarajevo Declaration (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5209927/).

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Autor snosi troškove prijevoda na engleski ili hrvatski jezik, odnosno lektoriranja rada.

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Manuscripts, figures and tables should be submitted in electronic form. Normally, manuscripts should be no longer than 20 standard pages (one standard page is 1800 keystrokes – characters with spaces). Texts should be written in Microsoft Word, in a continuous font and style: the one set under the Normal style, with no additional font effects used other than words that should be in bold or italic. Tittles should be written in the same font as the rest of the text (Normal style) in a separate row, and title hierarchy should be shown using numbers (e.g. 1., 1.1., 1.1.1., etc.).

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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.

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Tisak/Printed by
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