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The impact of digital marketing on customer satisfaction in dental tourism in Serbia

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Abstract

Purpose – The study aims to examine the impact of digital marketing on customer satisfaction and loyalty in dental tourism, focusing on Serbia. Key digital marketing elements analyzed include website quality, social media presence, online reviews, price transparency, and the promotion of additional services, alongside customer satisfaction factors such as trust, engagement, risk perception, and value perception. **Methodology** – The research was conducted through an online survey with 220 respondents who used dental services in Belgrade and its surroundings. The collected data were analyzed using correlation and regression analysis to determine the relationship between digital marketing factors and user satisfaction and loyalty. **Findings** – The results indicate that online reviews and website quality have the most significant positive impact on customer trust and satisfaction, while social media presence and the promotion of additional services have a moderate influence. Price transparency emerged as a crucial factor shaping customer perceptions of dental services. **Implications** – The findings highlight the importance of digital marketing in dental tourism and can help dental clinics develop more effective marketing strategies. Future research could explore the long-term effects of digital marketing and conduct comparative analyses of different dental tourism markets.

Keywords: digital marketing, dental tourism, customer satisfaction, loyalty, online reviews

JEL classification: M31, L83, I11

Uticaj digitalnog marketinga na zadovoljstvo korisnika i održivost dentalnog turizma u Srbiji

Sažetak

Svrha – Ova studija ima za cilj da ispita uticaj digitalnog marketinga na zadovoljstvo i lojalnost korisnika u dentalnom turizmu, sa fokusom na Srbiju. Analizirani su ključni elementi digitalnog marketinga, uključujući kvalitet veb-sajta, prisustvo na društvenim mrežama, onlajn recenzije, transparentnost cena i promociju dodatnih usluga, kao i faktori zadovoljstva korisnika poput poverenja, angažovanosti, percepcije rizika i vrednosti.

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Metodologija – Istraživanje je sprovedeno putem onlajn ankete na uzorku od 220 ispitanika koji su koristili stomatološke usluge u Beogradu i okolini. Prikupljeni podaci analizirani su putem korelacione i regresione analize radi utvrđivanja odnosa između faktora digitalnog marketinga i zadovoljstva i lojalnosti korisnika. **Rezultati** – Rezultati pokazuju da onlajn recenzije i kvaliteta veb-sajta imaju najznačajniji pozitivan uticaj na poverenje i zadovoljstvo korisnika, dok prisustvo na društvenim mrežama i promocija dodatnih usluga imaju umeren uticaj. Transparentnost cena se izdvojila kao ključni faktor u oblikovanju percepcije korisnika o stomatološkim uslugama. **Implikacije** – Nalazi ističu značaj digitalnog marketinga u dentalnom turizmu i mogu pomoći stomatološkim ordinacijama u razvoju efikasnijih marketinških strategija. Buduća istraživanja mogu ispitati dugoročne efekte digitalnog marketinga i sprovesti komparativne analize različitih tržišta dentalnog turizma.

Ključne reči: digitalni marketing, dentalni turizam, zadovoljstvo korisnika, lojalnost, online recenzije

JEL klasifikacija: M31, L83, I11

1. Introduction

In the modern era, dental tourism is emerging as a significant segment of medical tourism, combining high-quality dental services with a tourism experience. Countries such as Hungary, Turkey, and Poland are leaders in this field due to their combination of low costs, high-quality healthcare, and well-developed tourism infrastructure. Serbia is a popular destination for dental tourism as it offers high-quality dental services at significantly lower prices compared to other European countries (Jezdović et al., 2021). One of the main challenges is Serbia's insufficient visibility in the international market and its relatively disadvantaged position in comparison to its competitors (Chandu, 2015).

Advanced digital solutions enhance tourism products and services, improve the customer experience, increase productivity, and strengthen the sector's resilience (Lazić et al., 2023). Digital marketing plays a key role in promoting dental tourism, as it enables direct access to target patient groups worldwide via the internet. By utilizing digital tools such as social media, SEO optimization, Google Ads, and email campaigns, dental clinics and organizations in Serbia can effectively promote their services on a global level, raise awareness of service quality, and attract foreign patients (Chandu, 2015; Ilić et al., 2024).

The authors aim to answer how effectively digital marketing can contribute to promoting dental tourism in Serbia and which digital strategies are most successful in attracting foreign patients. Consequently, the focus is also placed on sustainable business practices, which are now essential for any activity (Ilić, 2020).

Sustainable development, as a concept, encompasses three components: economic, social, and environmental. The tourism industry, including all forms of tourism, is closely linked to all three. Economic sustainability implies balancing economies of scale with environmental needs to preserve a healthy ecosystem. In this context, humans and society serve as the link between economic gain and environmental protection (Ilić et al., 2022). Given the nature of dental tourism as a branch of medical tourism, it is evident that all three sustainability components play a crucial and highly significant role.

The paper will begin by outlining the main research objectives and explaining the relevance of the topic. It will then present the research problems, highlight the purpose of the study, and define the hypotheses to be tested. The aim is to analyze the impact of digital marketing on patient satisfaction in dental tourism in Serbia. The next section will focus on defining dental tourism, its global application, key factors influencing patient decisions, and the role

of digital marketing in promoting this sector. Additionally, relevant literature and the theoretical framework supporting the research will be reviewed.

Following that, the methodological approach of the study will be explained in detail, including the sample of respondents, data collection methods, and statistical techniques applied for data analysis. Subsequently, the research results will be presented, with data analysis, correlations, regression, and hypothesis testing. This section will also include a discussion of the obtained results, their interpretation, and comparisons with previous research. Finally, the conclusion will summarize the main findings of the study, discuss the limitations of the research, and offer recommendations for future studies, highlighting the practical implications for dental clinics in Serbia regarding the application of digital marketing in attracting international patients.

2. Background

2.1. Definition and global development of dental tourism

Dental tourism is a specialized branch of medical tourism that involves patients traveling abroad for dental treatments. The primary reasons for choosing dental tourism include significantly lower treatment costs, shorter waiting times, and the opportunity to combine dental procedures with tourist activities (Jaapar et al., 2017). Lower labor costs and a relatively lower cost of living in host countries enable highly competitive dental treatment prices, while still maintaining high-quality services, thus attracting many patients from developed countries (Ancy et al., 2020).

Globalization and freedom of movement have made it easier for patients to travel to countries where dental care is more affordable without compromising service quality. Initially, patients from the U.S. and Canada primarily traveled to Mexico and Costa Rica, while European patients visited Hungary, Poland, and the Czech Republic. With technological advancements, dental tourism has expanded significantly in the 21st century. Digital tools, including social media, forums, and specialized websites, allow patients to quickly find information about foreign dental clinics, read reviews, and compare prices and services. This has increased patient trust and facilitated decision-making regarding traveling abroad for dental treatments (Zoltan & Maggi, 2010).

2.2. Key factors influencing patient decisions and satisfaction

Communication in the patient's language, transparency in treatment details, pricing, and expected results, as well as the availability of pre- and post-treatment consultations are key factors in enhancing patient satisfaction (Kesar & Mikulić, 2017).

Dental tourism is not only a way for patients to reduce dental care costs but has also become an industry that contributes to the economic development of many countries and improves their tourism and healthcare infrastructure. With further advancements in technology, digital marketing, and specialized services, dental tourism is expected to continue growing and becoming even more competitive on a global scale (Zoltan & Maggi, 2010).

2.3. The role and potential of dental tourism in Serbia

In Serbia, dental tourism has significant potential due to the high quality of dental services, competitive pricing, and rich cultural and historical heritage, which attract patients from both the Western Balkans and the countries of Western Europe, Australia, and North America.

The combination of top experts, modern clinics, and tourist attractions makes Serbia a potentially important player in global dental tourism (Milićević, 2013).

Serbia has a well-developed legal framework ensuring patient rights protection, which is particularly important for international patients seeking dental care, as it provides security and trust in the healthcare system. In case of complications or dissatisfaction with results, patients can request additional procedures or refunds, further strengthening their trust in the services provided (Mujović Zornić et al., 2016).

2.4. Digital marketing in the promotion of dental tourism

The success of dental tourism depends on the ability of dental clinics to position themselves in the international market as reliable and affordable destinations. Digital marketing enables them to build a recognizable brand, engage with patients, and promote their services (Mathur et al., 2019). It allows for faster, more direct, and more interactive communication with potential patients (Chaffey & Ellis-Chadwick, 2019). As the internet has become the primary source of information for patients, healthcare institutions have started integrating more advanced digital strategies (Wisetsri et al., 2021).

By utilizing search tracking tools, clinics can target patients who have previously searched for dental services or information on dental procedures (Arni & Laddha, 2017). Dental tourism involves patients from different countries seeking high-quality dental treatments at lower prices than in their home countries, with the internet serving as their main source of information (Nazeli et al., 2023). Clinic websites often feature blogs with educational content about dental treatments, which help establish the clinic's authority (De Lira & Magalhães, 2018). Positive patient reviews on specialized platforms enhance SEO ranking and build trust (Morić et al., 2024).

Facebook ads allow for precise targeting of patients who have already shown interest in dental treatments or previously searched for related topics (Demonja & Uglješić, 2020). In addition to Google Ads, many clinics utilize other paid platforms such as Instagram Ads, and Bing Ads. These tools provide extensive reach and quick interaction with potential patients, increasing the likelihood of booking consultations and scheduling treatments (Nazeli et al., 2023).

Online consultations via email or video calls enable patients to obtain all necessary information before deciding to travel, making decision-making easier (Arni & Laddha, 2017). Social media requires regular posting and active engagement with followers. Posts featuring treatment results, patient testimonials, and special offers enhance clinic visibility and build trust (Parkin, 2016). Dental tourism clinics can also develop strategic partnerships with local travel agencies to offer comprehensive packages, including dental treatments, accommodation, transportation, sightseeing, and other services, further increasing their attractiveness as a destination (Kamath et al., 2015).

3. Materials and methods

The research presented in this paper included a sample of 220 foreign tourists who used dental tourism services in Serbia between May and September 2024. The respondents primarily visited dental clinics in Belgrade and the surrounding area for dental procedures, allowing for an analysis of the impact of digital marketing on their satisfaction and perception of service quality.

This study tests the following hypotheses:

- H₁: There is a statistically significant relationship between digital marketing variables and customer satisfaction variables in dental tourism services.
- H₂: There are significant differences in dental service customer satisfaction variables depending on the customer's country of origin.

The first hypothesis investigates the existence of a significant relationship between digital marketing factors (such as website quality, social media engagement, customer reviews, price transparency, and promotion of additional services) and customer satisfaction in dental tourism services. This hypothesis assumes that more effective use of digital marketing can significantly enhance customer satisfaction. The second hypothesis examines whether there are statistically significant differences in customer satisfaction with dental services based on the customer's country of origin. This hypothesis suggests that customers from different countries may have varying perceptions and levels of satisfaction due to cultural and geographical factors, which could influence their decision to use these services.

The application of digital marketing in promoting dental tourism services was analyzed through the following variables: website, social media, customer reviews, price transparency, and the promotion of additional services. Through these variables, customers evaluated the quality of dental clinic websites based on their design, functionality, loading speed, SEO optimization, and intuitive customer interface. They also assessed social media and its role in dental tourism through customer activity and engagement on platforms such as Facebook, Instagram, TikTok, and LinkedIn, including interactions, comments, and content sharing. Respondents evaluated the significance of customer reviews based on ratings and patient comments on well-known platforms like Google, and their influence on trust and the decision to use dental services. The variable of price transparency highlighted the importance of publicly available pricing information, clearly presented price lists, and additional cost policies. The promotion of additional services assessed foreign tourists' perceptions regarding support for extra services, including accommodation offers, collaborations with hotels and apartments, and promotional packages that combine dental services with lodging.

Customer satisfaction with dental services was examined through five variables. Customer trust reflects the level of confidence and assurance in the quality of dental services, the expertise of staff, and adherence to industry standards. Customer engagement assessed patient interaction with clinics through social media, reviews, recommendations, and participation in promotional activities. Perceived risk measured the level of concern regarding service quality, treatment safety, and potential complications, while perceived value reflected customers' assessment of the balance between price and service quality. Service flexibility evaluated the ability to adjust appointment schedules, the availability of emergency interventions, installment payment options, and personalized offers for foreign patients.

The subject of this research is the analysis of the impact of digital marketing on the satisfaction of dental tourism service customers. The research problem lies in identifying key marketing factors that influence trust, engagement, and perceived value of dental services, as well as examining differences in customer satisfaction depending on their country of origin. The aim of the study is to determine the extent to which digital marketing contributes to building customer trust and engagement, and whether there are significant differences between customers from Europe and the United States.

The collected data will be processed using the SPSS IBM Statistics 26 software package. The data analysis will include descriptive statistics, correlation analysis, regression analysis, and an independent samples t-test.

4. Results and discussion

The study included a total of 220 participants who were customers of dental tourism services. Among them, 123 were male (55.9%), and 97 were female (44.1%). Regarding geographic distribution, 134 participants were from Europe (60.9%), while 86 were from the United States (39.1%). A total of 134 respondents from Europe participated in the study. The largest group came from Austria, with 41 respondents (30.6% of the total number of European respondents). Germany was in second place with 38 respondents (28.4%). Switzerland had 20 respondents (14.9%), while France had 18 respondents (13.4%). The smallest group consisted of Sweden, with 17 respondents (12.7%). In terms of age structure, the average age of participants was 35.4 years ($M = 35.4$, $SD = 10.2$), with the youngest participant being 18 years old and the oldest 65 years old.

The variables of this study were analysed by use of descriptive statistics. The results are presented in Table 1, which includes the minimum, maximum, and mean values of the variables, as well as the standard deviation.

Table 1: Descriptive statistics of digital marketing variables and dental tourism customer satisfaction variables

Variable	Mark	N	Min	Max	Mean	Std. Deviation	Cronbach's alpha
Website	DM1	220	1	5	4,32	,709	,810
Social media	DM2	220	1	5	3,57	,696	,842
Reviews on platforms	DM3	220	1	5	4,35	,912	,874
Price transparency	DM4	220	1	5	3,67	,691	,793
Promotion of additional services	DM5	220	1	5	3,20	,768	,762
Customer trust	CS1	220	1	5	4,04	,760	,881
Customer engagement	CS2	220	1	5	3,29	,521	,823
Risk perception	CS3	220	1	5	2,06	,917	,779
Value perception	CS4	220	1	5	3,27	,920	,854
Service flexibility	CS5	220	1	5	2,75	,706	,801

Source: Authors' research

For the variable Website (DM1), five items were investigated: website design, website functionality, website loading speed, SEO optimization, and the intuitiveness of the user interface. Each of these items provides a detailed insight into how the clinic's website affects the user experience and information accessibility. The variable Social media (DM2) covered four items: the number of interactions (likes, comments, and shares), user engagement, posting frequency, and patient activity on platforms such as Facebook, Instagram, TikTok, and LinkedIn. The variable Reviews on platforms (DM3) examined three key items: patient ratings, patient comments on platforms such as Google, and their impact on patient trust in service quality. For the variable Price transparency (DM4), four items were analyzed: clarity of treatment prices, price presentation on the website, transparency of additional costs, and the availability of service package prices. Finally, the variable Promotion of additional Services (DM5) covered four items: promotion of airport transfers, accommodation, sightseeing tours, and other additional services offered by the clinics.

The study explored various aspects of customer satisfaction with dental tourism services, focusing on multiple dimensions of the customer experience. For the Customer trust (CS1) variable, five items were examined: trust in service quality, trust in staff expertise, trust in

adherence to industry standards, overall trust in the clinic, and perceptions of service safety. The Customer engagement (CS2) variable was evaluated through four items: the number of interactions on social media, the number of recommendations, participation in promotional activities by the clinic, and activity in comments and reviews. The Risk perception (CS3) variable considered four items: concern about treatment quality, treatment safety, potential complications during treatment, and the overall level of concern regarding service safety. The Value perception (CS4) variable was assessed with three items: the relationship between price and service quality, the overall value of the service relative to its cost, and satisfaction with the price-to-service ratio. Lastly, the Service flexibility (CS5) variable focused on four items: the ability to change appointment times, availability of emergency interventions, installment payment options, and personalized offers for foreign patients.

The descriptive analysis of digital marketing variables and customer satisfaction variables in dental tourism services indicates high ratings for digital marketing channels and slightly lower ratings for customer satisfaction. Reviews on platforms such as Google and Facebook received the highest rating of 4.35, with a standard deviation of 0.912, while the website received a slightly lower rating of 4.32, with a standard deviation of 0.709. The high average values of these variables suggest that customers find the information available on these channels reliable and helpful in the service selection process.

Regarding reviews, the slightly higher standard deviation indicates variability in responses - some respondents rate them highly, while others are more skeptical of their reliability. Among customer satisfaction variables, customer trust received the highest rating, with an average score of 4.04, while risk perception received the lowest rating, with an average of 2.06. The high trust score shows that most respondents have a strong level of confidence in the analyzed services, which may be a key factor in their long-term satisfaction and loyalty. The lowest-rated variable, risk perception, suggests that customers of dental tourism services do not perceive a high level of uncertainty or insecurity. However, the high standard deviation of 0.917 indicates significant differences in respondents' attitudes toward risk. Slightly higher average scores were recorded for value perception (3.27) and customer engagement (3.29), suggesting that respondents are not entirely convinced of the additional value provided by dental services.

The scales used in this study demonstrated satisfactory reliability, as confirmed by the Cronbach's alpha coefficient, which was above 0.75 for all variables, indicating internal consistency and stability of the measurements. The highest reliability was recorded for the customer trust variable ($\alpha = 0.881$), while the lowest was for the promotion of additional services ($\alpha = 0.762$), still within the acceptable range. The scales were developed based on established theoretical constructs and previous research in the field of digital marketing and customer satisfaction, ensuring their validity and relevance.

After defining the mean values and standard deviations of the analyzed variables, their interrelationships were examined. Correlation values of these variables are presented in Table 2.

Table 2: Correlation values between digital marketing variables and customer satisfaction variables in dental tourism

	DM1	DM2	DM3	DM4	DM5
CS1	,602**	,759**	,513**	-,096	,236**
CS2	,227**	,474**	,419**	,444**	,242**
CS3	,090	,326**	-,079	-,114	,236**
CS4	,427**	,774**	,459**	,196**	,312**
CS5	,089	,421**	,115	,281**	,168*

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

Source: Authors' research

The correlations between digital marketing variables and customer satisfaction in dental tourism services are statistically significant, mostly of strong to moderate intensity, with positive correlations prevailing, while negative correlations are rare and weak. The social media variable (DM2) has shown a statistically significant relationship with the value perception variable (CS4) and customer trust (CS1). These relationships indicate that social media plays a crucial role in building customer trust. The presence and communication of dental clinics on social networks increase the sense of reliability and security among dental service customers. Additionally, information, reviews, and promotional content on social media can significantly influence the perception of quality and the justification of dental service costs.

The customer trust variable (CS1) has shown a statistically significant relationship with the website variable (DM1) and platform reviews (DM3). When the information on the website is clearly presented, including details about services, prices, certifications, and previous patient experiences, customers are more likely to trust the reliability of dental institutions. Furthermore, a professional design, ease of navigation, and the presence of contact options for communication can further enhance customer trust. Customers often rely on reviews as an objective source of information, especially when making decisions about choosing a dental clinic for dental tourism. A high number of positive reviews, ratings, and comments can reduce doubts and increase the sense of security among potential customers, while negative reviews can have the opposite effect.

The weakest correlation was found between the risk perception variable (CS3) and the transparency of prices (DM4), platform reviews (DM3), and website (DM1). These correlations are of low intensity and are not statistically significant, indicating that dental service customers make decisions based on other factors, such as recommendations or previous experiences, rather than solely on clearly defined prices. Moreover, customers may still feel a certain level of uncertainty, even if the reviews are positive. They do not perceive information on the website as a key factor in assessing the adaptability of services to their needs. A weak negative correlation, which is not significant, was found between the customer trust variable (CS1) and price transparency (DM4), further suggesting that customers may have confidence in dental services regardless of how clearly prices are displayed.

Based on the established statistically significant relationships, a regression model was developed to examine the influence of individual independent digital marketing variables on the dependent variables of customer satisfaction in dental services. The results of the regression analysis are presented in Table 3.

Table 3: Regression model of the impact of independent digital marketing variables on dependent variables of customer satisfaction in dental tourism services (only statistically significant variables are shown)

Dependent	Independent	β	t	Sig.	R ²	F	Sig.
CS1	DM1	,138	3,372	,001	,835	217,221	,000
	DM2	,738	16,091	,000			
	DM3	,450	14,412	,000			
	DM4	-,285	-8,648	,000			
	DM5	-,279	-7,295	,000			
CS2	DM1	-,331	-4,641	,000	,501	42,972	,000
	DM2	,784	9,815	,000			
	DM3	,183	3,357	,001			
	DM4	,449	7,815	,000			
	DM5	-,296	-4,440	,000			
CS3	DM1	-,290	-3,215	,002	,200	10,712	,000
	DM2	,489	4,837	,000			
CS4	DM1	-,314	-6,481	,000	,769	142,548	,000
	DM2	1,111	20,460	,000			
	DM3	,256	6,905	,000			
	DM4	,139	3,563	,000			
	DM5	-,328	-7,233	,000			
CS5	DM1	-,499	-6,401	,000	,403	28,884	,000
	DM2	,936	10,713	,000			
	DM4	,409	6,507	,000			
	DM5	-,290	-3,982	,000			

Source: Authors' research

The results of the regression analysis presented in Table 3 show that different dimensions of digital marketing have a significant impact on customer satisfaction in dental tourism. In all models, social media (DM2) has the most pronounced positive effect on all dependent satisfaction variables, with its effect particularly strong on perceived value (CS4, $\beta = 1.111$, $p < 0.01$) and customer engagement (CS2, $\beta = 0.784$, $p < 0.01$). This suggests that presence and interaction on social media significantly contribute to building trust, customer engagement, and perceived value of dental services.

On the other hand, the website (DM1) has a dual effect - while it positively influences customer trust (CS1, $\beta = 0.138$, $p < 0.01$), it simultaneously negatively impacts engagement (CS2, $\beta = -0.331$, $p < 0.01$) and perception of service flexibility (CS5, $\beta = -0.499$, $p < 0.01$). This result may indicate that static information on the website is not sufficient to encourage customer engagement and may seem rigid in terms of service adaptability.

Reviews on platforms (DM3) also play a significant role, especially in strengthening customer trust (CS1, $\beta = 0.450$, $p < 0.01$) and perceived service value (CS4, $\beta = 0.256$, $p < 0.01$). This means that positive reviews and experiences from other patients increase the sense of security and justification for investing in dental services.

Price transparency (DM4) shows mixed effects - while it has a positive impact on perceived value (CS4, $\beta = 0.139$, $p < 0.01$) and service flexibility (CS5, $\beta = 0.409$, $p < 0.01$), it negatively affects customer trust (CS1, $\beta = -0.285$, $p < 0.01$). This may suggest that an excessive focus on prices can create doubt among customers instead of providing them with confidence.

Promotion of additional services (DM5) has a predominantly negative effect, especially on customer trust (CS1, $\beta = -0.279$, $p < 0.01$) and perceived value (CS4, $\beta = -0.328$, $p < 0.01$). The obtained result suggests that aggressive promotional strategies may raise suspicion among customers and reduce their perception of service value.

By analyzing the coefficient of determination (R^2), it is evident that digital marketing explains the greatest variability in customer trust (CS1, $R^2 = 0.835$) and perceived service value (CS4, $R^2 = 0.769$). This indicates that dental tourism customers are most sensitive to digital marketing strategies when it comes to their trust and perception of service value. Conversely, perceived risk (CS3, $R^2 = 0.200$) has the least explained variance, meaning that it suffers the influence of other factors not included in the model.

The independent samples test examined customer satisfaction variables based on their country of origin. Since the study involves foreign tourists using dental tourism services in Serbia, Table 4 presents their satisfaction variables based on whether they come from Europe or the USA.

Table 4: Independent samples test for customer satisfaction in dental services based on country of origin (only statistically significant variables are presented)

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% CI of Diff	
									Upper	Lower
CS1	EV	23,47	,000	-6,179	218	,000	-,596	,096	-,79	-,41
	UV			-6,525	217,17	,000	-,596	,091	-,78	-,41
CS2	EV	200,76	,000	-7,774	218	,000	-,492	,063	-,62	-,37
	UV			-8,413	216,29	,000	-,492	,059	-,61	-,38
CS4	EV	2,25	,135	-9,611	218	,000	-1,018	,106	-1,23	-,81
	UV			-9,641	193,69	,000	-1,018	,106	-1,23	-,81
CS5	EV	,054	,816	-3,066	218	,002	-,291	,095	-,48	-,10
	UV			-3,121	202,68	,002	-,291	,093	-,48	-,10

(EV – Equal variances; UV – Unequal variances; 95% CI of Diff - 95% – Confidence Interval of the Difference)

Source: Authors' research

The independent samples test indicates significant differences in dental service customer satisfaction between patients from Europe and those from the United States. Out of the five analyzed variables related to customer satisfaction with dental tourism services, four variables - customer trust (CS1), customer engagement (CS2), perceived value (CS4), and service flexibility (CS5) - showed statistically significant differences between these two groups of patients.

Patients from Europe exhibit significantly higher trust in dental services compared to patients from the United States ($t = -6.179$, $p < 0.01$). Given the negative mean difference (-0.596), it can be concluded that customers from the United States express a lower level of trust. When analyzing the effect size, the eta-squared value is 0.164, indicating a moderately strong effect of the difference between European and American patients regarding trust in dental services.

Customer engagement also shows a significant difference between the groups, with patients from Europe being significantly more engaged than those from the United States ($t = -7.774$, $p < 0.01$). The difference in mean values is -0.492 , meaning that patients from the United States demonstrate a lower level of involvement in dental services compared to European patients. The eta-squared value for this variable is 0.247 , suggesting a strong effect of the difference between groups in terms of customer engagement.

The perceived value of dental services exhibits the greatest difference between groups, with European patients rating the value of services significantly higher than American patients ($t = -9.611$, $p < 0.01$, Mean Difference = -1.018). This result suggests that European patients better evaluate the price-to-quality ratio of dental services. The eta-squared value is 0.299 , representing the strongest effect among the analyzed variables, indicating that patient origin is a key factor in the perception of dental service value.

The service flexibility variable also shows a statistically significant difference between groups, with European patients perceiving services as more flexible than patients from the United States ($t = -3.066$, $p < 0.01$, Mean Difference = -0.291). However, the eta-squared value for this variable is 0.043 , indicating a weak effect of the difference between groups, suggesting that patient origin has a lesser impact on the perception of service flexibility compared to the other analyzed variables.

The greatest effect of the difference between European and the US patients was observed in the perception of service value, while the smallest effect was found in service flexibility. Trust in providers and customer engagement also showed significant differences, with European patients expressing higher levels of trust and engagement in dental services compared to the US patients.

5. Conclusion

Dental tourism in Serbia is becoming an increasingly significant segment of the healthcare and economic sectors, attracting a large number of foreign patients due to the high quality of dental services and competitive prices compared to European countries. Belgrade and the surrounding cities serve as major hubs for dental tourism, thanks to modern clinics, skilled professionals, and well-developed infrastructure.

5.1. Main findings of research

The results of the study confirm the significant influence of digital marketing on customer satisfaction in dental tourism. The correlation analysis revealed that digital channels such as social media, websites, and online reviews play a crucial role in building trust and perceived value of dental services. Social media emerged as the most impactful channel, as it facilitates direct interaction with potential customers, thereby strengthening their trust and engagement. Conversely, while websites are essential for informing customers, they showed a negative impact on customer engagement and perceived service flexibility. This highlights the need for a more dynamic and interactive approach in their design to improve customer experience.

The regression model analysis supports these findings, showing that digital marketing primarily explains the variability in customer trust and perceived value. Price transparency demonstrated mixed effects - while it positively affects the perception of value, it may simultaneously decrease customer trust. These results highlight the importance of striking a balance when communicating service pricing and value.

Regarding the origin of customers, the independent samples test revealed that European patients exhibited significantly higher levels of trust, engagement, and perceived value

compared to those from the United States. This suggests that US customers may be more skeptical about dental services abroad, while European patients tend to have higher levels of trust, likely due to their greater exposure to dental tourism.

The obtained results confirm H1, as all analyzed digital marketing variables demonstrated statistically significant correlations with customer satisfaction variables. Social media had the most pronounced positive effect on customer trust and perceived value, while platform reviews also played a crucial role in enhancing customers' sense of security. Hypothesis H2 was also confirmed, as independent sample tests showed statistically significant differences between patients from Europe and the United States. The largest difference was observed in the perception of service value, while trust and engagement were also significantly higher among European patients.

5.2. Limitations of the research

One limitation of this research is its focus on short-term customer satisfaction, without examining the long-term impact of digital marketing on patient loyalty. The study does not track how the digital marketing efforts influence customer behavior and satisfaction over extended periods, which would provide a more comprehensive understanding of customer retention.

Additionally, the study's scope is limited to dental tourism in Serbia, and while the findings are insightful for this context, they may not fully capture the global landscape of dental tourism. Variations in digital marketing strategies and customer behavior may differ across different countries and regions, and these differences should be explored in future studies to ensure broader applicability.

5.3. Directions for future research

Future research should address the limitations of this study by focusing on long-term customer loyalty and satisfaction in dental tourism. An extended analysis would help to understand how digital marketing influences patient loyalty over time, providing insights into the sustainability of digital strategies in maintaining customer relationships.

Furthermore, future studies could explore additional factors that may influence customer trust and perceived value, such as influencer recommendations, personalized digital content, and the use of artificial intelligence in communication with potential customers. Investigating these factors could further enhance digital marketing strategies and improve the competitive advantage of dental institutions targeting international patients.

Expanding the research to include various international markets, particularly other countries in Europe, Asia, and Latin America, could help develop a more comprehensive understanding of how digital marketing strategies differ across regions. This would allow for more generalizable conclusions and provide dental institutions with valuable insights to tailor their digital marketing efforts to specific regional needs.

Lastly, exploring the impact of digital marketing on other aspects of dental tourism, such as pricing, treatment quality, and overall customer experience, could provide a deeper understanding of the factors driving patient satisfaction and loyalty, further contributing to the growth of the dental tourism industry.

Conflict of interest

The authors declare no conflict of interest.

References

1. Ancy, R. J., Shenoy, R. P., Jodalli, P. S., & Pasha, I. M. (2020). Benefits of medical and dental tourism-a review. *Journal of Dental and Medical Sciences*, 19(3), 26–31. <https://doi.org/doi:10.9790/0853-1903122631>
 2. Arni, P., & Laddha, S. (2017). Adoption of digital marketing in health industry. *SIES Journal of Management*, 13(1).
 3. Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital marketing*. Pearson UK.
 4. Chandu, A. (2015). Dental tourism. *Handbook on medical tourism and patient mobility* (pp. 403–410). Edward Elgar Publishing. <https://doi.org/10.4337/9781783471195.00053>
 5. De Lira, A. D. L. S., & Magalhães, B. M. (2018). Digital marketing in dentistry and ethical implications. *Brazilian Dental Science*, 21(2), 237–246. <https://doi.org/10.14295/bds.2018.v21i2.1524>
 6. Demonja, D., & Uglješić, N. (2020). Dental tourism and business risks: The example of the Republic of Croatia. *Interdisciplinary Description of Complex Systems: INDECS*, 18(4), 425–445. <https://doi.org/10.7906/indecs.18.4.3>
 7. Ilic, B. S. (2020). Social component of sustainable development and quality of life: region of the Balkans, eastern Serbia. *Handbook of research on creating sustainable value in the global economy* (pp. 452–462). IGI Global. <http://dx.doi.org/10.4018/978-1-7998-1196-1.ch026>
 8. Ilić, B., Đukić, G., & Nikolić, M. (2022). Rural tourism of Eastern Serbia: Human resources management and motivation. *Economics of Agriculture*, 69(1), 241–255. <https://doi.org/10.5937/ekoPolj2201241I>.
 9. Ilić, B., Stanković, S., & Ostojić, B. (2024). Key factors of promoting innovative performance in agrobusiness SMEs: Project an empirical method. *Economics of Agriculture*, 71(1), 135–154. <https://doi.org/10.59267/ekoPolj2401135I>
 10. Jaapar, M., Musa, G., Moghavvemi, S., & Saub, R. (2017). Dental tourism: Examining tourist profiles, motivation and satisfaction. *Tourism Management*, 61, 538–552. <https://doi.org/10.1016/j.tourman.2017.02.023>
 11. Jezdović, I., Popović, S., Plavljanic, A., & Antic, D. (2021). Development of a dental tourism management system: Rent a dent. *E-business technologies conference proceedings*, 1(1), 21–24.
 12. Kamath, K., Hugar, S., Kumar, V., Gokhale, N., Uppin, C., & Hugar, S. S. (2015). The business and pleasure of teeth: Dental tourism. *International Journal of Contemporary Dental & Medical Reviews*. <http://dx.doi.org/10.15713/ins.ijcdmr.82>
 13. Kesar, O., & Mikulić, J. (2017). Medical tourist satisfaction and dissatisfaction with dental care services: An exploratory case study. 4, 243–258. <http://dx.doi.org/10.20867/tosee.04.41>
 14. Lazić, M., Bradić-Martinović, A., & Banović, J. (2023). Digital skills in tourism and hospitality as a precondition for the sector resilient growth: The case of Serbia. *Menadžment u hotelijerstvu i turizmu*, 11(1), 25–40. <https://doi.org/10.5937/menhottur2301025L>
 15. Mathur, D., Babu, J., Joseph, M., Harshitha, B., Tiwari, R. V. C., & Tiwari, H. (2019). Efficiency of digital marketing & medical health care tourism: Double ended swords. *Saudi Journal of Medical and Pharmaceutical Sciences (SJMPs)*, 5(6), 552–557. <https://doi.org/10.36348/sjmps.2019.v05i06.014>
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16. Milićević, S. (2013). Health tourism – A megatrend in the tourism market. *Megatrend Review*, 10(4), 163–176.
17. Moric, Z., Zakšek, L., & Dakic, V. (2024, May). Data-driven PPC optimization: The impact of text mining on campaign performance in dental tourism. *Proceedings of the Cognitive Models and Artificial Intelligence Conference* (pp. 214–218). <https://doi.org/10.1145/3660853.3660917>
18. Mujović Zornić, H., Sjeničić, M., & Milenković, M. (2016). Patients' rights and legislative changes in Serbia. *Teme: Journal for Social Sciences*, 40(1), 35–51.
19. Nazeli, B., Sugiarto, Y., & Wahyudi, A. (2023). Digital marketing analysis in dental healthcare: The role of digital marketing in promoting dental health in the community. *East Asian Journal of Multidisciplinary Research*, 2(11), 4337–4360. <https://doi.org/10.55927/eajmr.v2i11.6643>
20. Parkin, G. (2016). *Digital marketing: Strategies for online success*. Fox Chapel Publishing.
21. Wisetsri, W., Soni, N., Singh, R. K., Chaurasia, P. K., & Gupta, S. K. (2021). The healthcare sector: A development of digital marketing methods. *Linguistica Antverpiensia*, 3, 2602–2621.
22. Zoltan, J., & Maggi, R. (2010). What is tourism in dental tourism. *Faculty of Economics, University of Lugano, Switzerland*. Retrieved May 5, 2025 from https://ssl.lu.usi.ch/entityws/Allegati/pdf_pub5354.pdf

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