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PREDIKTORI NAMERE KORIŠĆENJA FUNKCIONALNIH APLIKACIJA ZA MOBILNO ZDRAVSTVO U REPUBLICI SRBIJI PRIMENOM PROŠIRENOG UTAUT2 MODELA

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SAŽETAK

Uvod/Cilj: Zdravstvene mobilne aplikacije pružaju mogućnost da svaki korisnik može preventivno da prati svoje zdravlje i da upravlja njime. Mobilna aplikacija *mHealth* koristi najnoviju tehnologiju sa ciljem da učini zdravstvenu zaštitu dostupnijom i pristupačnijom većem broju korisnika. Cilj ovog rada je bio da se identifikuju faktori, definisani prema proširenom UTAUT2 (engl. *Unified Theory of Acceptance and Use of Technology*, Objedinjene teorije prihvatanja i upotrebe tehnologije) modelu, koji imaju uticaj na nameru korišćenja aplikacija za mobilno zdravstvo (*mHealth*) u R. Srbiji.
Metode: Studijom preseka su obuhvaćena 64 ispitanika (prigodni uzorak), bivših studenta, nastavnika i saradnika Akademije strukovnih studija Zapadna Srbija, koji su popunili onlajn upitnik u periodu od maja do novembra 2024. godine. U analizi podataka su korišćeni Krombahov koeficijent α, Pirsonov koeficijent korelacije i regresiona analiza.
Rezultati: Pet od 7 elemenata (očekivani učinak - PE, očekivani trud - EE, društveni uticaj - SI, cenovna vrednost - PV i olakšavajući uslovi - FC) UTAUT2 modela predstavljaju značajne prediktore za nameru ispitanika da prihvate i koriste usluge mobilnih aplikacija za *mHealth*. Elementi navika (H) i hedonistička motivacija (HM) nemaju značajan uticaj na korišćenje mobilnih aplikacija za *mHealth*. Korelaciona analiza ukazuje da namera ponašanja značajno jako pozitivno korelira sa EE, FC i PE, a značajno pozitivno ali slabije sa SI i PV. Nije utvrđena značajna korelacija sa HM i H.
Zaključak: Neophodna su dalja istraživanja u ovoj oblasti, posebno istraživanja koja se odnose na testiranje i korišćenje konkretne mobilne aplikacije za *mHealth* prema elementima UTAUT2 modela.

Ključne reči: tehnologije, mobilne aplikacije, mHealth, UTAUT2 model

Uvod

Sa naglim razvojem nauke i tehnologije dolazi i do naglog razvoja zdravstva i sve veće potrebe za informacionom tehnologijom u zdravstvu. Shodno tome, javlja se velika potražnja za određenim aplikacijama koje su u mogućnosti da korisnicima, na upit, pruže raznovrsna i svrsishodna peronalizovana iskustva. Razvoj aplikacija namenjenih zdravstvu kontinuirano raste zahvaljujući integraciji naprednih mobilnih tehnologija kao što su veštačka inteligencija, mašinsko učenje, blok lanac i povezani uređaji. Prema podacima iz literature, danas na tržištu postoji više od 350.000 zdravstvenih aplikacija (1). Mobilne aplikacije daju doprinos efikasnosti zdravstvenih sistema kroz racionalizaciju administrativnih zadataka i smanjenje papirologije. Kao takve, one imaju značajano veliki potencijal u poboljšanju angažmana pacijenata, što rezultira poboljšanjem zdravstvenih rezultata i razvojem pristupačnijeg zdravstvenog iskustva pacijenta. Iako postoji evidentan napredak u razvoju dostupnih raznovrsnih mobilnih aplikacija, istraživači se slažu da postoji potreba da se istraži trenutno stanje u smislu prihvatanja onih mobilnih zdravstvenih aplikacija koje su prilagođene da omogućavaju lakši pristup pacijentima i upravljanje medicinskim informacijama (2). Bez obzira na činjenicu da sve veći broj aplikacija za mobilno zdravstvo (engl. *mobile health - mHealth*) postaje dostupan za preuzimanje i korišćenje na mobilnim uređajima, još uvek su malobrojna istraživanja us-

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PREDICTORS OF INTENTION TO USE FUNCTIONAL APPLICATIONS FOR MOBILE HEALTH IN THE REPUBLIC OF SERBIA USING EXTENDED UTAUT2 MODEL

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SUMMARY

Introduction/Aim: Health mobile applications provide an opportunity for each user to proactively monitor and manage their health. The mHealth mobile application uses the latest technology with the aim of making healthcare more accessible and affordable to more users. The aim of this paper was to identify factors, defined according to the expanded
UTAUT2 (Unified Theory of Acceptance and Use of Technology) model, which have an impact on the intention to use mobile health applications (mHealth) in the Republic of Serbia.
Methods: The cross-sectional study included 64 respondents (conveniaence sample), former students, teachers and associates of the Academy of Vocational Studies in Western Serbia, who filled out an online questionnaire in the period May - November 2024. Cronbach's coefficient α, Pearson correlation coefficient and regression analysis were used in the data analysis.
Results: Five of the 7 elements (Performance Expectancy - PE, Effort Expectancy - EE, Social Influence - SI, Price Value - PV and Facilitating Conditions - FC) of the UTAUT2 model are significant predictors of respondents' intention to accept and use mHealth mobile application services. Habit (H) elements and hedonic motivation (HM) have no significant effect on the use of mHealth mobile applications. Correlation analysis indicates that behavioral intention (BI) correlates significantly strongly positively with EE, facilitating conditions - FC and PE, and significantly positively but weakly with SI and PV. No significant correlation was found with HM and H.
Conclusion: Further research in this area is necessary, especially research related to the testing and use of a specific mobile application for mHealth according to the elements of the UTAUT2 model.

Keywords: technologies, mobile applications, mHealth, UTAUT2 model

Introduction

With the rapid development of science and technology comes the rapid development of health care and the increasing need for information technology in health care. Therefore, there is a high demand for certain applications, which can provide users, on demand, with diverse and purposeful personalized experiences. The development of applications intended for health care is growing continuously due to the integration of advanced mobile technologies such as artificial intelligence, machine learning, blockchain and connected devices. According to literature data, there are more than 350,000 health applications in the market today (1). Mobile applications contribute to the efficiency of health care systems through the rationalization of administrative tasks and reduction in paperwork. As such, they have a significantly great potential to improve the engagement of patients, which results in improved health outcomes and development of more accessible health experience of patients. Although the progress is evident in the field of developing diverse and available mobile applications, researchers agree that it is necessary to examine the current state in terms of accepting those mobile health applications that are created to facilitate the accessibility to patients and the management of medical information (2). Despite

merena na razumevanje namere da se koristi ova vrsta aplikacija (3).

Trenutno, najprihvaćeniji model ispitivanja prihvatanja tehnologije je model UTAUT2 (Proširena objedinjena teorija prihvatanja i upotrebe tehnologije, engl. *Unified Theory of Acceptance and Use of Technology*), jer daje mogućnost da se predvidi namera prihvatanja tehnologije u kontekstu korisnika. Prema dostupnim podacima do 2020. godine, postoji mali broj studija u kojima je korišćen model UTAUT2 za predviđanje namere korisnika da prihvati aplikacija za mHealth, kao i pozitivnih potvrda o njegovoj podobnosti za zdravstveni sektor. U našem radu je korišćen model UTAUT2 koji je postepeno usvojen za potrebe istraživanja različitih pitanja, kao što su usvajanje pametnih mobilnih uređaja (mobilnih telefona, tableta, pametnih satova), učenje, prihvatanje softvera za upravljanje i zdravstvenu industriju. Ključne komponente UTAUT2 modela su: očekivani učinak (engl. *Performance Expectancy* - PE) – određuje uverenje korisnika da će upotreba rešenja biti efikasnija i produktivnija; očekivani napor (engl. *Effort Expectancy* – EE) - označava korisnikovu procenu napora za postizanje stručnosti za upotrebu odabranih rešenja; društveni uticaj (engl. *Social Influence* - SI) - pokazuje uverenje pojedinca da će njegova okolina podržati upotrebu rešenja (mobilne aplikacije); olakšavajući uslovi (engl. *Facilitating Conditions* - FC) - "stepen do kojeg pojedinac veruje da postoji organizacijska i tehnička infrastruktura koja podržava upotrebu sistema"; hedonistička motivacija (engl. *Hedonic Motivation* - HM) - očekivanje ili iskustvo pojedinca da korišćenje rešenja deluje prijatno ili zabavno; i dobra vrednost cene za uloženi novac tj. cenovna vrednost (engl. *Price Value* - PV) - procena pojedinca da će upotreba rešenja biti isplativa u odnosu na novčanu nadoknadu (4,5). U našem radu uvedena je i komponenta navika (engl. *Habit* - H) - korisnikova procena koliko će mu, uzimajući u obzir dosadašnje iskustvo, korišćenje rešenja postati svakodnevna rutina (4).

Kroz očekivani učinak (PE), korisnici mobilnih aplikacija za *mHealth* se izjašnjavaju o svojim očekivanjima. Ova varijabla sugeriše da će pojedinci koristiti usluge aplikacija ako veruju da će imati pozitivne rezultate (5). Očekivani učinak meri stepen do kojeg korisnik veruje da će mu prihvatanje i korišćenje usluga mobilnih aplikacija biti od koristi u svakodnevnoj i preventivnoj brizi o sopstvenom zdravlju. Na polju mobilnih aplikacija, do sada, najviše istraživanja je urađeno o prihvatanju tehnologije mobilnih aplikacija za bankarsko poslovanje (engl. *mbanking*) prema UTAUT2 modelu. Korisnici mbanking-a smatraju, da je očekivani učinak jedan od najvažnijih pokazatelja (indikatora) namere ponašanja (engl. *Behavioral Intention* - BI) (6,7). Istraživanja sprovedena u Kini imala su za cilj da ispitaju odnose između elemenata UTAUT2 modela i namere prihvatanja tehnologije za *mHealth*. Istraživači su u tu svrhu, radi preciznog merenja dimenzije svake varijable, redefinisali varijable na osnovu specifičnog konteksta *mHealth*-a (8). Očekivani učinak (PE) se odnosi na uverenje korisnika mobilne tehnologije za *mHealth*, da se efikasnost i kvalitet zdravstvenih usluga mogu poboljšati kada se koristi mobilna aplikacija, što se može sagledati kroz mogućnosti korisnika usluga da pristupi osnovnim zdravstvenim informacijama ili uslugama bilo kada i bilo gde, lako i brzo putem mobilnih uređaja (8).

Prema UTAUT2 modelu (5), očekivani trud (napor) (EE) koji je potrebno uložiti kako bi se nesmetno koristile mobilne aplikacije, utiče na korisnikovu nameru da te aplikacije i koristi. Očekivani trud (napor) (8) predstavlja stepen poteškoća koje korisnici mogu imati pri korišćenju aplikacije *mHealth*-a, što se može manifestovati u troškovima učenja i u naporu koji korisnici usluga moraju da ulože.

Uticaj okruženja (društveni uticaj) (SI) odnosi se na činjenicu, da na ponašanje korisnika utiče način na koji vršnjaci, prijatelji ili članovi porodice vrednuju upotrebu mobilnih aplikacija za *mHealth*. Posebno je važan u ranim fazama prihvatanja i primene nove tehnologije, kada većina korisnika nema iskustva ili informacije o tehnologiji, pa se zato oslanja na mišljenje javnosti (9). Uticaj okruženja (8) se odnosi na uticaj ponašanja i stava drugih ljudi ili okoline na nameru upotrebe tehnologije.

Četvrti element iz UTAUT2 modela su olakšavajući uslovi (FC). Pod olakšavajućim uslovima se posmatra subjektivna ocena potencijalnih i postojećih korisnika mobilnih aplikacija o postojanju neophodnih resursa, korisničkih kompetencija, uputstva za upotrebu mobilnih aplikacija za *mHealth*. Olakšavajući uslovi su definisani kao stepen u kome pojedinac veruje da organizaciona i tehnička infrastruktura može da podrži upotrebu sistema (5). Upotreba tehnologije mobilnih aplikacija zahteva

the fact that the increasing number of mobile health applications are becoming available, so that they can be downloaded and used on mobile devices, there is still little research focused on understanding the intention to use this type of applications (3).

Currently, the most accepted model for testing the acceptance of technology is the UTAUT2 model (Unified Theory of Acceptance and Use of Technology), because it provides the possibility to predict the intention to accept technology in the context of users. According to the available data up to the year 2020, there are few studies that used the UTAUT2 model to predict the intention of users to accept mHealth applications, and that confirmed the model's suitability for the health sector. In our study, we used the UTAUT2 model, which was gradually adopted in order to investigate different issues, such as self-service technology, acceptance of smart mobile devices (mobile phones, tablets, smart watches), learning, acceptance of software for management and healthcare industry. The key components of the UTAUT2 model are: Performance Expectancy (PE) – which determines the user's belief that the use of the solution will be more efficient and productive; Effort Expectancy (EE) – which indicates the user's assessment of efforts needed to achieve proficiency in using the selected solutions; Social Influence (SI) – shows an individual's belief that his environment will support the use of solutions (mobile applications); Facilitating Conditions (FC) – "the degree to which an individual believes that there is an organizational and technical infrastructure that supports the use of the system"; Hedonic Motivation (HM) – the expectation or experience of an individual that using a solution seems pleasant or fun; and good value for the invested money, that is, Price Value (PV) – the assessment of an individual that using the solution will be profitable in relation to the invested money (4,5). In our study, the component of Habits (H) was introduced – the user's estimate whether and to which degree, considering his previous experience, the use of this solution will become a daily routine (4).

The users of mHealth applications express their expectations through Performance Expectancy (PE). This variable suggests that individuals will use the services of applications if they believe that they will have positive results (5). Performance Expectancy (PE) measures the degree to which the user believes that the acceptance and use of services of mobile applications will be useful in his daily and preventive health care. In the field of mobile applications, so far, most research has been conducted on the acceptance of mobile applications for banking (mbanking) based on the UTAUT2 model. The users of mbanking think that Performance Expectancy is one of the most important indicators of Behavioral Intention (BI) (6,7). The aim of studies conducted in China was to examine the relations between the elements of the UTAUT2 model and intention to accept technology for mHealth. Therefore, researchers redefined the variables based on the specific context of mHealth in order to measure the dimension of each variable accurately (8). Performance Expectancy (PE) refers to the belief of users of mobile technology for mHealth that the efficiency and quality of health services can be improved when using a mobile application, which can be explained by the possibility that users of these services can access basic health information or services anytime, and anywhere, easily and quickly using mobile devices (8).

According to the UTAUT2 model (5), Effort Expectancy (EE) that has to be invested in order to use mobile applications easily, affects the user's intention to use these applications. Effort Expectancy (EE) (8) represents the degree of difficulties that users may have when using mHealth applications, which can be manifested in learning costs and in the effort that service users must make.

Social Influence (SI) refers to the fact that users' behavior is influenced by the way peers, friends or family members value the use of mobile applications for mHealth. It is especially important in the early stages of acceptance and implementation of new technologies, when most users have no experience or information about the technology, and therefore, it relies on public opinion (9). The social influence (8) refers to the influence of behavior and attitude of other people or the environment on the intention to use technology.

The fourth element from the UTAUT2 model is Facilitating Conditions (FC). Facilitating Conditions refer to the subjective evaluation of potential and existing users of mobile applications regarding the existence of necessary resources, user competences, instructions for using mobile applications for mHealth. Facilitating Conditions

dostupnost odgovarajućih resursa, znanja i tehnološke infrastrukture. Takođe, u smislu olakšavanja uslova, pogodnosti mogu predstavljati onlajn tutorijali ili demo (trial) verzije mobilnih aplikacija, i kao takvi, doprinose većoj verovatnoći prihvatanja mobilnih aplikacija za mHealth. Olakšavajući uslovi (8) se odnose na percepciju korisnika o pogodnosti i stepenu tehničke podrške, a posebno se odnose na mogućnost blagovremenog dobijanja pomoći i podrške.

Hedonistička motivacija (HM) je prvi element koji je dodat UTAUT2 metodi i definiše se kao zabava ili zadovoljstvo koje proizilazi iz upotrebe tehnologije (4). Ovaj element određuje očekivanje ili iskustvo pojedinca, i upućuje na uživanje ili sreću koja je rezultat korišćenja tehnologije.

Autori UTAUT2 modela smatraju da je cenovna vrednost tehnologije koja se koristi značajna kada se posmatra namera korišćenja, prihvatanje i upotreba tehnologije. Pretpostavlja se da korisnici percipiraju kvalitet tehnologije prema cenovnom rangu, i zbog toga se smatra da je cenovna vrednost bitan i značajan prediktor namere korišćenja (4). Element cenovna vrednost je pozitivna, ukoliko su prednosti korišćenja mobilnih aplikacija za *mHealth* veće od povezanih troškova. Uključuje spremnost da se plati za neke od karakteristika ili usluga, i zadovoljstvo primljenim informacijama ili uslugama. U suštini svi uređaji koji se danas koriste, povezani su sa tehnologijom (10). Neki ljudi koriste tehnologiju po potrebi, dok drugi postaju zavisni od nje i ne mogu svoj svakodnevni život da zamisle bez nje (11).

Poslednji pridodati faktor modelu je navika. Navika se razvija kroz iskustvo u korišćenju tehnologije i odnosi se na percepcije korisnika o upotrebi tehnologije koju koristi (4). Posmatra se kao nesvesno ili automatsko ponašanje (4), a odražava višestruke rezultate prethodnih iskustava i učestalost ponašanja u prošlosti. Smatra se jednom od glavnih odrednica sadašnjeg ponašanja (12). Navika može imati značajan uticaj na nameru korišćenja, jer kontinuirana upotreba tehnologije dovodi do toga da rutina postaje važnija od spoljnih faktora (13). Otežavajuća okolnost je što ne postoje radovi koji istražuju važnost navike na nameru korišćenja telemedicinskih usluga.

Prema istraživanjima koja su vršili *Zhu* i saradnici (8) neke od varijabli u UTAUT2 modelu ne uklapaju se u scenarije *mHealth*-a i nemaju uticaj na nameru prihvatanja mobilnih aplikacija *mHealth*-a. Zbog toga su istraživači izvršili prilagođavanje varijabli i njihovo redefinisanje, kako bi model učinili kompatibilnijim sa njihovim scenarijima. Isključili su varijable hedonistička motivacija i navika. Razlog su našli u tome, što su kroz sprovedene intervjue otkrili, da je većina scenarija bila fokusirana na kontekst medicinske nege, gde korisnici uzimaju u obzir faktore kao što su pristup, efikasnost i kvalitet medicinskih usluga. Utvrdili su, da hedonistički faktori nisu bili deo potreba korisnika u ovom kontekstu. Pored toga, medicinske potrebe su bile relativno niske u njihovom svakodnevnom životu, tako da *mHealth* nije mogao da utiče na formiranje navike. Oni su, takođe, dodali nove varijable: uočeni rizik i uočeno poverenje. Nova varijabla uočeni rizik je dodata, jer su utvrdili da kod korisnika postoji nesigurnost po pitanju ishoda njihovog ponašanja prilikom kupovine, jer im ta nesigurnost može naneti štetu (14). Medicinske usluge su vezane za život i zdravlje ljudi, pa je logično da je kontrola zdravstvenih rizika oduvek bila briga (8). *Zhu* i saradnici (8) su otkrili, da su ispitanici birali različite načine za pristup medicinskim i zdravstvenim uslugama, u zavisnosti od težine bolesti i kada bi se suočili sa težim uslovima, postali bi oprezniji u donošenju odluke da li da koriste *mHealth* aplikacije ili ne. Oni su uveli još jednu varijablu, uočeno poverenje. U trenutnom socio-ekonomskom okruženju, poverenje je postalo jedan od važnih faktora uticaja u procesu transakcije, koji utiče na nameru i ponašanje.

Cilj ovog istraživanja je bio da se identifikuju prediktori, prema proširenom modelu UTAUT2, koji imaju uticaj na nameru korišćenja aplikacija za mobilno zdravstvo (*mHealth*) u R. Srbiji.

Metode

U ovu studiju preseka uključeno je 63 ispitanika (prigodni uzorak), bivših studenta, nastavnika i saradnika Akademije strukovnih studija Zapadna Srbija, koji su putem imejla primili link za popunjavanje onlajn upitnika u periodu od maja do novembra 2024. godine. Na početku upitnika ispitnicima je dato obaveštenje, sa molbom da pažljivo popune upitnik za istraživanje na temu korišćenja mobilnih aplikacija u eZdravstvu, da je upitnik anoniman i da će se rezultati koristiti isključivo u naučne svrhe.

Podaci za ovo istraživanje su prikupljeni elektronskim putem. Svi ispitanici su popunjavali upitnik koji je se sastojao iz 3 grupe pitanja. Prva grupa pitanja se odnosila na socio-demografske karak-

are defined as the degree to which an individual believes that the organizational and technical infrastructure can support the use of the system (5). The use of technology of mobile applications requires the availability of appropriate resources, knowledge and technological infrastructure. Also, facilitating conditions can include online tutorials or demo (trial) versions of mobile applications, and as such contribute to higher probability of accepting mobile applications for mHealth. Facilitating conditions (8) refer to the users' perception of convenience and level of technical support, and in particular, they refer to the possibility of receiving help and support in a timely manner.

Hedonic Motivation (HM) is the first element added to the UTAUT2 method and it is defined as fun or pleasure derived from using technology (4). This element determines the individual's expectation or experience, and refers to the enjoyment or happiness which results from using technology.

The authors of the UTAUT2 model believe that the price value of the technology used is significant when considering the intention to use it, the acceptance and use of technology. It is assumed that users perceive the quality of technology according to the price range, and therefore, price value is considered to be an important predictor of intention to use (4). The element price value is positive if the advantages of using mobile applications for mHealth outweigh the associated costs. It includes the willingness to pay for some of the features or services, and satisfaction with received information or services. In essence, all devices that are used today are connected to technology (10). Some people use technology when needed, while others become dependent on it and cannot imagine their daily life without it (11).

The last factor added to the model is Habit (H). Habit develops through experience related to using technology and it refers to the users' perception of technology they use (4). It is seen as unconscious or automatic behavior (4), and it reflects the multiple results of previous experiences and frequency of behavior in the past. It is deemed to be one of the main determinants of current behavior (12). Habit can have a significant effect on the intention to use technology, because the continuous use of technology causes routine to become more important than external factors (13). One of the limitations is that there are no studies that investigate the importance of habit relating to the intention to use telemedicine services.

According to a study by Zhu and associates (8), some of the variables in the UTAUT2 model do not fit into the scenarios of mHealth and they do not influence the intention to accept mHealth applications. Therefore, researchers adjusted the variables and redefined them to make the model more compatible with their scenarios. They excluded the variables of hedonic motivations and habits. The found the reason in the fact that, through the conducted interviews, they discovered that most of these scenarios were focused on the context of medical care, where users consider factors such as access, efficiency and quality of medical services. They determined that hedonic factors were not part of the users' needs in this context. In addition, medical needs were relatively low in their daily lives, so mHealth could not influence the formation of habits. They also added new variables: perceived risk and perceived trust. A new variable, perceived risk, was added because they found that users feel uncertain about the outcome of their purchasing behavior, because this uncertainty can cause them harm (14). Medical services are related to the life and health of people, so it is logical that the control of health risks has always been a concern (8). Zhu et al. (8) found that respondents chose different ways to access medical and health services, depending on the severity of the disease and when they faced with more difficult conditions, they would become more cautious in deciding whether to use mHealth applications or not. They introduced one more variable, perceived trust. In the current socio-economic environment, trust has become one of the important influencing factors in the transaction process that influences intention and behavior.

The aim of this study was to identify predictors, according to the UTAUT2 model, which have an impact on the intention to use mobile health applications (mHealth) in the Republic of Serbia.

Methods

This cross-sectional study included 63 respondents (convenience sample), former students, teachers and associates of the Academy of Vocational Studies Western Serbia, who received a link via email to fill out an online questionnaire

teristike ispitanika (pol, starost, obrazovanje, zanimanje i visinu mesečnih prihoda). Sledeća grupa pitanja odnosila se na upravljanje e-zdravstvenim informacijama upotrebom mobilnih aplikacija za *mHealth* (svrha korišćenja mobilnog telefona, kako se snalaze sa korišćenju mobilnih aplikacija, da li smatraju da bi im bila potrebna pomoć za njihovo efikasno korišćenje, da li su upoznati sa mobilnim aplikacijama za *mZdravlje* koje pomažu korisnicima i da li koriste ili su koristili neku od mobilnih aplikacija *mZdravlje*). Treći deo upitnika sastojao se od 25 tvrdnji. Tvrdnje u upitniku su preuzete iz relevantne literature i prilagođene za potrebe ovog istraživanja. Grupisane su u 7 varijabli prema UTAUT2 modelu: očekivani učinak (engl. *Performance Expectancy* - PE); očekivani napor (engl. *Effort Expectancy* - EE); društveni uticaj (engl. *Social Influence* - SI); olakšavajući uslovi (engl. *Facilitating Conditions* - FC); hedonistička motivacija (engl. *Hedonic Motivation* - HM); dobra vrednost cene za uloženi novac tj. cenovna vrednost (engl. *Price Value* - PV); navika (engl. *Habit* - H) (5). Dodatno je uneta varijabla namera ponašanja (engl. *Behavior Intention* - BI), kao osma, zavisna varijabla. Ispitanici su svoj stepen slaganja iskazivali na petostepenoj Likertovoj skali (1 - u potpunosti se ne slažem, 5 - u potpunosti se slažem).

Analiza prikupljenih podataka izvršena je u programu za statističku obradu podataka SPSS v. 20 (engl. *The Statistical Package for the Social Sciences*). Od statističkih analiza sprovedene su deskriptivna statistička analiza, analiza pouzdanosti i korelaciona i regresiona analiza. Pouzdanost upitnika je ispitana metodom unutrašnje konzistencije, koja se odnosi na opseg u kome varijable mere istu stvar, i proverava se unutrašnja usaglašenost tvrdnji u mernom instrument (Krombahov koeficijent α). Da bi se dizajnirao pouzdan merni instrument teži se da rezultati na sličnim stavkama budu povezani, odnosno da budu usaglašeni, ali i da svaki od njih da pun doprinos jedinstvenim informacijama. Nijedan upitnik nije apsolutno validan niti apsolutno pouzdan, ali se uvek teži da Kronbahov koeficijent α bude što viši. Korelacionom analizom je meren stepen linearne veze između dve varijable (19). Što je koeficijent

Tabela 1. Prikaz demografskih podataka (N=63)

Varijable	Kategorija	Broj	%
Pol	Ženski	30	47,6
	Muški	33	52,4
Godine	18 - 25	10	15,9
	26 - 35	19	30,2
	36 - 45	15	23,8
	46 - 55	6	9,5
	56 - 65	7	11,1
	65 i više	6	9,5
Nivo obrazovanja	Osnovna škola	2	3,2
	Srednja stručna sprema	24	38,1
	Visoka stručna sprema	37	58,7
Zanimanje	Student	4	6,3
	Menadžer, preduzetnik	8	12,7
	Profesor, lekar, inženjer	15	23,8
	Radnik	13	20,6
	Penzioner	9	14,3
	Ostalo	14	22,2
Mesečni prihodi	Manje od 50.000 din.	3	4,8
	od 50.000 - 70.000 din.	8	12,7
	od 70.000 - 100.000 din.	3	4,8
	više od 100.000 din.	7	11,1
	ne želim da se izjasnim	42	66,7

in the period May – November 2024. At the beginning of the questionnaire, respondents were given a notice, asking them to carefully fill out the questionnaire for the research on using mobile applications in mHealth, that the questionnaire was anonymous and that results would be used exclusively for scientific purposes.

Data for this research were collected electronically. All respondents filled out the questionnaire which consisted of three groups of questions. The first group of questions related to the socio-demographic characteristics of respondents (gender, age, education, occupation and amount of monthly income). The next group of questions related to the management of e-health information using mHealth applications (the purpose of using a mobile phone, how they cope with using mobile applications, whether they think they would need help to use them effectively, whether they are familiar with mHealth mobile applications that help users and whether they use or have used any of mHealth applications). The third part of the questionnaire consisted of 25 statements. The statements in the questionnaire were taken from the relevant literature and adapted for the needs of this research. They were grouped into 7 variables according to the UTAUT2 model: Performance Expectancy (PE); Effort Expectancy (EE); Social Influence (SI); Facilitating Conditions (FC); Hedonic Motivation (HM), good value for the invested money, that is, Price Value (PV); Habit (H) (5). Additionally, the variable Behavioral Intention (BI) was added as the eighth dependent variable. Respondents expressed their degree of agreement on a five-point Likert scale (1 – completely disagree, 5 – completely agree).

The analysis of collected data was carried out in the program for statistical data processing SPSS v. 20 (The Statistical Package for Social Sciences). Statistical analyses that were conducted were descriptive statistical analysis, reliability analysis and correlation and regression analysis. The reliability of the questionnaire was tested using the internal consistency method, which refers to the range in which the variables measure the same thing, and the internal consistency of

Table 1. Display of demographic data (N=63)

Variables	Category	Number	%
Broj	Female	30	47.6
	Male	33	52.4
Years	18 - 25	10	15.9
	26 - 35	19	30.2
	36 - 45	15	23.8
	46 - 55	6	9.5
	56 - 65	7	11.1
	65 +	6	9.5
	Elementary school	2	3.2
Level of education	Secondary vocational education	24	38.1
	Higher vocational education	37	58.7
Occupation	A student	4	6.3
	Manager, entrepreneur	8	12.7
	Professor, doctor, engineer	15	23.8
	Worker	13	20.6
	Pensioner	9	14.3
	The rest	14	22.2
Monthly income	Less than 50.000 rsd.	3	4.8
	From 50.000 - 70.000 rsd	8	12.7
	From 70.000 - 100.000 rsd	3	4.8
	More than 100.000 rsd	7	11.1
	I don't want to make a statement	42	66.7

Tabela 2. Pouzdanost skale

Varijable	Cronbach's Alpha
Očekivani učinak	0,846
Očekivani trud	0,841
Uticaj okruženja, Društvni uticaj	0,869
Olakšavajući uslovi	0,839
Hedonistička motivacija	0,755
Cenovna vrednost	0,870
Navika	0,789
Namera ponašanja	0,869

korelacije po apsolutnoj vrednosti bliži jedinici, sve je jača korelaciona veza između pojava. S obzirom da je u radu vršeno posmatranje jednog obeležja elementa posmatranog skupa, i da je vršena samo analiza strukture i osobine skupa po tom obeležju, urađena je regresiona analiza, jer se u praksi često javlja potreba da se istovremeno prate dve ili više varijabli, i da se ispita da li između njih postoji međusobni uticaj.

Rezultati

U naše istraživanje uključena su 63 ispitanika od kojih su 52,4% (33) činili muškarci, a 47,6% (30) žene (Tabela 1). Najveći deo ispitanika čine osobe starosti 26-35 godina, njih 30,2%. Kada je obrazovna struktura u pitanju, najviše ispitanika i to 58,7% ima visoko obrazovanje. Prema zanimanju, najveći deo ispitanika su činili profesori, lekari i inženjeri (23,8%) i radnici (20,6%). O visini mesečnih primanja, najveći deo ispitanika nije želeo da se izjasni (66,7 %).

U delu koji se odnosi na upravljanje e-zdravstvenim informacijama trećina ispitanika, njih 33,3% je odgovorila da im nije potrebna nikakva pomoć u smislu efikasnog korišćenja informacija iz oblasti e-zdravstva. Značajan deo ispitanika, njih 17,5%, izjasnilo se da im je potrebna pomoć prilikom traženja potrebnih e-zdravstvenih informacija. Na pitanje da li su upoznati sa mobilnim aplikacijama koje pomažu korisnicima da efikasno upravljaju e-Zdravstvenim informacijama, trećina ispitanika, njih 34,9% je odgovorila da su upoznati, ali da ih ne koristie. Petina ispitanika (22,2%) je odgovorila da koriste aplikacije e-zdravstva manje (9,5%) ili više (12,7%) od pola godine. Skoro petina anketiranih (19%) se izjasnila da nisu bili upoznati sa ovom vrstom mobilnih aplikacija, ali bi voleli da saznaju i nauče više o njima. Ono što je afirmativno je to da je nešto više od petine ispitanika (20,6%), upoznato sa aplikacijama za za mHealth i da planira da ih koristi u budućnosti.

Analiza pouzdanosti mernog instrumenta sprovedena je izračunavanjem *Cronbach*-ovog koeficijenta alfa, koji meri unutrašnju konzistentnost skale. Vrednosti se kreću u intervalu od 0 do 1, pri čemu se vrednosti iznad 0,70 uobičaje-

Tabela 3. Korelaciona analiza komponenata UTAUT2 modela

	BI	PE	EE	SI	FC	HM	PV	HB
BI	1	0,495**	0,625**	0,416**	0,620**	0,185	0,324**	0,242
PE	0,518**	1	0,476**	0,340**	0,486**	0,359**	0,371**	0,417**
EE	0,686**	0,524**	1	0,435**	0,843**	0,290*	0,501**	0,142
SI	0,439**	0,344**	0,442**	1	0,290*	0,506**	0,497**	0,299*
FC	0,633**	0,516**	0,836**	0,288*	1	0,152	0,495**	0,009
HM	0,141	0,335**	0,187	0,476**	0,084	1	0,419**	0,323**
PV	0,324**	0,333**	0,387**	0,479**	0,400**	0,344**	1	0,301*
HB	0,198	0,354**	0,122	0,327**	0,012	0,287*	0,333**	1

*Statistically significant at the level of 0.05; **Statistically significant at the level of 0.01
PE - Performance Expectancy / Očekivani učinak; EE - Effort Expectancy / Očekivani trud; SI - Social Influence) / Uticaj okruženja, Društveni uticaj; FC - Facilitating Conditions / Olakšavajući uslovi; HM - Hedonic Motivation / Hedonistička motivacija; PV - Price Value / Cenovna vrednost; HB - Habit / Navika; BI - Behavior Intention / Namera ponašanja.

Table 2. Reliability of the scale

Variables	Cronbach's Alpha
Performance Expectancy (PE)	0.846
Effort Expectancy (EE)	0.841
Social Influence (SI)	0.869
Facilitating Conditions (FC)	0.839
Hedonic Motivation (HM)	0.755
Price Value (PV)	0.870
Habit (H)	0.789
Behavior Intention (BI)	0.869

claims in the measuring instrument is checked (Cronbach's coefficient α). In order to design a reliable measuring instrument, the results for similar items should be connected, that is, they should be harmonized, but each of them should fully contribute to unique information. There are no questionnaires that are absolutely valid or absolutely reliable, but the Cronbach's coefficient α should always be as high as possible. Correlation analysis was used to measure the degree of linear relationship between two variables. The closer the correlation coefficient is, according to the absolute value, to one, the stronger the correlation between phenomena is. Considering that we observed in this study one feature of the element of the observed set, and analyzed the structure and features of that set, regression analysis was conducted because in practice there is often a need to monitor two or more variables at the same time and to examine whether there is a mutual influence between them.

Results

Our study included 63 respondents, of whom 52.4% (33) were men, and 47.6% (30) were women (Table 1). The majority of respondents were people aged 26-35 years, that is, 30.2% of respondents. When it comes to the educational structure, most respondents, 58.7% had higher education. When it comes to the respondents' occupation, the majority of them were professors, doctors and engineers (23.8%) and workers (20.6%). As far as their monthly income is concerned, the majority of them did not want to specify (66.7%).

In the part related to the management of e-health information, a large number of respondents, 33.3% of them answered that they did not need any help in terms of the efficient use of information in the field of e-health. A significant number of respondents, 17.5% of them, stated that they needed help when searching for the necessary e-health information. When asked if they were familiar with mobile applications that help users manage e-health information efficiently, a large number of respondents, that is, 34.9% of

Table 3. Correlation analysis components of UTAUT2 model

	BI	PE	EE	SI	FC	HM	PV	H
BI	1	0.495**	0.625**	0.416**	0.620**	0.185	0.324**	0.242
PE	0.518**	1	0.476**	0.340**	0.486**	0.359**	0.371**	0.417**
EE	0.686**	0.524**	1	0.435**	0.843**	0.290*	0.501**	0.142
SI	0.439**	0.344**	0.442**	1	0.290*	0.506**	0.497**	0.299*
FC	0.633**	0.516**	0.836**	0.288*	1	0.152	0.495**	0.009
HM	0.141	0.335**	0.187	0.476**	0.084	1	0.419**	0.323**
PV	0.324**	0.333**	0.387**	0.479**	0.400**	0.344**	1	0.301*
HB	0.198	0.354**	0.122	0.327**	0.012	0.287*	0.333**	1

*Statistically significant at the level of 0.05; **Statistically significant at the level of 0.01
PE - Performance Expectancy; EE - Effort Expectancy; SI - Social Influence; FC - Facilitating Conditionsi; HM - Hedonic Motivation; PV - Price Value; HB - Habit; BI - Behavior Intention.

Tabela 4. Prosta regresiona analiza (Zavisna varijabla - Ponašanje, Namera)

Nezavisna varijabla	R^2	β	t	p
Očekivani učinak	0,518	0,621**	4,733	<0,01
Očekivani trud	0,676	0,686**	7,361	<0,01
Uticaj okruženja, Društvni uticaj	0,439	0,636**	3,820	<0,01
Olakšavajući uslovi	0,633	0,624**	6,381	<0,01
Hedonistička motivacija	0,141	0,197	1,114	n.s.
Cenovna vrednost	0,324	0,377**	2,765	<0,01
Navika	0,198	0,229	1,577	n.s.

β – standardizovani regresioni koeficijent; R^2 – koeficijent determinacije u univarijantnoj regresiji; n.s. – nije statistički značajno;**Statistička značajno na nivou od 1%

no smatraju zadovoljavajućim pokazateljem pouzdanosti. Dobijene vrednosti *Cronbach*-ovog koeficijenta alfa za šest latentnih konstrukata (očekivani učinak, očekivani trud, društveni uticaj, olakšavajući uslovi, cenovna vrednost i namera ponašanja) kreću se u intervalu od 0,839 do 0,870, što ukazuje na visoku unutrašnju konzistentnost (Tabela 2). Konstrukti cenovna vrednost (α = 0,755) i navika (α = 0,789) takođe imaju zadovoljavajuće vrednosti, koje ukazuju na dobru pouzdanost skala.

Prema rezultatima korelacione analize, može se zaključiti da postoji značajna pozitivna veza na nivou 0,01 (verovatnoća 99%) između zavisne varijable namera ponašanja (BI) i sledećih pojedinačnih varijabli: očekivani učinak, očekivani napor, društveni uticaj, olakšavajući uslovi i vrednost cene (Tabela 3). Pozitivna korelacija ukazuje da sa povećanjem vrednosti jedne varijable, raste i vrednost druge varijable, kao i obrnuto.

Rezultati univarijantne regresione analize pokazuju da pet nezavisnih varijabli UTAUT2 modela — očekivani učinak, očekivani trud, društveni uticaj, olakšavajući uslovi i vrednost cene — imaju statistički značajan pozitivan uticaj na nameru korisnika da koriste *mHealth* aplikacije (Tabela 4). Koeficijent determinacije (R^2) korišćen je kao deskriptivna mera kojom se procenjuje koliko dobro nezavisna varijabla objašnjava varijansu zavisne varijable (namera korišćenja). Uočen nivo objašnjenog varijabiliteta kretao se od 32,4% za varijablu *vrednost cene*, do 67,6% za *očekivani trud*. S druge strane, varijable *hedonistička motivacija* i *navika* nisu imale statistički značajan uticaj na nameru korišćenja *mHealth* aplikacija.

Diskusija

Prema rezultatima univarijantne regresione analize, pet od 7 elemenata (PE, EE, SI, PV i FC) UTAUT2 modela predstavljaju značajne prediktore za BI ispitanika da prihvate i koriste usluge mobilnih aplikacija za *mHealth*. Najslabiji uticaj na BI korišćenja usluga mobilnih aplikacija za mHealth ima PV, jer kada je zdravlje pojednica u pitanju cena korišćenja komercijalnih mobilnih aplikacija za mHealth, neće predstavljati faktor sa presudnim uticajem.

Prema našoj studiji, elementi HB i HM nisu značajni prediktori korišćenja mobilnih aplikacija za *mHealth*, što može koincidirati sa društveno-ekonomskim i socijalno-kulturnim okruženjem, kulturom i navikama koje nisu na zadovoljavajućem nivou kada je u pitanju briga ljudi o sopstvenom zdravlju. Pozitivne implikacije se odnose i na nameru većine ispitanika, da se edukuju kako bi dobili više znanja o korišćenju *mHealth* mobilnih aplikacija. Iako su među ispitanicima većinom bili ljudi sa visokom stručnom spremom, većina njih je upoznata sa postojanjem mobilnih aplikacija za mHealth, ali ih ne koristi. *Zhu* i saradnici su došli do sličnog zaključka po pitanju HM i HB (8). Međutim, *Schomakers* i saradnici (15) u svom istraživanju o prihvatanju aplikacije za stil života i terapije, dolaze do podataka da na prihvatanje aplikacije za *mHealth*, utiču emocionalni faktori kao što je HM i delimično HB. *Schretzlmaier*, *Hecker* i *Ammenwerth* (16) su u svojoj studiji uspeli da potvrde relevantnost svih egzogenih komponenti UTAUT2 modela u predviđanju prihvatanja *mHealth*-a, koristeći dijabetes kao primer. Oni su utvrdili da HM ima značaj u samoupravljanju *mHealth*-om kod dijabetesa, što je u skladu sa nekoliko prethodnih istraživanja (17-20). Uživanje u korišćenju tehnologije, ili osećaj da tehnologija pruža zadovoljstvo (npr. vizualizacija napretka ili personalizovane preporuke) može doprineti boljem korišćenju *mHealth* aplikacija povezanih sa dijabetesom.

Table 4. Simple regression analysis (Dependent variable Behavior Intention)

Independent variable	R^2	β	t	p
Performance Expectancy	0.518	0.621**	4.733	<0.01
Effort Expectancy	0.676	0.686**	7.361	<0.01
Social Influence	0.439	0.636**	3.820	<0.01
Facilitating Conditions	0.633	0.624**	6.381	<0.01
Hedonic Motivation	0.141	0.197	1.114	n.s.
Price Value	0.324	0.377**	2.765	<0.01
Habit	0.198	0.229	1.577	n.s.

β - standardized regression coefficient; R^2 - coefficient of determination in univariate regression; ns – non statisticly significant; **Statistically significant at the level of 1%

them answered that they were familiar with them, but did not use them. One fifth of respondents (22.2%) answered that they used e-health applications less (9.5%) or more (12.7%) than half a year. Almost one fifth of respondents (19%) stated that they were not familiar with this type of mobile applications, but they would like to know and learn more about them. What is positive is the fact that slightly more than a fifth of respondents (20.6%) were familiar with mHealth applications and planned to use them in the future.

The reliability analysis of the measuring instrument was carried out by calculating Cronbach's coefficient alpha, which measures the internal consistency of the scale. Values range from 0 to 1, with values above 0.70 usually considered a satisfactory indicator of reliability (19). The obtained values of Cronbach's alpha for six latent constructs (expected performance, expected effort, social influence, facilitating conditions, price value and behavioral intention) range from 0.839 to 0.870, which indicates high internal consistency (Table 2). The constructs price value ($\alpha = 0.755$) and habit ($\alpha = 0.789$) also have satisfactory values, which indicate good reliability of the scales.

According to the results of correlation anaysis, it can be concluded that there is a significant positive relationship at the 0.01 level (99% probability) between the dependent variable of behavioral intention (BI) and the following individual variables: performance expectancy, effort expectancy, social influence, facilitating conditions and price value (Table 3). A positive correlation indicates that when the value of one variable increases, so does the value of other variable, and vice versa.

The results of the univariate regression analysis show that the five independent variables of the UTAUT2 model - performance expectancy, effort expectancy, social influence, facilitating conditions and price value - have a statistically significant positive impact on users' intention to use mHealth applications (Table 4). The coefficient of determination (R^2) was used as a descriptive measure that assesses how well the independent variable explains the variance of the dependent variable (intention to use). The observed level of explained variability ranged from 32.4% for the price value variable to 67.6% for effort expectancy. On the other hand, the variables hedonic motivation and habit did not have a statistically significant influence on the intention to use mHealth applications.

Discussion

Five of the seven elements (PE, EE, SI, PV and FC) of the UTAUT2 model are significant predictors of respondents' BI to accept and use the services of mHealth applications. PV has the weakest influence on BI to use mHealth services, because when it comes to health, the price of using commercial mHealth applications will not be the factor with a decisive influence.

According to our study, HB and HM are not significant predictors of using mHealth applications, which may coincide with the socio-economic and socio-cultural environment, culture and habits that are not at a satisfactory level when it comes to people's care about their own health. The positive implications also refer to the intention of the majority of respondents to educate themselves in order to gain more knowledge about the use of mHealth applications. Although most of the respondents had a university degree, most of them were familiar with the existence of mHealth applications, but they did not use them. Zhu and

Neki istraživači su dokazali, da su četiri egzogena UTAUT2 konstrukta: FC, PE, EE i SI, relevantni za prihvatanje *mHealth*-a kod osoba sa dijabetesom (16), što je uočeno i u drugim studijama za *mHealth* (21-24). Dostupnost pametnih telefona ili interneta, kao i podrške u korišćenju *mHealth* aplikacija, doprineće da osobe sa dijabetesom lakše usvoje *mHealth* rešenja. Pokušaji prijatelja, zdravstvenih radnika i članova porodice da podstaknu upotrebu *mHealth* aplikacija može značajno uticati na ponašanje osoba sa dijabetesom. Ako osobe sa dijabetesom smatraju da je korišćenje tehnologije preporučeno ili uobičajeno, kao i da ne zahteva puno tehničkog znanja, to može povećati njihovu nameru da koriste te aplikacije. Posebno je istaknuto, da su HM i HB od suštinskog značaja za prihvatanje i dugoročnu upotrebu aplikacija za samoupravljanje mHealth kod dijabetesa (25).

Na osnovu naših rezultata, značajan i najsnažniji uticaj na nameru korišćenja mobilnih aplikacija za *mHealth*-a, ima varijabla EE (β=0,686), što pokazuje da korisnici smatraju da sa lakoćom mogu da shvate na koji način će aplikacija da funkcioniše. Dobijeni rezultat je u skladu sa nalazima više istraživanja (8,15,21-23,26,27). Značajan i sa jakim uticajem, u našoj studiji, na nameru korišćenja mobilnih aplikacija za *mHealth* ima varijabla SI (β=0,636), što ukazuje na pozitivan uticaj društvenih grupa iz bližeg okruženja na potencijalnog korisnika, što je u skladu sa rezultatima drugih istraživača (8,15,16,21-23,27-30). Takođe, varijabla FC (β=0,624) je značajna za prihvatanje mobilnih aplikacija za *mHealth*. Korisnici su svesni da upotreba aplikacije *mHealth*-a zavisi od internet mreže i podrške koju može da pruži mobilni uređaj, ali i od blagovremene pomoći i podrške samog dizajna korisničkog interfejsa (26,28-30). Prema rezultatima našeg istraživanja varijabla PE (β=0,621) je značajna za prihvatanje aplikacije za *mHealth*, što ukazuje da aplikacija može pomoći korisnicima da poboljšaju i unaprede medicinske usluge u smislu efikasnosti i efektivnosti. Efikasnost podrazumeva da upotreba mobilne aplikacije *mHealth* pruža najbolje moguće rezultate uz minimalna ulaganja ljudskih resursa, vremena, novca i energije. Efektivnost je usmerena na postizanje ishoda koji su u skladu sa postavljenim ciljevima. Ona podrazumeva da se upotrebom mobilnih aplikacija *mHealth*-a mogu ostvariti očekivanja korisnika. Slično je uočeno u radovima drugih autora (8,16,21-24,26-30). Varijabla PV (β=0,377), u našoj studiji, ima značajan uticaj na korišćenje *mHealth* mobilne aplikacije od strane korisnika, ali u odnosu na ostale statistički relevantne varijable, ima najslabiji uticaj na nameru korisnika da koriste ove mobilne aplikacije. To se može objasniti činjenicom da je određena grupa korisnika spremna da plati veću cenu kako bi dobila adekvatnu medicinsku uslugu. Neki autori su povtrdili da ova varijabla ima značajnu relevantnost sa namerom prihvatanja mobilne aplikacije za *mHealth* od strane korisnika (31-33). Kulturno okruženje je važan faktor ponašanja potrošača.

Kao mnoga istraživanja i ovo istraživanje ima ograničenja. Najznačajnije ograničenje se odnosi na veličinu uzorka i reprezentativnost uzorka. Buduća istraživanje trebalo bi da se sprovedu na većem i reprezentativnom uzorku, pri čemu bi i ovaj kreirani merni instrument mogao poslužiti za buduća istraživanja iz navedene oblasti. Ograničenje predstavlja i činjenica da u Republici Srbiji ne postoje radovi koji se bave analizom namere pojedinca da koriste mobilne aplikacije za *mHealth*. S obzirom da je ovo prvo istraživanje namere upotrebe mobilnih aplikacija za *mHealth* u Srbiji, autori su se odlučili da, za početak, u radu koriste predloženi konceptualni model koji razmatra isključivo varijable UTAUT2 modela koje su razvili (4), bez obzira na jako tehnološki orijentisane varijable UTAUT2 modela. Brojne studije drugih autora ukazuju da i druge varijable koje nisu prisutne u ovom modelu, mogu implicirati usvajanje mobilnih aplikacija za *mHealth*. U narednim istraživanjima bi se uključile i nove varijable, kako bi se razmotrio njihov uticaj na nameru korišćenja razmatranih mobilnih aplikacija.

Zaključak

Neophodna su dalja istraživanja u ovoj oblasti, posebno istraživanja koja se odnose na testiranje i korišćenje konkretne mobilne aplikacije za *mHealth* prema elementima UTAUT2 modela.

Konflikt interesa

Autori su izjavili da nema konflikta interesa.

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associates reached a similar conclusion regarding HM and HB (8). However, Schomakers and associates (15) in their research on the acceptance of lifestyle and therapy applications, found out that the acceptance of mHealth applications is influenced by emotional factors such as HM and partially HB. Schretzlmaier, Hecker and Ammenwerth (16) in their study managed to confirm the relevance of all exogenous components of the UTAUT2 model in predicting mHealth acceptance, using diabetes as an example. They found that HM has significance in the self-management of diabetes using mHealth, which is consistent with several previous studies (17-20). Enjoyment of using technology, as well as the feeling that technology provides satisfaction (e.g. visualization of progress or personalized recommendations) may contribute to better use of mHealth applications associated with diabetes.

Some researchers have proven that the four exogenous UTAUT constructs: FC, PE, EE and SI are relevant for the acceptance of mHealth in people with diabetes (16), which was also observed in other studies about mHealth (21-24). The availability of smartphones or the Internet, as well as the support in using mHealth applications, will contribute to the easier adoption of mHealth solutions by people with diabetes. Attempts of friends, healthcare professionals and family members to encourage the use of mHealth can significantly influence the behavior of people with diabetes. If people with diabetes think that use of technology is recommended or common, and that it does not require much technical knowledge, this may increase their intention to use those applications. In particular, it has been pointed out that HM and HB are essential for the acceptance and long-term use of mHealth applications for the self-management of diabetes (25).

Based on our results, the variable EE (ß=0.686) has the significant and strongest influence on the intention to use mHealth applications, which shows that users think that they can easily understand how the application will work. The obtained result is in accordance with the findings of several studies (8,15,21-23,26,27). In our study, the variable SI (ß=0.636) has a significant and strong influence on the intention to use mobile applications for mHealth, which indicates a positive influence of social groups from the immediate environment on the potential user, which is consistent with the results of other researchers (8,15,16,21-23,27-30). Also, the variable FC (ß=0.624) is significant for the acceptance of mobile applications for mHealth. Users are aware that the use of mHealth applications depends on the Internet network and support that can be provided by the mobile device, but also on the timely help and support of the user interface design itself (26, 28-30). According to the results of our study, the PE variable (ß=0.621) is significant for the acceptance of the application for mHealth, which indicates that the application can help users improve medical services in terms of efficiency and effectiveness. The efficiency means that the use of mHealth application provides the best possible results with minimal investment of human resources, time, money, and energy. Effectiveness is aimed at achieving outcomes that are consistent with the set goals. It implies that user expectations can be realized by using mHealth applications. Similar results were observed in the studies conducted by other authors (8,16,21-24,26-30). The PV variable (ß=0.377) in our study has a significant influence on the use of mHealth mobile application by users, but in comparison to other statistically relevant variables, it has the weakest impact on users' intention to use these mobile applications. This can be explained by the fact that a certain group of users is ready to pay a higher price in order to receive an adequate medical service. Some authors have confirmed that this variable has a significant relevance with the intention to accept a mobile mHealth application by users (31-33). Cultural environment is an important factor in consumer behavior.

Like many studies, this study has limitations. The most significant limitation relates to sample size and sample representativeness. Future research should be conducted on a larger representative sample, while the created measuring instrument could be used for future research in the above-mentioned field. One of the limitations refers to the fact that in the Republic of Serbia, there are no studies dealing with the analysis of the intention of an individual to use mobile applications for mHealth. Given that this is the first research on the intention to use mobile applications for mHealth in Serbia, the authors decided to use the proposed conceptual model that analyzes only the variables of the UTAUT2 model developed by them (4), regardless of the highly technologically oriented variables of the UTAUT2 model. Numerous studies of other authors indicate that other variables

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that are not present in this model may imply the adoption of mobile applications for mHealth. New variables could be included in the future research, in order to consider their influence on the intention to use the analyzed mobile applications.

Conclusion

Further research in this field is needed, especially research related to the testing and use of specific mobile application for mHealth according to the elements of the UTAUT2 model.

Competing interests

The authors declared no competing interests.

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