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Differences in Awareness Between Doctors of Dental Medicine and Doctors of Medicine Regarding Their Online Image and Perception Concerns: A Quantitative Cross-Sectional Study

Razlike u svjesnosti doktora dentalne medicine i doktora medicine o njihovu imidžu na mrežama i o zabrinutostima za percepciju: kvantitativna presječna studija

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Abstract

Background: Healthcare professionals (HCPs), including doctors of dental medicine (DMDs) and doctors of medicine (MDs), use social networking sites (SNSs) for personal and professional purposes. This study aims to: (i) explore DMDs and MDs awareness of their online presence, (ii) examine how frequently and for what reasons DMDs and MDs monitor their online images, (iii) determine the prevalence of finding inaccurate, incomplete, or unprofessional information about themselves, examine that experience, and investigate actions performed regarding unprofessional or embarrassing posted material, (iv) assess concerns about their own SNSs usage and the content they post. **Methods:** A cross-sectional study was conducted among DMDs and MDs in Croatia using a questionnaire. **Results:** Out of 1,013 participants, 753 were active SNS users. Facebook (91.6%) and Instagram (63.1%) were the predominant SNSs used. DMDs exhibited a significantly higher inclination to utilize SNSs for professional purposes than MDs. Both groups reported a high level of proficiency in using Facebook (M=3.2, SD=0.827) and Instagram (M=2.44, SD=1.162). Approximately 55.4% of the participants reported monitoring their online presence, typically once a year or less frequently. DMDs emphasized the completeness of posted information more than MDs (U=25,623.0, p=0.001). Their highest level of concern pertained to confidentiality breaches and inaccurate medical and dental information. There are similar results for MDs and DMDs for finding erroneous information posted on SNSs. **Conclusions:** This study offers insights into HCPs' online presence, and their concerns regarding SNS usage. It underscores the significance of e-professionalism, and provides recommendations for maintaining a positive online presence while mitigating potential risks.

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Introduction

In the digital age, our online identity and presence play crucial roles in shaping how we are perceived. Online identity encompasses all information we leave online, including digital tracks and traces, and represents our presence in the digital realm (1, 2). Online presence, however, refers to the overall visibility and existence of an individual or entity on the internet. While an online presence is about being present and discoverable, online identity focuses on deliberately portraying and maintaining a particular image or representation (3-6).

The image of healthcare professionals (HCPs) is becoming increasingly important as it is exposed to public evalua-

Uvod

U digitalnom dobu naš online identitet i naša prisutnost na internetu ključni su u oblikovanju digitalne percepcije o nama. Online identitet obuhvaća sve informacije koje ostavljamo na mreži, uključujući digitalne tragove i zapise te predstavlja našu prisutnost u digitalnom svijetu (1, 2). No, online prisutnost odnosi se na ukupnu vidljivost i postojanje pojedinca ili entiteta na internetu. Dok se online prisutnost odnosi na prisutnost i mogućnost pronalaska, online identitet usmjerava se na namjerno prikazivanje i održavanje određenog dojma ili reprezentacije (3-6).

Ugled zdravstvenih djelatnika (engl. *health-care professionals* – HCP) postaje sve važniji jer je izložen javnoj evalua-

tion, thus affecting public trust, patient satisfaction, and the overall perception of medical decisions (7). Research shows that knowledge and proficiency in using social networking sites (SNSs) are essential factors influencing HCPs' decision to use SNSs (8, 9). For instance, Bartsch and Dienlin noted that individuals with higher levels of online privacy literacy tend to be more cautious in their SNS activity (10).

Maintaining a professional image of SNS is essential, as unprofessional content can cast HCPs, students, and affiliated institutions in an unfavorable light (11). SNS platforms convey an individual's personality, values, and priorities, thus leaving a lasting impact. According to Ferguson et al., users establish their self-image through posting, commenting, and following others, forming perceptions about the values and character of fellow users based on their posts (12). This is particularly relevant for dental and medical professionals, who emphasize maintaining a professional image as an integral part of their socialization process beginning in their studies and persisting throughout their careers (13, 14).

Pronk et al.'s qualitative research identified various unprofessional posts considered by HCPs including pictures of individuals in an intoxicated state, work-related clinic posts, sharing patients' and colleagues' information, sexually suggestive content, and political posts. Less frequently mentioned were posts depicting partying or costumes, inappropriate gestures, smoking, and drug use (15).

Managing online identity is often a daunting challenge in practice. Even with minimal information, web searches can quickly connect an individual's professional and personal online presence. Paradoxically, recommendation systems acknowledge this challenge while still advocating for maintaining separate online identities (16, 17). Selective control of information shared online is vital for self-presentation and managing the image one leaves for others to assess (18). HCPs are aware of others closely observing their online content. Therefore they actively manage their image by passively self-monitoring and actively responding to undesirable content. Concerns for HCPs revolve around patient confidentiality breaches. They can monitor their online presence by conducting self-searches on search engines (called *ego-surfing* or *Googling*) and, if necessary, deleting any unwanted unprofessional content (6, 19, 20).

In general, concerns regarding the use of SM by HCPs frequently center on the potential for negative repercussions resulting from the breach of patient confidentiality (21). Each social platform (e.g., Facebook, Instagram, Twitter, LinkedIn, YouTube, TikTok, Snapchat) can serve a different purpose, thus constantly evolving and providing users with opportunities for self-presentation through new features such as reels and shorts. Instant information gives an edge to Instagram and YouTube, respectively. The concept of microblogging and the use of hashtags can have a significant professional impact (22). Microblogging allows users to post short, real-time updates, effectively engaging audiences and serving as a valuable tool for both personal and professional communication (22). For example, notifying about new research, live-tweeting events, and sharing resources via URLs or DOIs can enhance academic visibility (22). However, the

čiji, što utječe na povjerenje javnosti, zadovoljstvo pacijenata i ukupnu percepciju medicinskih odluka (7). Istraživanja pokazuju da su znanje i vještina korištenja društvenih mreža (engl. *social networking sites – SNS*) ključni čimbenici koji utječu na odluku HCP-ova da se koriste SNS-om (8, 9). Na primjer, Bartsch i Dienlin uočili su da su pojedinci s višom razinom pismenosti o online privatnosti oprezniji u svojoj aktivnosti na društvenim mrežama (10).

Održavanje profesionalnog imidža na SNS-u od presudne je važnosti jer neprofesionalni sadržaj može baciti nepovoljno svjetlo na zdravstvene djelatnike, studente i povezane institucije (11). SNS platforme prenose osobnost, vrijednosti i prioritete pojedinca te ostavljaju trajni dojam. Prema Fergusonu i suradnicima, korisnici uspostavljaju svoj imidž na temelju objavljivanja, komentiranja i praćenja drugih, oblikujući percepcije o vrijednostima i karakteru drugih korisnika na temelju njihovih objava (12). To je posebno relevantno za dentalne i medicinske profesionalce koji ističu održavanje profesionalnog ugleda kao integralnog dijela svoje socijalizacije, počevši od studija i nastavljajući tijekom cijele profesionalne karijere (13, 14).

Kvalitativno istraživanje Pronka i suradnika identificiralo je razne neprofesionalne objave koje su HCP-ovi smatrali neprikladnim, uključujući slike osoba u pijanom stanju, objave vezane za rad u klinici, dijeljenje informacija o pacijentima i kolegama, seksualno sugestivni sadržaj i političke objave. Nešto rjeđe spominjane su objave o zabavama ili kostimima, neprikladnim gestama, pušenju i uporabi droga (15).

Upravljanje online identitetom često je u praksi zastrašujući izazov. Čak i s minimalnim informacijama, internetska pretraživanja mogu brzo povezati profesionalnu i osobnu online prisutnost pojedinca. Paradoksalno, preporučeni sustavi preporuka prepoznaju taj izazov, a ipak zagovaraju održavanje odvojenih online identiteta (16, 17). Selektivna kontrola informacija koje se dijele online ključna je za samoprezentaciju i upravljanje imidžom koji je ostavljen drugima na procjenu (18). HCP-ovi su svjesni da drugi pomno prate njihov internetski sadržaj i aktivno upravljaju svojim imidžem na temelju pasivnog samopraćenja i aktivnog reagiranja na nepoželjni sadržaj. Njihova zabrinutost pretežno je usmjerena na kršenje povjerljivosti pacijenata. Svoju online prisutnost mogu pratiti samopretraživanjem na tražilicama (poznato kao *ego-surfing* ili *guglanje*) i, ako je potrebno, brisanjem neželjenoga neprofesionalnog sadržaja (6, 19, 20).

Općenito, zabrinutosti HCP-ova vezane za korištenje SNS-a često se usredotočuju na potencijalne negativne posljedice koje mogu nastati zbog kršenja povjerljivosti pacijenata (21). Svaka društvena platforma (npr. Facebook, Instagram, Twitter, LinkedIn, YouTube, TikTok, Snapchat) može služiti u različite svrhe, te se neprestano razvijaju i pružaju korisnicima mogućnosti za samoprezentaciju zahvaljujući novim značajkama poput *reelsa* i *shortsa*. Pružanje trenutnih informacija daje prednost Instagramu i YouTubeu. Koncept mikrobloganja i korištenje *hashtagova* mogu imati znatan profesionalni utjecaj (22). Mikrobloganje omogućuje korisnicima objavljivanje ažuriranja u stvarnom vremenu, učinkovito angažiranje publike te služi kao vrijedan alat za osobnu i profesionalnu komunikaciju (22). Na primjer, oba-

personal and professional online presence of professionals can be a source of bias in the SNS presence of DMDs (23).

SNSs play a crucial role in self-presentation, with HCPs using them to share knowledge and connect with patients. While HCPs benefit from their online presence, concerns persist about their professional image and public perception (21). The professional image of HCPs significantly affects public trust, patient satisfaction, and the perception of the medical profession (24). E-professionalism pertains to HCPs' conduct in the digital realm, specifically on SNSs and online platforms, where even private behaviors reflect traditional professionalism through digital media (25, 26).

A distinction exists between DMDs and MDs in their workplace settings, with DMDs primarily in the private sector, being more active on SNSs for personal and professional purposes. DMDs communicate with patients, self-promote, and utilize various SNS features more frequently than MDs (27, 22). The risks associated with SM result from its influential features, where a single misjudged post can damage one's professional reputation, including unverified information, unprofessional content, and inappropriate disclosures (28). This highlights the crucial link between the workplace and e-professionalism in the healthcare sector.

Facebook's popularity suggests that a significant number of DMDs and MDs currently use the platform, potentially exposing themselves to unprofessional risks (29). In Croatia, Instagram is the second most popular SNS platform. However, it lags behind Facebook in popularity (30). Interestingly, Instagram is primarily oriented toward photo and video content, which DMDs have recognized as holding significant marketing potential as a continuation of newspaper advertisements (31, 32). Understanding the concerns of MDs and DMDs about their online presence and its impact on their professional competence and credibility is vital for developing guidelines and strategies to address potential issues stemming from their online activities.

Despite voicing privacy concerns, participants willingly share their personal information on SNS platforms and inadequately control the visibility of their posts. This disconnection may explain the relatively cautious approach to e-professionalism and the heightened sensitivity to unprofessional conduct on SNS (33). Conversely, there is a prevailing negative attitude manifested in self-doubt regarding one's SNS skills, worries about personal and patient privacy (34, 35), and even statements indicating that SNS has disrupted the balance between a healthcare professional's private and public life (35).

This study aims to explore the awareness of DMDs and MDs regarding their online presence, examine the frequency and reasons for monitoring their online images, determine the prevalence of encountering inaccurate or unprofessional information, investigate their responses to such experiences, and assess concerns regarding their social networking usage and posted content.

vještavanje o novim istraživanjima, o tzv. *live-tweeting* događajima i dijeljenje resursa putem URL-ova ili DOI-ova može povećati akademsku vidljivost (22). Međutim, osobna i profesionalna online prisutnost zdravstvenih profesionalaca može biti izvor pristranosti u SNS prisutnosti DMD-ova (23).

SNS je ključan u samoprezentaciji, pri čemu ga HCP-ovi koriste za dijeljenje znanja i povezivanje s pacijentima. Iako HCP-ovi imaju koristi od svoje online prisutnosti, i dalje postoji zabrinutost zbog njihova profesionalnog ugleda u javnoj percepciji (21). Profesionalni imidž HCP-ova znatno utječe na povjerenje javnosti, zadovoljstvo pacijenata i percepciju medicinske profesije (24). E-professionalizam odnosi se na ponašanje HCP-ova u digitalnom okruženju, posebno na SNS-u i online platformama, na kojima čak i privatna ponašanja odražavaju tradicionalni profesionalizam putem digitalnih medija (25, 26).

Postoji razlika između DMD-ova i MD-ova u njihovim radnim okruženjima, pri čemu su DMD-ovi uglavnom u privatnom sektoru, te su aktivniji na SNS-u za osobne i profesionalne svrhe. DMD-ovi komuniciraju s pacijentima, samopromoviraju se i koriste se raznim značajkama SNS-a više nego MD-ovi (27, 22). Rizici povezani s SNS-om proizlaze iz njihovih utjecajnih značajki, pri čemu jedna pogrešno procijenjena objava može narušiti profesionalni ugled, uključujući neproverjene informacije, neprofesionalni sadržaj i neprijemna otkrivanja (28). To ističe ključnu povezanost između radnog mjesta i e-professionalizma u zdravstvenom sektoru.

Popularnost Facebooka sugerira da se znatan broj DMD-ova i MD-ova trenutačno koristi tom platformom i potencijalno se izlaže neprofesionalnim rizicima (29). U Hrvatskoj je Instagram drugi najpopularniji SNS, ali zaostaje za Facebookom po popularnosti (30). Zanimljivo je da je Instagram uglavnom usmjeren na foto i videosadržaj, što su DMD-ovi prepoznali kao važan marketinški potencijal i kao nasljednika tradicionalnih novinskih oglasa (31, 32). Razumijevanje za zabrinutost MD-ova i DMD-ova u vezi s njihovom online prisutnošću i njezin utjecaj na njihovu profesionalnu kompetenciju i kredibilitet ključno je za razvoj smjernica i strategija za rješavanje potencijalnih problema koji proizlaze iz njihovih online aktivnosti.

Unatoč izražavanju zabrinutosti za privatnost, sudionici dobrovoljno dijele svoje osobne informacije na SNS-u i nedovoljno kontroliraju vidljivost svojih objava. Ta nepovezanost može objasniti razmjerno oprezan pristup e-professionalizmu i povećanu osjetljivost na neprofesionalno ponašanje na SNS-u (33). S druge strane, prevladava negativno stajalište koje se očituje u sumnji u vlastite vještine korištenja SNS-om, zabrinutost zbog privatnosti osobnih podataka i podataka pacijenata (34, 35), pa čak i tvrdnjama da su SNS-i narušili ravnotežu između privatnoga i javnoga života HCP-ova (35).

Ova studija ima za cilj istražiti svijest DMD-ova i MD-ova o njihovoj online prisutnosti, ispitati učestalost i razloge praćenja njihova online imidža, utvrditi prevalenciju pronalazjenja netočnih ili neprofesionalnih informacija, istražiti njihove reakcije na takva iskustva te procijeniti zabrinutost u vezi s korištenjem društvenih mreža i objavljenog sadržaja.

Methods

Design

The instruments used in this study were developed within the project “Dangers and benefits of social networks: E-professionalism of healthcare professionals—SMePROF” (36, 37), as part of an extensive questionnaire composed of multiple instruments (21).

To achieve the study aims, we analyzed data gathered from three instruments of the SMePROF questionnaire: (1) sociodemographic characteristics and habits of SNS usage, (2) impression management on SNSs and (3) concerns regarding their social networking usage and posted content.

Study questionnaire

The data for this study were collected using a survey-specific questionnaire named the “SMePROF Project Survey Questionnaire on Social Media Usage, Attitudes, Ethical Values and E-professional Behavior of Doctors of Medicine and Doctors of Dental Medicine (SMePROF)” (the complete questionnaire is available as an additional file in Viskić et al. (21)).

Using the first instrument, “Sociodemographic characteristics and habits of SNS usage”, we measured the purpose of SNS usage, using an ordinal five-point scale item, ranging from “exclusively for personal purposes” to “exclusively for professional purposes”. The item was originally developed by Bosslet et al. and was modified from an original three-point scale and translated into Croatian (38).

The same instrument was used to measure the self-evaluation of SNS usage skills focused on seven SNS platforms: Facebook, Twitter, LinkedIn, YouTube, Instagram, TikTok and Snapchat. It employed a four-point scale, ranging from “not at all competent” to “highly competent”. This instrument was adapted from Kitsis et al. and was translated into Croatian (19).

The second instrument used, “Impression management on SNSs”, assessed three variables: awareness of the threat to one’s identity, monitoring self-image, and reaction to undesirable content.

The first variable, awareness of the threat to one’s image, refers to respondents’ knowledge of the content published about them and their identification of undesirable content. The experience of finding such information is measured in binary terms (yes or no).

The second variable, monitoring self-image, is measured as the frequency of searching their names using the Google search engine (*googling*) on an ordinal six-point scale, ranging from “never” to “almost every day”.

The third variable measures the respondent’s reaction to the publication of undesirable (inaccurate, incomplete, unprofessional) information. This is assessed in binary (yes or no) through three actions: (1) deleting people from their friends list; (2) deleting comments on their profile made by other people and (3) un-tagging themselves (removing their identifying tag from a post). These three actions are based on previous studies regarding e-professionalism (21, 36, 37).

The third instrument used, “Concerns regarding SNSs usage”, measured six items with a three-level agreement scale

Metode

Dizajn

Instrumenti korišteni u ovoj studiji razvijeni su u sklopu projekta UIP HRZZ-a *Opasnosti i prednosti društvenih mreža: E-professionalizam zdravstvenih djelatnika – SMePROF* (36, 37), kao dio opširnijega upitnika sastavljenog od više instrumentata (21).

Za postizanje ciljeva istraživanja analizirali smo podatke prikupljene iz triju instrumenata SMePROF upitnika: (1) sociodemografske karakteristike i navike korištenja SNS-a, (2) upravljanje impresijom na SNS-u i (3) zabrinutosti povezane s njihovim korištenjem SNS-a i objavljenim sadržajem.

Upitnik

Podatci za ovo istraživanje prikupljeni su s pomoću posebnog upitnika pod nazivom *Anketni upitnik SMePROF Projekta o korištenju društvenih mreža, stavovima, etičkim načelima i e-profesionalnom ponašanju doktora medicine i doktora dentalne medicine (SMePROF)* (potpuni upitnik dostupan je kao dodatni materijal u radu Viskića i suradnika (21)).

Koristeći se prvim instrumentom, *Sociodemografskim karakteristikama i navikama korištenja društvenih mreža*, mjerena je svrha korištenja SNS-a s pomoću ordinalne ljestvice s pet stupnjeva koja se proteže od *isključivo za osobne svrhe do isključivo za profesionalne svrhe*. Stavke je izvorno predložio Bosslet sa suradnicima, te je modificirana u odnosu prema izvornoj ljestvici od tri stupnja i prevedena na hrvatski jezik (38).

Isti instrument korišten je za mjerenje samoprocjene vještina korištenja SNS-a, fokusirajući se na sedam društvenih platformi: Facebook, Twitter, LinkedIn, YouTube, Instagram, TikTok i Snapchat. Korištena je četverostupanjaska ljestvica koja se proteže od *uopće nisam kompetentan/na, do vrlo sam kompetentan/na*. Taj instrument preuzet je od Kitsisa i suradnika te je preveden na hrvatski jezik (19).

Drugi korišteni instrument, *Upravljanje dojmom na društvenim mrežama*, procjenjuje tri varijable: svijest o prijetnji vlastitom identitetu, praćenje slike o sebi i reakciju na neželjeni sadržaj.

Prva varijabla, svijest o prijetnji vlastitoj slici, odnosi se na znanje ispitanika o sadržaju objavljenom o njima te njihovo prepoznavanje neželjenog sadržaja. Iskustvo pronalaženja takvih informacija mjereno je binarno (da ili ne).

Druga varijabla, praćenje slike o sebi, mjeri se kao učestalost pretraživanja vlastita imena guglovom tražilicom (*googlanje*) na ordinalnoj ljestvici od šest stupnjeva, u rasponu od *nikada do gotovo svaki dan*.

Treća varijabla mjeri reakciju ispitanika na objavu neželjenih (netočnih, nepotpunih, neprofesionalnih) informacija. To se procjenjuje binarno (da ili ne) trima radnjama: (1) brisanjem osoba s popisa prijatelja, (2) brisanjem komentara koje su drugi ostavili na njihovu profilu i (3) uklanjanjem označavanja (uklanjanje vlastite oznake s objave). Te tri radnje temelje se na prethodnim studijama o e-profesionalizmu (21, 36, 37).

Treći korišteni instrument, *Zabrinutosti vezane za korištenje društvenih mreža*, mjerio je šest čestica s pomoću or-

ranging from “does not worry me at all” to “worries me a lot”. The six items measured the respondent’s concern related to e-professionalism, unprofessional behavior that the respondent may engage in on SNSs, the concern about family’s and public’s perception about their unprofessional behavior, the public’s perception of the respondent’s profession, concern about the violation of the patient’s confidentiality, and publishing inaccurate medical or dental information that can be seen by patients.

Data collection and analysis

In this study, two professions were observed as representatives of HCPs: MDs as a profession predominantly in the public sector and DMDs as a profession predominantly in the private employment sector.

The final version of the questionnaire was implemented using the online survey-generating application Microsoft Forms. Before the questionnaire, participants were presented with an informed consent form, which included an “opt-out” option.

A non-probabilistic convenience sample was used for this study. The recruitment of participating DMDs and MDs in Croatia occurred through two rounds of survey email invitations conducted between 16 February and 13 July 2021 (the second reminder was sent on 4 May 2021) (21).

Demographic data were analyzed using descriptive statistics. Comparisons of DMDs’ and MDs’ responses were calculated using the chi-square test for categorical variables and the Mann–Whitney U test for ordinal variables. The Yates correction for continuity was employed in chi-square tests conducted on 2 × 2 contingency tables (39). The Bonferroni correction was used as a multiple-comparison correction when several independent statistical tests were performed simultaneously.

Results

A total of 1,013 questionnaires were collected, resulting in a response rate of 4.4% (1,013/23,178). Out of the 999 questionnaire respondents, 246 (24.6%) reported not using SNSs, leaving 753 completed questionnaires for analysis. Among the respondents, 507 (67.3%) were MDs and 246 (32.7%) were DMDs.

As previously reported in Viskić et al. (21) the sample consisted predominantly of females (72.1%), with a median age of 35. Significant demographic differences were observed between DMDs and MDs, where MDs were older than DMDs with an average age of 39.26 years as opposed to 36.58 years, ($t_{642,643} = 3,552, p < 0.001$). Furthermore, a higher percentage of DMDs (69.1%) were employed in the private sector compared to only 20.6% of MDs ($\chi^2_1 = 164,481, p < 0.001$).

Regarding SNSs usage, statistically significant differences were found between DMDs and MDs. DMDs accessed SNSs significantly more often per day ($U = 54,641.5, p = 0.003$) (21). However, both groups ($n = 588, 78\%$) predominantly use SNSs at least once per day.

Regarding the usage of Facebook and Instagram, there was a significant difference found in presence on these SNS sites, Facebook DMDs (96.7%) vs MDs (90.1%) ($\chi^2_1 = 9.271,$

dinalne ljestvice od triju stupnjeva u rasponu od *uopće me ne zabrinjava* do *jako me zabrinjava*. Šest čestica mjerilo je zabrinutost ispitanika u vezi s e-profesionalizmom, neprofesionalnim ponašanjem koje ispitanik može pokazivati na SNS-u, zabrinutost zbog percepcije obitelji i javnosti o njihovom neprofesionalnom ponašanju, percepciju javnosti o profesiji ispitanika, zabrinutost zbog povrede povjerljivosti pacijenata te objavljivanja netočnih medicinskih ili stomatoloških informacija koje pacijenti mogu vidjeti.

Prikupljanje i analiza podataka

U ovoj studiji promatrane su dvije profesije kao predstavnice HCP-a: doktori medicine (MD) kao profesija koja pretežito radi u javnom sektoru i doktori dentalne medicine (DMD) kao profesija koja pretežito radi u privatnom sektoru.

Konačna verzija upitnika implementirana je online aplikacijom za generiranje anketa Microsoft Forms. Prije upitnika sudionicima je predstavljen obrazac za informirani pristanak koji je uključivao i opciju *odustajanja*.

Za ovu studiju korišten je neprobabilistički prigodni uzorak. Regrutacija sudionika DMD-ova i MD-ova u Hrvatskoj provedena je na temelju dvaju krugova pozivnica putem e-pošte, u razdoblju od 16. veljače do 13. srpnja 2021. godine (drugi podsjetnik poslan je 4. svibnja 2021.) (21).

Demografski podatci analizirani su korištenjem deskriptivne statistike. Usporedbe odgovora DMD-ova i MD-ova izračunate su korištenjem hi-kvadrat testa za kategoričke varijable i Mann-Whitneyjeva U-testa za ordinalne varijable. Yatesova korekcija primijenjena je u hi-kvadrat testovima provedenima na 2 × 2 kontingencijskim tablicama (39). Bonferronijeva korekcija korištena je kao korekcija za višestruke usporedbe kada je istodobno provedeno nekoliko nezavisnih statističkih testova.

Rezultati

Ukupno je prikupljeno 1013 odgovora na upitnik, što rezultira postotkom odaziva od 4,4 % (1013/23,178). Od 999 ispitanika koji su ispunili upitnik, 246 (24,6 %) izjavilo je da se ne koriste društvenim mrežama, stoga su 753 ispunjena upitnika činila konačni uzorak za analizu. Među ispitanicima bilo je 507 (67,3 %) doktora medicine (MD), a 246 (32,7 %) doktora dentalne medicine (DMD).

Kao što je ranije izvijestio Viskić sa suradnicima (21), uzorak se sastojao uglavnom od žena (72,1 %), s medijanom dobi od 35 godina. Značajne demografske razlike uočene su između DMD-a i MD-a, gdje su MD-i bili stariji od DMD-a s aritmetičkom sredinom dobi od 39,26 godina u usporedbi s 36,58 godina ($t_{642,643} = 3,552; p < 0,001$). Nadalje, veći postotak DMD-a (69,1%) bio je zaposlen u privatnom sektoru u usporedbi sa samo 20,6% MD-a ($\chi^2_1 = 164,481; p < 0,001$).

U korištenju SNS-a pronađene su statistički značajne razlike između DMD-ova i MD-ova. DMD-ovi su znatno češće dnevno pristupali SNS-u ($U = 54,641,5, p = 0,003$) (21). Međutim, obje skupine ($n = 588, 78 \%$) pretežno se koriste SNS-om barem jedanput na dan.

U vezi s korištenjem Facebooka i Instagrama, pronađena je statistički značajna razlika u prisutnosti na tim SNS-ima:

$p < 0.001$); Instagram DMDs (74.4%) vs MDs (57.6%) ($\chi^2_1 = 19.350$, $p < 0.001$) (21).

A statistically significant difference was observed between DMDs and MDs regarding the intended purpose of using SNSs (Table 1). This was assessed on a scale ranging from “solely for personal purposes” to “solely for professional purposes”. DMDs exhibited a significantly higher inclination to utilize SNSs for professional purposes than MDs ($U = 51,640$, $p < 0.01$). Furthermore, this disparity was substantiated by analyzing the item related to professional communication as a motive for using SNSs. The analysis confirmed that DMDs, compared to MDs, employed SNSs more extensively for professional purposes ($U = 52,609$, $p < 0.01$).

In terms of self-rated proficiency, participants reported the highest level of proficiency in using Facebook (Mean=3.2, SD=0.827), followed by Instagram (Mean=2.44, SD=1.162), with LinkedIn ranking third in terms of proficiency (Mean=1.88, SD=0.983).

MDs reported a significantly higher level of proficiency in utilizing LinkedIn ($U = 53,008$, $p < 0.001$) and YouTube ($U = 54,000$, $p = 0.002$) than DMDs (Table 2). DMDs reported a significantly higher level of proficiency in using Instagram ($U = 53,836.5$, $p < 0.001$) than MDs. No statistically significant differences in self-rated proficiency were observed between the two groups on Facebook ($U = 61,811.5$, $p = 0.829$), TikTok ($U = 60,277$, $p = 0.157$), and Snapchat ($U = 60,325$, $p = 0.169$).

The findings regarding the frequency of monitoring one's online presence, commonly known as “googling oneself” (e.g., “google” your name, search for your images on g-image, etc.), among MDs and DMDs are presented in Table 3. Approximately one-third of the participants (29.9%) reported never engaging in this activity, while slightly over half of the participants (55.4%) indicated that they performed this task once a year or less frequently. Approximately 10.8% of the participants reported self-monitoring their online presence approximately once a month, while a very small percentage of participants engaged in this activity weekly or more frequently. There were no differences between MDs and DMDs in the frequency of monitoring their online presence.

Table 4 presents the reasons for monitoring their online presence by ensuring accuracy, completeness, and professionalism in the posted information. On the scale, a higher value indicates greater agreement. To ensure completeness, MDs had a mean score of 1.94 (SD=0.704), while DMDs had a statistically significant ($U = 25,623.0$, $p = 0.001$), higher mean score of 2.15 (SD=0.662). The difference between the two groups indicates that DMDs place a higher importance on the completeness of posted information than MDs.

Regarding professionalism, MDs had a mean score of 2.18 (SD=0.737), while DMDs had a higher mean score of 2.35 (SD=0.683). The difference between the two groups was statistically significant ($U = 26,545.0$, $p = 0.010$), suggesting that DMDs prioritize professionalism in posted information more than MDs.

Concerns about SNSs usage are shown in Table 5. Overall, participants demonstrated the least concern regarding their families and the public's perception. Conversely, their

Facebook – DMD-ovi (96,7 %) prema MD-ima (90,1 %) ($\chi^2_1 = 9,271$; $p < 0,001$); Instagram – DMD-ovi (74,4 %) prema MD-ima (57,6%) ($\chi^2_1 = 19,350$; $p < 0,001$) (21).

Statistički značajna razlika uočena je između DMD-ova i MD-ova u s vezi s primarnom svrhom korištenja SNS-a (tablica 1.). To je mjereno na ljestvici koja se proteže od *isključivo za osobne svrhe* do *isključivo za profesionalne svrhe*. DMD-ovi pokazuju statistički značajno veću sklonost prema korištenju društvenih mreža za profesionalne svrhe u usporedbi s MD-ima ($U = 51,640$; $p < 0,01$). Nadalje, ta je razlika potvrđena analizom čestice koja se odnosi na profesionalnu komunikaciju kao motiv za korištenje SNS-a. Analiza je potvrdila da se DMD-ovi, u usporedbi s MD-ima, koriste SNS-om u većoj mjeri za profesionalne svrhe ($U = 52,609$; $p < 0,01$).

Kod samoprocijenjene vještine ispitanici su pokazali najvišu razinu vještine u korištenju Facebooka ($M = 3,2$, $SD = 0,827$), zatim Instagrama ($M = 2,44$, $SD = 1,162$), a LinkedIn je zauzeo treće mjesto po vještini ($M = 1,88$, $SD = 0,983$).

MD-ovi su imali statistički znatno višu razinu vještine u korištenju LinkedIna ($U = 53,008$; $p < 0,001$) i YouTubea ($U = 54,000$; $p = 0,002$) u usporedbi s DMD-ima (tablica 2.). DMD-ovi su imali statistički znatno višu razinu vještine u korištenju Instagrama ($U = 53,836,5$; $p < 0,001$) u odnosu prema MD-ima. Nisu uočene statistički značajne razlike u samoprocjeni vještine između dviju skupina na Facebooku ($U = 61,811,5$, $p = 0,829$), TikToku ($U = 60,277$, $p = 0,157$) i Snapchatu ($U = 60,325$, $p = 0,169$).

Rezultati vezani za učestalost praćenja vlastite online prisutnosti, poznatog kao *guglanje* (npr., *guglanje* vlastita ime na, pretraživanje svojih slika na Google Imagesu, itd.), među MD-ima i DMD-ima prikazani su u tablici 3. Otprilike jedna trećina sudionika (29,9 %) izjavila je da nikada ne sudjeluje u toj aktivnosti, a nešto više od polovine (55,4 %) izjavilo da to obavlja jedanput na godinu ili rjeđe. Otprilike 10,8 % sudionika izjavilo je da prati svoju online prisutnost otprilike jedanput na mjesec, a vrlo mali postotak čini to tjedno ili češće. Nisu uočene razlike između MD-ova i DMD-ova u učestalosti praćenja njihove online prisutnosti.

Tablica 4. prikazuje razloge praćenja vlastite online prisutnosti radi osiguravanja točnosti, potpunosti i profesionalnosti objavljenih informacija. Na ljestvici veća vrijednost označava veće slaganje. Kod praćenja u svrhu potpunosti informacija, MD-ima je aritmetička sredina ocjene bila 1,94 (SD = 0,704), a DMD-ovi su imali statistički značajno ($U = 25,623,0$, $p = 0,001$) višu aritmetičku sredinu ocjene od 2,15 (SD = 0,662). Razlika između dviju skupina pokazuje da DMD-ovi posvećuju veću pozornost potpunosti objavljenih informacija u usporedbi s MD-ima.

Kod praćenja u svrhu profesionalnosti informacija, MD-ima je aritmetička sredina ocjene bila 2,18 (SD = 0,737), a DMD-ovi su imali višu aritmetičku sredinu ocjene od 2,35 (SD = 0,683). Razlika između dviju skupina bila je statistički značajna ($U = 26,545,0$, $p = 0,010$), što sugerira da DMD-ovi više cijene profesionalnost u objavljenim informacijama u usporedbi s MD-ima.

Zabrinutosti vezane za korištenje društvenih mreža prikazane su u tablici 5. Općenito, sudionici su pokazali naj-

Table 1 SNS usage purpose (N=753)**Tablica 1.** Svrha upotrebe SNS-a (N = 753)

Usage purposes • Svrha upotrebe	All doctors • Svi doktori n (%)	Medical • Dr. medicine n (%)	Dental • Dr. dentalne medicine n (%)	χ^2 , df, p-value • p-vrijednost
Solely personal purposes. • Isključivo za osobne svrhe.	234 (31.0)	176 (34.7)	58 (23.6)	19.386, 4, 0.001**
Mostly personal, less professional. • Više za osobne svrhe, manje za profesionalne.	310 (41.1)	212 (41.8)	98 (39.8)	
Both (personal and professional purposes). • Podjednako za osobne i profesionalne svrhe.	137 (18.1)	80 (15.8)	57 (23.6)	
Mostly professionals, less personal. • Više za profesionalne, manje za osobne svrhe.	57 (7.5)	29 (5.7)	28 (11.4)	
Professional purposes only. • Isključivo za profesionalne svrhe.	14 (1.8)	10 (2.0)	4 (1.6)	

** p<0,01

Table 2 Self-evaluation of proficiency on SNS platforms (N=753)**Tablica 2.** Samoprocjena vještine korištenja SNS-a (N = 753)

SNS platforms • SNS platforme	Medical • Dr. medicine	Dental • Dr. dentalne medicine	U, p-value • p-vrijednost
	Mean (SD)	Mean (SD)	
Facebook	3.17 (0.882)	3.25 (0.699)	61811.5, 0.83
Twitter	1.31 (0.722)	1.21 (0.636)	583008.0, 0.02*
LinkedIn	1.96 (0.994)	1.70 (0.938)	53008.0, 0.00**
YouTube	2.51 (1.129)	2.24 (1.103)	54000.0, 0.00**
Instagram	2.34 (1.178)	2.63 (1.105)	53836.5, 0.00**
TikTok	1.17 (0.584)	1.20 (0.606)	60277.0, 0.16
Snapchat	1.16 (0.560)	1.21 (0.601)	60325.0, 0.17

Ranging from "1 not at all competent" to "4 highly competent" • Raspon od „1 Uopće nisam vješt/a“ do „4 izrazito vješt/a“

* With Bonferroni correction for seven comparisons, p<0.05 • Uz Bonferronijevu korekciju za sedam usporedbi, p < 0,05;

** With Bonferroni correction for seven comparisons, p<0.01 • Uz Bonferronijevu korekciju za sedam usporedbi, p < 0,01

Table 3 Monitoring online presence (N=753)**Tablica 3.** Samopraćenje online prisutnosti (N = 753)

Google searches for themselves • Pretraživanje vlastita imena na Googleu				
	All doctors • Svi doktori n (%)	Medical • Dr. medicine n (%)	Dental • Dr. dentalne medicine n (%)	U, p-value • p-vrijednost
Never • Nikada	225 (29.8)	149 (29.4)	76 (30.9)	60,476.5, 0.452
Once a year or less • Jedanput na godinu ili rjeđe	417 (55.3)	279 (55.0)	138 (56.1)	
About once a month • Otprilike jedanput na mjesec	81 (10.7)	58 (11.4)	23 (9.3)	
About once a week • Otprilike jedanput na tjedan	14 (1.8)	11 (2.2)	3 (1.2)	
Almost every day • Gotovo svaki dan	12 (1.5)	8 (1.6)	4 (1.6)	
Several times a day • Više puta na dan	4 (0.5)	2 (0.4)	2 (0.8)	

Table 4 Extent of reasons for monitoring oneself online presence (N=753)**Tablica 4.** Razlozi za praćenje svoje online prisutnosti (N = 753)

Reasons • Razlozi	Mean • Aritmetička sredina (SD)	Mean • Aritmetička sredina (SD)	U, p-value • p-vrijednost
To ensure that published information is true. • Kako bi se uvjerio/la da su objavljene informacije istinite.	2.01 (0.739)	2.12 (0.712)	28140.0, 0.132
To ensure that published information is complete • Kako bih se uvjerio/la da je objavljena informacija potpuna.	1.94 (0.704)	2.15 (0.662)	25623.0, 0.001**
To ensure that published information is professional. • Kako bih se uvjerio/la da je objavljena informacija profesionalna.	2.18 (0.737)	2.35 (0.683)	26545.0, 0.010*

Ranging from "1 not at all important" to "4 very important" • Raspon od „1 uopće mi nije važno“ do „4 vrlo mi je važno“

* p < 0,05; ** p < 0,01

Table 5 Concerns that respondents have about SNS usage (N=753)**Tablica 5.** Zabrinutost ispitanika u vezi s korištenjem SNS-a (N = 753)

	Mean (SD) Aritmetička sredina (SD)	Mean (SD) Aritmetička sredina (SD)	U, p-value • p-vrijednost
Public perceptions of unprofessional behaviour on my part. • Percepcija javnosti o neprofesionalnom ponašanju s moje strane.	1.78 (0.694)	1.73 (0.640)	60634.0, 0.498
Family perceptions of unprofessional behaviour on my part. • Percepcija moje obitelji o neprofesionalnom ponašanju s moje strane.	1.58 (0.702)	1.52 (0.680)	59707.0, 0.287
Public perceptions of unprofessional behaviour by my colleagues. • Percepcija javnosti o neprofesionalnom ponašanju mojih kolega.	1.83 (0.662)	1.66 (0.668)	53743.5, 0.001**
Public perceptions of my profession. • Percepcija javnosti o mojoj profesiji.	1.99 (0.711)	1.97 (0.714)	61401.5, 0.710
Violations of patient confidentiality. • Povreda povjerljivosti pacijentovih podataka.	2.28 (0.783)	2.23 (0.791)	60084.0, 0.378
Posting of inaccurate medical/dental information available to patients. • Objavljivanje netočnih medicinskih/stomatoloških informacija koje su dostupne pacijentima.	2.56 (0.643)	2.54 (0.661)	61840.5, 0.826

Ranging from "1 does not worry me at all" to "3 it worries me a lot" • Raspon od „1 uopće me ne zabrinjava“ do „3 jako me zabrinjava“

** p < 0,01

Table 6 Experience of encountering inaccurate, incomplete, or unprofessional information and actions taken regarding such material on SNS**Tablica 6.** Iskustvo pronalaska netočnih, nepotpunih ili neprofesionalnih informacija te poduzete radnje u vezi s takvim materijalom na SNS

The discovery of information about oneself on SNS that is (n = 753) • Pronalazak informacija o sebi na SNS-u koje su (n = 753)			
		Medical • Dr. medicine n (%)	Dental • Dr. dentalne medicine n (%)
		Answer Yes • Odgovor Da	Answer Yes • Odgovor Da
Inaccurate • Netočne		100 (19.7)	47 (19.1)
Incomplete • Nepotpune		194 (38.3)	92 (37.4)
Unprofessional • Neprofesionalne		100 (19.7)	47 (19.1)

**Finding material about oneself on SNS, posted by others, that was embarrassing or unprofessional (N=753) •
Pronalazak objavljenih neugodnih i neprofesionalnih materijala o sebi na SNS-u koje su objavili drugi (N = 753)**

	All doctors • Svi doktori n (%)	Medical • Dr. medicine n (%)	Dental • Dr. dentalne medicine n (%)	χ^2 , df, p-value • p-vrijednost ^a
Yes • Da	160 (21.2)	116 (22.9)	44 (17.9)	2.179, 1, 0.140
No • Ne	593 (78.7)	391 (77.1)	202 (82.1)	

**Action was taken regarding such material on SNS (MD n=116; DMD n=44) •
Poduzete radnje s obzirom na objavljene sadržaje na SNS-u (MD n = 116; DMD n = 44)**

	Medical • Dr. medicine n (%)	Dental • Dr. dentalne medicine n (%)	
	Answer Yes • Odgovor Da	Answer Yes • Odgovor Da	
Deleting people from my friends list. • Izbrisao/la sam osobe s popisa prijatelja.	26 (22.4)	11 (25.0)	0.019, 1, 0.891
Deleting other people's comments from my profile. • Izbrisao/la sam komentare sa svojeg profila.	52 (44.8)	24 (54.5)	0.850, 1, 0.357
Un-tagging myself. • Uklanjanje označivanja.	71 (61.2)	35 (79.5)	4.013, 1, 0.045*

* p < 0,05

^a Yates correction • Yatesova korekcija

highest level of concern pertained to confidentiality breaches and inaccurate medical and dental information.

Both DMDs and MDs have similar concerns about public perceptions (U=60,634.0, p=0.498) and family perceptions (U=59,707.0, p=0.287) of their unprofessional behavior. MDs with a mean score of 1.83 (SD=0.662) showed statistically significantly (U=53,743.5, p=0.001) higher levels of concern about the public perceptions of unprofessional be-

manju zabrinutost povezanu s percepcijom njihovih obitelji i javnosti. Nasuprot tomu, najviša razina zabrinutosti odnosila se na povrede povjerljivosti i netočne medicinske i stomatološke informacije.

DMD-ovi i MD-ovi ističu sličnu razinu zabrinutosti u vezi s percepcijom javnosti (U = 60,634,0, p = 0,498) i percepcijom obitelji (U = 59,707,0, p = 0,287) u vezi s njihovim neprofesionalnim ponašanjem. MD-ovi su s aritmetičkom

havior by their colleagues compared to DMDs with a mean score of 1.66 (SD=0.668).

There were no significant differences ($U=61,401.5$, $p=0.710$) between MDs (mean score 1.99; SD=0.711) and DMDs (mean score 1.97; SD=0.714) regarding concerns about public perceptions of the medical/dental profession.

Both MDs (mean score of 2.28; SD=0.783) and DMDs (mean score of 2.23; SD=0.791) shared similar concerns about patient confidentiality violations ($U=60,084.0$, $p=0.378$).

In the end, regarding posting inaccurate medical/dental information for patients, there were no significant differences found between MDs and DMDs ($U=61,840.5$, $p=0.826$), with MDs at 2.56 (SD=0.643) and DMDs at 2.54 (SD=0.661).

The occurrence of negative experiences can be found in Table 6. The first part shows the results of discovering information about oneself on SNSs.

The second part, finding material about oneself on SNSs was calculated as a binary variable, where those respondents who discovered any undesirable information about themselves (incorrect, incomplete, or unprofessional) were one group, and those who did not find any such information were another group. A total of 160 participants (21.2%) found undesirable information about themselves, which indicates engagement in SNS impression management. There were no significant differences between MDs and DMDs in the prevalence of finding undesirable information. Among the participants, 21.2% indicated encountering unpleasant or unprofessional material about them posted by others. Additionally, 32.8% of respondents reported the experience of posting content on SNSs and later regretted it.

The third part of Table 6 provides an overview of the actions taken by participants who found undesirable material about themselves on SNS. The most frequently reported action was deleting their name from tagged photos (66.3%), followed by removing comments from their profile (47.5%). Deleting the person responsible for inaccurate content from their friend list was the least commonly chosen action by the participants (23.1%). Of 160 respondents who reported finding uncomfortable posts, 40 (25%) opted not to respond in any of the measured ways.

Discussion

All participants ($N=753$) in the study used at least one SNS, and DMDs accessed SNS sites more frequently than MDs ($U=54,641.5$ $p<0.001$) (21). Following the purpose of SNS usage in this study, most HCPs employ SNS platforms more for personal purposes and less for professional purposes. However, a significant difference in the type of usage exists between MDs and DMDs, where DMDs employ SNSs more for professional purposes ($U=51,640$, $p<0.01$). This can be explained by the fact that DMDs in Croatia predominantly work in the private sector and utilize SNSs as a platform for cultivating and representing their professional identity (19, 21).

sredinom ocjene od 1,83 (SD = 0,662) pokazali statistički značajno ($U = 53,743,5$, $p = 0,001$) veću zabrinutost zbog percepcije javnosti o neprofesionalnom ponašanju njihovih kolega u usporedbi s DMD-ima koji su imali aritmetičku sredinu ocjene od 1,66 (SD = 0,668).

Nisu pronađene statistički značajne razlike ($U = 61,401,5$, $p = 0,710$) između MD-ova ($M = 1,99$; $SD = 0,711$) i DMD-ova ($M = 1,97$; $SD = 0,714$) u vezi sa zabrinutostima zbog percepcije javnosti o medicinskoj/stomatološkoj profesiji.

I MD-ovi ($M = 2,28$; $SD = 0,783$) i DMD-ovi ($M = 2,23$; $SD = 0,791$) dijele sličnu zabrinutost u vezi s povredama povjerljivosti pacijenata ($U = 60,084,0$, $p = 0,378$).

Konačno, kod praćenja u svrhu procjene objavljivanja netočnih medicinskih/stomatoloških informacija za pacijente, nisu pronađene značajne razlike između MD-ova i DMD-ova ($U = 61,840,5$, $p = 0,826$), s aritmetičkom sredinom MD-ova od 2,56 (SD = 0,643) i DMD-ova od 2,54 (SD = 0,661).

Pojava negativnih iskustava prikazana je u tablici 6. U njezinu prvom dijelu su rezultati o pronalasku informacija o sebi na SNS-u.

Drugi dio, otkrivanje materijala o sebi na SNS-u, izračunat je kao binarna varijabla, gdje su oni ispitanici koji su otkrili bilo kakve nepoželjne informacije o sebi (netočne, nepotpune ili neprofesionalne) bili jedna skupina, a oni koji nisu pronašli niti jednu takvu informaciju bili su druga skupina. Ukupno 160 sudionika (21,2 %) pronašlo je nepoželjne informacije o sebi, što upućuje na angažman u upravljanju dojmom na SNS-u. Nisu pronađene značajne razlike između MD-iva i DMD-ova u prevalenciji pronalaska nepoželjnih informacija. Među sudionicima je njih 21,2 % navelo da su pronašli neugodan ili neprofesionalan sadržaj o sebi, a objavile su ga druge osobe. Dodatno, 32,8 % ispitanika imalo je iskustvo s objavljivanjem sadržaja na SNS-u koje su poslije požalili.

Treći dio tablice 6. prikazuje pregled radnji koje su poduzeli ispitanici nakon što su pronašli nepoželjan materijal o sebi na SNS-u. Najčešće prijavljena radnja bila je brisanje njihova imena s označenih fotografija (66,3 %), a zatim uklanjanje komentara s njihova profila (47,5 %). Najrjeđe odabrana radnja bila je brisanje osobe odgovorne za objavu s popisa prijatelja (23,1 %). Od 160 ispitanika koji su prijavili pronalazak neugodnih objava, 40 (25 %) odlučilo je ne reagirati ni na jedan od mjerenih načina.

Rasprava

Svi sudionici ($N = 753$) u istraživanju koristili su se barem jednim SNS-om, a DMD-ovi su pristupali SNS-u češće od MD-ova ($U = 54,641,5$; $p < 0,001$) (21). Prema svrsi korištenja SNS-a u ovoj studiji, većina HCP-ova koristi se SNS-om više u osobne svrhe, a manje u profesionalne. No postoji značajna razlika u načinu korištenja između MD-ova i DMD-ova, pri čemu se DMD-ovi koriste SNS-om više u profesionalne svrhe ($U = 51,640$; $p < 0,01$). To se može objasniti činjenicom da DMD-ovi u Hrvatskoj pretežno rade u privatnom sektoru i koriste se SNS-om kao platformom za kultiviranje i predstavljanje svojega profesionalnog identiteta (19, 21).

Recent research by Freire et al. examined the influence of the use of dental practice SM on patients when they last changed their dental care provider and which factors were considered important when choosing a dental practice (40). According to their results, patients who had changed practice within the last five years used dental practice SM more often. In addition, those who had changed in the present/past year reported that the use of these media had significantly influenced their decision to change (40).

Due to the increased influence of SM on healthcare in recent years, researchers have begun to investigate its impact on professional credibility and the professional-patient relationship. They have pointed out that the public's perceptions of professionalism and credibility are essential for developing guidelines regarding professionalism in digital media, and encouraging best-use practices for SM (41, 42). HCPs should prioritize the integration of their SM identities with their professional personas, as the online HCP image is evolving and becoming an essential part of medical and dental practice (7). This includes regular review and monitoring of their online profiles, in line with guidelines such as those outlined (16, 42). However, the choice to share personal elements rests with the HCPs alone (6, 16, 17, 21).

Some guidelines directly advise HCPs to "Think before you post" (42), meaning that the more often users access SNSs, the greater the chance they may engage in unprofessional behavior because they posted something before they had a chance to "think" about it.

Alongside the benefits of creating networks and spreading information broader and faster than is possible with traditional communication channels, SM presents ethical and legal challenges. For HCPs, it poses a threat to confidentiality and privacy owed to patients, colleagues, and employers. HCPs must acknowledge that the same ethical and legal standards apply online and offline and are accountable to professional bodies and the law for their online activities (16). SM contributes to changes such as interpersonal relationships, and HCPs should develop and maintain their professional identity on the highest ethical principle (43).

Importantly, it seeks to create awareness about the cyberpsychology phenomenon called the 'online disinhibition effect', which is responsible for lowering restraint during online activities (43).

In this study, when assessing their proficiency in SNS usage, MDs reported significantly higher levels of utilizing LinkedIn ($U=53,008.0$, $p<0.001$) and YouTube ($U=54,000.0$, $p<0.001$) than DMDs. However, DMDs demonstrated a statistically higher level of proficiency in using Instagram ($U=53,836.5$, $p<0.001$) compared to MDs. One potential explanation for this difference is that Instagram is a visual medium, and dental profession inherently possesses a visual nature. Dentists frequently work with visual materials such as photographs and X-ray images of teeth. As a platform for sharing images and video content, Instagram enables dentists to showcase their work and procedures to patients efficiently. It allows dentists to promote their dental practices by posting images of their facilities, team, and positive patient experiences, thereby attracting

U nedavnom istraživanju Freirea i suradnici ispitivali su utjecaj korištenja društvenih mreža (engl. *social media* – SM), kada je riječ o stomatološkim ordinacijama, na pacijente kada su posljednji put mijenjali svojeg doktora dentalne medicine te koji su čimbenici smatrani važnima pri odabiru stomatološke ordinacije (40). Prema njihovim rezultatima pacijenti koji su promijenili svojega doktora dentalne medicine u posljednjih pet godina češće su se koristili društvenim mrežama pri odabiru stomatoloških ordinacija. Osim toga, oni koji su promijenili svojega doktora dentalne medicine u ovoj ili protekloj godini izvijestili su da je korištenje tih medija znatno utjecalo na njihovu odluku o promjeni (40).

Zbog povećanog utjecaja SNS-a na zdravstvo u posljednjim godinama, istraživači su počeli istraživati njihov utjecaj na profesionalnu vjerodostojnost i odnos između profesionalaca i pacijenata. Istaknuli su da su percepcije javnosti o profesionalizmu i vjerodostojnosti ključne za razvoj smjernica vezanih uz profesionalizam u digitalnim medijima te poticanje najboljih praksi za korištenje društvenih medija (41, 42). HCP-ovi bi trebali uskladiti integraciju svojih identiteta na društvenim mrežama s njihovim profesionalnim osobama jer se online ugled HCP-ova razvija i postaje bitan dio medicinske i stomatološke prakse (7). To uključuje redoviti pregled i praćenje njihovih online profila u skladu sa smjernicama kao što su one navedene (16, 42). No odluka o dijeljenju osobnih elemenata ostaje na samim HCP-ima (6, 16, 17, 21).

Neke smjernice izravno savjetuju HCP-ove da *Razmisle prije objave* (42), a to znači da što češće korisnici pristupaju SNS-u, to je veća vjerojatnost da će se upustiti u neprofesionalno ponašanje jer su nešto objavili prije nego što su imali priliku *razmisliti* o tome.

Uz prednosti stvaranja mreža i širenja informacija šire i brže nego što je to moguće tradicionalnim komunikacijskim kanalima, SNS-i su i etički i pravni izazovi. Za HCP-ove to je prijetnja povjerljivosti i privatnosti prema pacijentima, kolegama i poslodavcima. HCP-ovi moraju prihvatiti da se isti etički i pravni standardi primjenjuju i online i offline te su odgovorni profesionalnim tijelima i zakonu za svoje internetske aktivnosti (16). SNS-i pridonose promjenama kao što su međuljudski odnosi, i HCP-ovi trebaju razvijati i održavati svoj profesionalni identitet prema najvišim etičkim načelima (43).

Važno je stvoriti svijest o fenomenu kiberpsihologije nazvanom *učinak online dezinhibicije* koji je odgovoran za smanjenje zadržke tijekom online aktivnosti (43).

U ovoj studiji, pri procjeni njihove vještine u korištenju SNS-om, MD-ovi su prijavili značajno višu razinu korištenja LinkedIna ($U = 53,008,0$; $p < 0,001$) i YouTubea ($U = 54,000,0$; $p < 0,001$) u usporedbi s DMD-ima. Međutim, DMD-ovi su pokazali statistički višu razinu vještine u korištenju Instagrama ($U = 53,836,5$; $p < 0,001$) u usporedbi s MD-ovima. Moguće objašnjenje za tu razliku jest da je Instagram vizualni medij, a dentalna profesija inherentno ima vizualnu prirodu. Stomatolozi često rade s vizualnim materijalima poput fotografija i rendgenskih snimki zuba. Kao platforma za dijeljenje slika i videosadržaja, Instagram omogućuje stomatolozima da pacijentima učinkovito prikazuju svoj rad i postupke. To im omogućuje da promoviraju svoje

new clients and building their brand (25, 29, 43). However, DMDs have become aware of the need to analyse the public perception of professional credibility and willingness to become a client, based on images posted by dentists on Instagram (44, 45).

HCPs should be aware of their online identity and monitor their online presence. According to the study results, MDs tend to do this more frequently than DMDs (MD n=358 (70.6%); DMD n=170 (69.1%)). In the case of DMDs, the reasons for monitoring their online presence are primarily driven by a desire to prioritize professionalism and ensure the completeness and accuracy of posted information, compared to MDs.

The primary concern among MDs and DMDs in this study is the violation of patient confidentiality and posting of inaccurate medical/dental information available to patients. Specifically, these data underscore a noteworthy level of professionalism among the concerns of the surveyed participants. A significant number of them were primarily concerned about preserving patient trust and upholding their knowledge integrity regarding public perception. This finding underscores the imperative for further research and educational initiatives in the fields of medicine and dentistry. Such endeavors can contribute substantively to addressing issues that deeply trouble medical and dental professionals. The substantial averages, approaching 2.5 out of 3, emphasize the gravity of these concerns.

Regarding MDs' and DMDs' concerns about public perception, MDs expressed greater concerns regarding the public perception of the unprofessional behavior of their colleagues compared to DMDs. However, both groups of professionals shared similar concerns about public perception of their professionalism.

Of the 753 participants in the total sample, only 160 (21.2%) reported experiencing uncomfortable posts. Among these 160, merely 40 opted not to take any action. We regard the variable of reacting to the discovery of such posts (referred to as "reaction") as a significant predictor of e-professionalism. This importance arises not only from the observable trend of the majority of respondents with negative experiences choosing to react but also because such reactions serve as tangible manifestations of action and behavior, both integral aspects of e-professionalism (21).

Regarding actions taken in response to embarrassing or unprofessional material, there was a statistically significant difference between MDs (61.2%) and DMDs (79.5%) in un-tagging themselves as a response to embarrassing or unprofessional material. The results obtained from the sample show that DMDs are more active in un-tagging themselves from unwanted material from SNSs than MDs.

While SNS users can be selective in what they share, a significant number of them are not fully aware of the power they possess to shape their online image intentionally. It is crucial to recognize that sharing unprofessional content on SNS can substantially impact one's professional opportunities. This concern depends on the perception created by the online identity, the way information is controlled, and the motivations behind such actions.

ordinacije objavljivanjem slika svojih ordinacija, tima i pozitivnih iskustava pacijenata, čime privlače nove klijente i grade svoju prepoznatljivost (25, 29, 43). DMD-ovi su postali svjesni potrebe za analizom javne percepcije profesionalne vjerodostojnosti i spremnosti da postanu klijenti na temelju slika koje stomatolozi objavljuju na Instagramu (44, 45).

HCP-ovi trebaju biti svjesni svojega online identiteta i pratiti svoju prisutnost na internetu. Prema rezultatima istraživanja, MD-ovi to čine češće od DMD-ova (MD n = 358 (70,6 %); DMD n = 170 (69,1 %)). Kod DMD-ova razlozi za praćenje njihove online prisutnosti uglavnom su vođeni željom da prioritziraju profesionalizam te osiguraju cjelovitost i točnost objavljenih informacija, u usporedbi s MD-ovima.

Primarna zabrinutost među MD-ovima i DMD-ovima u ovom istraživanju jest kršenje povjerljivosti pacijenata i objavljivanje netočnih medicinskih/dentalnih informacija koje su dostupne pacijentima. Konkretno, na temelju tih podataka može se zaključiti da postoji značajna razina profesionalizma među ispitanicima. Značajan broj ponajprije zabrinjava očuvanje povjerenja pacijenata i očuvanje integriteta njihova znanja u vezi s javnom percepcijom. To otkriće ističe nužnost daljnjih istraživanja i obrazovnih inicijativa u području medicine i stomatologije. Takvi napori mogu znatno pridonijeti rješavanju problema koji duboko zabrinjavaju medicinske i dentalne profesionalce. Značajne aritmetičke sredine, približavajući se 2,5 od 3, ističu ozbiljnost tih zabrinutosti.

U vezi sa zabrinutošću MD-ova i DMD-ova o percepciji javnosti, MD-ovi su izrazili veću zabrinutost u vezi s javnom percepcijom neprofesionalnog ponašanja svojih kolega u usporedbi s DMD-ovima. No obje skupine profesionalaca dijele sličnu zabrinutost kad je riječ o javnoj percepciji njihove profesionalnosti.

Od ukupno 753 sudionika, samo 160 (21,2 %) prijavilo je iskustvo s neugodnim objavama. Među tih 160, samo 40 odlučilo je ne poduzeti nikakvu akciju. Smatramo da je varijabla reakcije na otkrivanje takvih objava (nazvana *reakcija*) značajan prediktor e-profesionalizma. Ta važnost proizlazi ne samo iz vidljivoga trenda da većina ispitanika s negativnim iskustvima bira reagirati, nego i zato što takve reakcije služe kao direktne manifestacije akcija i ponašanja obaju integralnih aspekata e-profesionalizma (21).

U vezi s poduzetim radnjama kao odgovorom na neugodan ili neprofesionalan materijal, postojala je statistički značajna razlika između MD-ova (61,2 %) i DMD-ova (79,5 %) u uklanjanju oznaka sa sebe kao odgovor na neugodan ili neprofesionalan sadržaj. Rezultati iz uzorka pokazuju da su DMD-ovi aktivniji u uklanjanju oznaka, tj. veza s njihovim profilima s nepoželjnim sadržajem na društvenim mrežama, nego MD-ovi.

Dok korisnici SNS-a mogu birati što dijele, znatan broj njih nije potpuno svjestan moći koju posjeduju za namjerno oblikovanje svoje online slike. Ključno je prepoznati da dijeljenje neprofesionalnog sadržaja na SNS-u može itekako utjecati na profesionalne mogućnosti. Ta zabrinutost ovisi o percepciji koja se stvara online identitetom, o načinu na koji se informacije kontroliraju i o motivacijama iza takvih postupaka.

The main strength of this research lies in its ability to provide valuable insights into healthcare professionals' monitoring of their online image and concerns about inaccurate or unprofessional information online, thus offering crucial data on the frequency and motivations behind this practice. Furthermore, this research encompasses both DMDs and MDs from the private and public sectors. This comprehensive representation enhances the study's applicability and generalizability, thus making it relevant across various healthcare contexts.

A major limitation is the low response rate of 4.4%, which raises concerns about the representativeness of the sample. Another limitation is the potential for social desirability bias, as concerns are measured through self-reporting items, creating a risk of respondents exaggerating their concerns. This aspect challenges the reliability of the collected data and requires careful consideration in interpreting the study's findings. Also, a preference for using a particular social platform, which is reflected in the tendency to use the same platform professionally and personally, can be a source of bias in this type of study.

Conclusion

By addressing these research aims, this study contributes to the current knowledge surrounding HCPs' online presence and the potential impact on their professional image. The findings will help inform healthcare organizations, policymakers, and HCPs about the importance of online professionalism and provide recommendations for maintaining a positive online presence while mitigating potential risks. This study supports previous studies that show that the awareness of online identity increases through systematic education and the implementation of professional use of SM among HCPs (39, 40, 45, 46). Building on these studies, guidelines for using social networks and promoting the development of e-professionalism for doctors of medicine and doctors of dental medicine in Croatia were published in October of 2023 (47).

It is imperative for HCPs to conscientiously delineate the boundaries between their personal and professional online presence. Striking this balance is essential to safeguarding one's right to a private life, thereby ensuring that any missteps or inefficiencies in SM usage do not unduly impede one's career prospects. Achieving this equilibrium preserves personal privacy and fosters a harmonious coexistence of our digital and professional selves, ultimately contributing to a more secure and prosperous future (41).

In the digital environment, exerting over every situation or aspect is impossible. Nevertheless, the HCP's responsibility remains to exert control over the narrative, profile, and identity to maintain e-professionalism on SNSs.

Glavna snaga ovog istraživanja vrijedni su uvidi u prae-nje online slike HCP-ova te o zabrinutosti zbog netočnih ili neprofesionalnih informacija na internetu, pružajući ključne podatke o učestalosti i motivacijama iza te prakse. Nadalje, ovo istraživanje obuhvaća DMD-ove i MD-ove iz privatnoga i javnoga sektora. Ova sveobuhvatna reprezentacija povećava primjenjivost i generalizabilnost studije i čini je relevantnom u različitim kontekstima zdravstvene skrbi.

Glavno ograničenje istraživanja jest nizak postotak odgovora od 4,4 %, što otvara pitanje reprezentativnosti uzorka. Drugo je ograničenje mogućnost pristranosti zbog socijalne poželjnosti jer se zabrinutost mjeri putem samoprocjenskih stavki, što stvara rizik da ispitanici pretjeruju u svojim zabrinutostima. Taj aspekt izaziva pouzdanost prikupljenih podataka i zahtijeva oprez pri interpretaciji rezultata istraživanja. I preferencija za korištenje određene društvene platforme može utjecati na sklonosti prema korištenju iste platforme u profesionalne i osobne svrhe, što također može biti izvor pristranosti u ovoj vrsti studije.

Zaključak

Baveći se ovim istraživačkim ciljevima, ovo istraživanje pridonosi postojećem znanju o online prisutnosti HCP-ova i potencijalnom utjecaju na njihov profesionalni ugled. Rezultati istraživanja pomoći će informirati zdravstvene organizacije, donositelje politika i HCP-ove o važnosti online profesionalizma te pružiti preporuke za održavanje pozitivne online prisutnosti uz smanjenje potencijalnih rizika. Ova studija nadovezuje se na prethodne koje pokazuju da se svijest o online identitetu povećava zbog sustavnog obrazovanja i implementacije profesionalnog korištenja društvenih mreža među zdravstvenim djelatnicima (39, 40, 45, 46). Na temelju tih spoznaja objavljene su smjernice za korištenje SM-a i promicanje razvoja e-profesionalizma za DMD-ove i MD-ove u Hrvatskoj u listopadu 2023. godine (47).

Za HCP-ove je presudno važno savjesno odrediti granice između njihove osobne i profesionalne online prisutnosti. Postizanje te ravnoteže ključno je za zaštitu prava na privatni život, osiguravajući da bilo kakvi propusti ili neučinkovitosti u korištenju SM-a ne ometaju nepotrebno karijerne izgled. Održavanje te ravnoteže čuva osobnu privatnost i potiče skladno suživljavanje našega digitalnog i profesionalnog života, što u konačnici pridonosi sigurnijoj i prosperitetnijoj budućnosti (41).

U digitalnom okruženju nije moguće imati kontrolu nad svakom situacijom ili aspektom. Ipak, odgovornost HCP-ova jest da kontroliraju narativ, profil i identitet kako bi održali e-profesionalizam na SNS-u.

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Data availability statement: The datasets used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

Ethics approval and consent to participate: The study and the questionnaire received approval from the ethical boards of the University of Zagreb School of Medicine (641–01/18–02/01) and the University of Zagreb School of Dental Medicine (05-PA-24-2/2018), as these institutions were responsible for overseeing the study. Additionally, formal approval was obtained from the governing bodies of both the Croatian Medical Chamber (CMC) (900-06/20-01/11) and the Croatian Chamber of Dental Medicine (CCDM) (900-01/21-01/02) to utilize the complete mailing lists of MDs and DMDs who were members of the CMC and CCDM. All participants were informed in the guidelines statement that their participation is voluntary and anonymous. All participants gave electronic informed consent to participate before starting the survey. All methods were carried out according to relevant guidelines and regulations.

Author's contributions: L.M.P., M.M. and T.V.R. conducted the study. M.M. and T.V.R. analysed and interpreted the data, and L.M.P. wrote the first draft of the manuscript. All authors wrote the manuscript. All authors have read and approved the final manuscript.

Zahvale: Kvantitativna presječna studija o korištenju društvenih mreža i stajalištima prema e-profesionalizmu među doktorima medicine (MD) i doktorima dentalne medicine (DMD) provedena je u suradnji s Hrvatskom liječničkom komorom (HLK) i Hrvatskom komorom dentalne medicine (HKDM). Autori zahvaljuju svim sudionicima uključenima u ovu studiju na njihovu doprinosu.

Sukob interesa: Autori potvrđuju da nemaju ni financijski, ni neki drugi sukob interesa koji bi mogao utjecati na sadržaj članka.

Financiranje: Ovu studiju financirala je Hrvatska zaklada za znanost – projekt HRZZ UIP-05-2017 *Opasnosti i prednosti društvenih mreža: e-profesionalizam zdravstvenih djelatnika – SMePROF*.

Izjava o dostupnosti podataka: Skupovi podataka korišteni i/ili analizirani tijekom rada na studiji mogu se dobiti od autora zaduženog za dopisivanje.

Odobrenje etičkih odbora i pristanak za sudjelovanje: Studija i upitnik dobili su odobrenje etičkih odbora Medicinskog fakulteta Sveučilišta u Zagrebu (641–01/18–02/01) i Stomatološkog fakulteta Sveučilišta u Zagrebu (05-PA-24-2/2018) i te su institucije bile odgovorne za nadzor studije. Dodatno, formalno odobrenje dobiveno je od upravnih tijela Hrvatske liječničke komore (HLK) (900-06/20-01/11) i Hrvatske komore dentalne medicine (HKDM) (900-01/21-01/02) za korištenje kompletnih popisa MD-ova i DMD-ova koji su bili članovi HLK-a i HKDM-a. Svi sudionici obaviješteni su u uvodnom dijelu upitnika da je njihovo sudjelovanje dobrovoljno i anonimno. Svi su prije početka ankete dali elektronički informirani pristanak za sudjelovanje. Sve metode provedene su u skladu s relevantnim smjernicama i propisima.

Doprinos autora: L. M. P., M. M. i T. V. R. – istraživanje; M. M. i T. V. R. – analiza i interpretacija podataka; L. M. P. – prva inačica teksta. Svi su autori sudjelovali u pisanju teksta te su ga pregledali i odobrili.

Sažetak

Uvod: Zdravstveni djelatnici, uključujući doktore dentalne medicine (DMD) i doktore medicine (MD), koriste se društvenim mrežama u osobne i profesionalne svrhe. Ciljevi ove studije jesu: (i) istražiti svijest DMD-ova i MD-ova o njihovoj online prisutnosti; (ii) ispitati koliko često i iz kojih razloga DMD-ovi i MD-ovi prate svoj online imidž; (iii) utvrditi učestalost pronalaženja netočnih, nepotpunih ili neprofesionalnih informacija o sebi, ispitati to iskustvo i istražiti radnje poduzete u vezi s neprofesionalnim ili neugodnim objavljenim sadržajem; (iv) istražiti zabrinutosti vezane za njihovo korištenje društvenih mreža i sadržaj koji objavljuju. **Metode:** Koristeći se upitnikom provedena je presječna studija među DMD-ima i MD-ima u Hrvatskoj. **Rezultati:** Od 1013 sudionika, 753 su aktivni korisnici društvenih mreža. Najčešće su bili korišteni Facebook (91,6 %) i Instagram (63,1 %). DMD-ovi pokazuju znatno veću sklonost prema korištenju društvenih mreža u profesionalne svrhe u usporedbi s MD-ovima. Objekti skupine prijavile su visoku razinu vještine korištenja Facebooka ($M = 3,2$, $SD = 0,827$) i Instagrama ($M = 2,44$, $SD = 1,162$). Otprilike 55,4 % sudionika odgovorilo je da prate svoju online prisutnost, obično jedanput na godinu ili rjeđe. DMD-ovi su više isticali potrebu za potpunost objavljenih informacija u usporedbi s MD-ovima ($U = 25,623,0$, $p = 0,001$). Njihova najveća zabrinutost odnosila se na povrede povjerljivosti i netočne medicinske i stomatološke informacije. Slični rezultati zabilježeni su za MD-ove i DMD-ove u pronalaženju netočnih informacija objavljenih na društvenim mrežama. **Zaključak:** Ova studija pruža uvid u online prisutnost zdravstvenih djelatnika, njihovu zabrinutost vezanu za korištenje društvenih mreža, ističe važnost e-profesionalizma te daje preporuke za održavanje pozitivne online prisutnosti uz smanjenje potencijalnih rizika.

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