

**EMPIRICAL ANALYSIS OF COMPETITIVENESS ASSESSMENT IN MEDICAL SERVICES BASED ON THE MARKETING MIX****Vaisov Dilshod**

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**Abstract.** This article focuses on an empirical assessment of medical services competitiveness based on the expanded 10P marketing mix model. The results of a survey conducted in Uzbekistan with 253 respondents indicate that the most important factors are staff qualifications (82.85%), physical evidence (80.40%), and service outcomes (78.34%); while promotion received the lowest rating (62.13%). The study emphasizes the need to improve staff qualifications, standardize processes, implement digitalization, and enhance additional services. It also provides recommendations for improving the methodology of assessing competitiveness in the non-governmental medical sector.

**Keywords:** Medical services, competitiveness, marketing mix, 10P model, patient's satisfaction, empirical analysis, survey, digitalization, private healthcare, medical services market.

**Introduction.** Based on the goals of sustainable development and the challenges of ensuring public health, improving the quality and coverage of medical services is considered one of the most important and urgent tasks in all countries of the world. In global conditions, various natural and artificial factors are causing the expansion and differentiation of disease types, while the factors and conditions of morbidity are evolving in new forms and affecting younger populations. As a result, the process of providing medical care is constantly being updated and becoming more complex. Furthermore, based on economic opportunities and the development of innovative medical technologies, people's healthcare needs are being met at a high level. Consequently, modern characteristics of medical care are taking shape.

As a result of the scientific and practical application of the concept of competitiveness and the unique harmonization of forming and developing a competitive environment in economic sectors, the concept of medical service competitiveness is becoming one of the most popular among consumers, entrepreneurs, and researchers. Various interpretations of the competitiveness concept are being applied in developing business strategies, studying customer opinions, and in scientific and practical developments. Effective reforms are being implemented in Uzbekistan to increase the competitiveness of medical services. As a result of digitalizing the tax system and the medical sphere, as well as the targeted development of the medical services market, a solid foundation is being created for the development of the private sector and entrepreneurship within it. We are confident that this research work will also make a positive contribution to further developing entrepreneurship in this field, as well as improving the quality and competitiveness of medical services.

**Methods.** In this research work, we conducted surveys based on marketing mix elements and summarized their results using analytical methods such as segmentation, weighted average calculation, and comparison.

**Literature review.** Research conducted on this topic primarily focuses on assessing patient satisfaction and competitiveness in healthcare services using elements of the marketing mix (often referred to as 7P: product, price, place, promotion, people, process, and physical environment). These studies have examined the impact of marketing strategies in private and public hospitals using empirical methods (questionnaires, regression analysis, correlation, and

systematic reviews). The work by Rivers and Glover on modeling competition, strategic goals, and patient satisfaction in healthcare served as the initial scientific and practical foundation for applying the marketing mix in assessing competitiveness. Their model is significant as it provides directions for empirical research, particularly noting that increased competition may lead to higher levels of patient satisfaction through improvements in quality and cost efficiency. In 2013, Ahmad, Al-Qarni, Al-Sharqi, and others conducted an empirical study on the impact of the marketing mix on patient satisfaction in private hospitals in Saudi Arabia. Their regression analysis of 190 manager questionnaires revealed that service, promotion, physical evidence, process, and personal strategies accounted for 73.1% of customer satisfaction, while price and distribution were found to be insignificant factors. The main significance of this work lies in establishing patient satisfaction as the key indicator for assessing competitiveness through the marketing mix.

A study conducted in 2020 by Ravangard, Khodadad, and Bastoni in Shiraz, Iran, empirically examined the influence of the 7P marketing mix on hospital choice among 300 patients. The research results revealed that mix elements such as the physical environment and staff received the highest ratings, while advertising scored the lowest. Regression analysis identified a positive correlation between the marketing mix components, supporting the potential for increasing competitiveness through an integrated approach. This study also emphasizes the necessity of using patient choice and satisfaction as key indicators in assessing the competitiveness of medical services. In 2025, Jeevan and Krishna presented a systematic review on the effectiveness of healthcare marketing tools and strategies. Based on an analysis of 62 studies, this work empirically demonstrates that digital marketing (CRM, social networks) and analytical methods increase patient engagement and service utilization by 20 to 35 percent. This review highlights the predominance of digital elements in evaluating the impact of the marketing mix on competitiveness. However, it also acknowledges the existence of barriers such as budget constraints and data confidentiality when conducting such research.

A comprehensive analysis of the 7P marketing mix, conducted by Gültaş and Erdoğan in 2024 through interviews with 19 specialists in medical service clinics, reveals that service competitiveness can be enhanced through service quality, pricing strategy, and advertising. Additionally, this study demonstrates that content analysis can be used to determine the level of patient satisfaction and brand awareness, and consequently, clinics can strengthen their competitive position through the integration of the marketing mix. The literature analyzed above indicates that the marketing mix serves as an important tool for empirically assessing the competitiveness of healthcare services, using patient satisfaction and engagement as key indicators. It is worth noting that the main trends include a shift towards digital and integrated approaches, and that the relationships between mix elements can be identified through empirical methods.

**Analysis and results.** A crucial aspect in the process of providing medical services is understanding consumer preferences, expectations related to consumption, and how they assess the quality and competitiveness of medical services. From this perspective, studying and researching their specific comparisons and evaluations is important not only for service providers but also for all consumers of medical services. Various methods and tools can be used to study patient feedback, with surveys based on marketing mixes being a relatively comprehensive and systematic research approach. From this standpoint, within the framework of this scientific research, a special questionnaire was developed based on the 10 P marketing mix, and a unique study was conducted using modern digital technologies, namely the capabilities of social networks and big data. Unlike researchers working in this direction, we decided to use the marketing mix in a somewhat expanded manner. That is, in addition to the 7 Ps (product, price,

place, promotion, people, process, and physical evidence), the study also included an examination of public relations, pre-sales, and platformization factors.

Thus, the initial criterion for assessing the competitiveness of medical services is "product," which represents the outcome of medical service provision, while the "price" criterion reflects the cost of medical services. "Place" directly serves to determine the impact of the medical facility's location on competitiveness, whereas "promotion" refers to advertising and publicizing medical service activities through various means. The "people" criterion is intended to examine the contribution of direct medical service providers, namely doctors and paramedical staff, to competitiveness, while "process" serves to determine the impact of various aspects of the medical service process on consumer evaluation. "Physical evidence" is designed to study the influence on consumer choice based on the "materialization of medical services." This primarily involves examining features related to the clinic's design, interior, and document appearance. "Public relations" is used to express the impact of medical service clinics' collaborative relationships on the quality and competitiveness of the medical service process. "Post-sale" serves to assess the significance of post-service care in ensuring the quality and competitiveness of medical services. The selection of "platformization" as the final criterion is directly related to trends in the application of digital and blockchain technologies and artificial intelligence in the industry, aiming to study the influence of digital systematization on consumer choice and evaluation.

To achieve a broader assessment of impact significance and more accurate evaluation in the questionnaire, a 5-point Likert scale system was utilized, where: "insignificant" - 1 point; "low significance" - 2 points; "significant" - 3 points; "important" - 4 points; and "extremely important" - 5 points were established as criteria.

The survey was conducted digitally on the Google Docs platform via the Telegram social network, with respondents' answers recorded electronically. A total of 253 questionnaires were selected from the responses for analysis. Among the respondents, 68 were under 25 years old, 109 were between 25-35 years old, 48 were between 35-50 years old, and 28 were over 50 years old. Additionally, 52 of the participants were students, 34 were representatives of the financial and economic sector, 50 were teachers and educators, 28 were unemployed, and the remaining 89 were representatives of various other professions and fields. The survey primarily involved citizens residing in the Khorezm region, the Republic of Karakalpakstan, the city of Tashkent, and the Jizzakh region.

Thus, the significance of medical service outcomes is rated quite highly by consumers, with the factor's importance level at 78.34 percent. This situation is also significant for consumers as it greatly influences decision-making when they or their loved ones need this type of medical service in the future. The impact of the price factor for medical services is 73.28%, which is explained by the improvement in the population's economic opportunities and the high importance of these services throughout life.

Table 1

Results of a survey to determine the importance level of elements in the extended marketing mix (10P)

No	Factors		Respondent rating					Total	Importance level of factors
			5	4	3	2	1		
1	Product	Medical service outcome	89	78	70	8	8	991	78.34
2	Price	Cost of	50	90	98	8	7	927	73.28

		medical services							
3	Place	Medical facility	49	83	100	13	8	911	72.02
4	Promotion	Promotion of medical services and facilities	26	65	107	20	35	786	62.13
5	Participant	Actions of medical service staff	119	67	54	10	3	1048	82.85
6	Process	Medical service delivery process	71	82	80	13	7	956	75.57
7	Physical evidence	Tangible aspects of medical services	105	68	65	10	5	1017	80.40
8	Public relations	Clinic's relationships with other organizations	51	68	87	26	21	861	68.06
9	Pre-selling	Additional services for medical care	72	81	83	9	8	959	75.81
10	Platformization	Platformization of medical service delivery	57	83	93	12	8	928	73.36
Customer satisfaction level			27.23	30.24	33.08	5.10	4.35		

Although the importance of the medical service center's location was assessed quite favorably, we can see that it scored slightly lower than previous indicators at 72.02 percent. This leads to the conclusion that consumers prefer to visit clinics as close as possible; however, when necessary, the distance of the location does not significantly affect their behavior. Among the factors studied, "promotion" - the marketing and advertising of medical services - recorded the lowest score. This relatively low importance can be attributed to the fact that healthcare in our country is not yet highly digitalized, and the level of digital and medical literacy among the rural population is not high.

Nevertheless, while the 62.13% indicator shows that the majority of respondents value the importance of advertising, it also suggests that clinics have many untapped opportunities to promote their activities and should pay greater attention to advertising and promotional efforts. According to the respondents, the quality and competitiveness of medical services largely depend on the actions and qualifications of medical staff, doctors, and auxiliary medical personnel. The significance level of this factor was 82.85%, which recorded a notably high result among the 10 factors examined. At the same time, this situation indicates that it is necessary to focus on increasing the use of artificial intelligence and neural network capabilities in the

provision of medical services, especially considering the rising levels of digital and medical literacy among the population.

The next factor, the characteristics of the medical service process, was also highly rated, with a 75.57% indicator signifying its significant impact on the competitiveness and quality indicators of the process. For clinics, we can conclude that standardizing and continuously improving the medical service process can create great opportunities for ensuring competitiveness, which was proven during this survey. The materialization of medical services, i.e., the clinic's landscape, design, cleanliness, condition of medical equipment, staff attire, and the state of medical documents, also holds high importance among respondents, confirmed by an 80.4% indicator. This suggests the formation of a unique culture of service consumption among citizens. The importance of medical service providers' connections with pharmacies, insurance agents, and other medical centers, that is, "public relations," was rated considerably lower than other factors at 68.06%. This situation leads to the conclusion that medical service providers should expand cooperation within the network and at the international level, and be encouraged to adequately showcase these connections to consumers. The significance of "pre-selling," i.e., additional services for medical care (home-based services, post-treatment examinations and follow-ups), also received a rather positive response at 75.81%, uniquely confirming the importance of ensuring continuity and systematicity in medical services.

Table 2

Grouping of consumer satisfaction levels by marketing mix elements

No	Factors	High level of satisfaction	High level of satisfaction, weighted	Average satisfaction level	Average satisfaction level, weighted
1	1P. Medical service outcome	66.0	76.4	27.7	21.2
2	2P. Cost of medical services	55.3	65.8	38.7	31.7
3	3P. Medical service facility	52.2	63.3	39.5	32.9
4	4P. Medical service and facility promotion	36.0	49.6	42.3	40.8
5	5P. Actions of medical service personnel	73.5	82.3	21.3	15.5
6	6P. Medical service process	60.5	71.4	31.6	25.1
7	7P. Materialization of medical services	68.4	78.4	25.7	19.2
8	8P. Clinic's connection with other organizations	47.0	61.2	34.4	30.3
9	9P. Additional services for medical care	60.5	71.3	32.8	26.0
10	10P. Platformization	55.3	66.5	36.8	30.1

of medical service provision				
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The final factor, the importance of informatization and platformization of medical service processes, was also appropriately evaluated by consumers, with an impact rate of 73.36%. This indicates that clinic management should pay great attention to the systematic digitalization of their activities. At this point, we believe it is appropriate to determine the level of customer satisfaction using the data in the above table. For this purpose, all respondents were divided into three groups according to their satisfaction level:

1. Consumers with a high level of satisfaction -  $\geq 75\%$ ;
2. Consumers with an average level of satisfaction -  $75\% \geq \text{CSI} \geq 56\%$ ;

The level of consumer satisfaction by factors was grouped as follows. Two criteria were selected for grouping: the first was based on the number of votes, while the second was determined by weighing the impact factors correlated with their scores.

As can be seen in the table below, among the factors, Product, Participant, Physical evidence, and Pre-selling can be identified as factors with a high level of consumer satisfaction, while Price, Place, Promotion, Public relations, and Platformization can be indicated as factors with a medium level of satisfaction.

**Conclusion and suggestions.** Thus, based on the results of the above analytical study, we can conclude that in ensuring the competitiveness of medical services, it is crucial to comprehensively examine not only the characteristics of trends and tendencies in the field but also the factor assessments and satisfaction expectations of clients from a scientific and practical perspective. Based on the results of the above analysis, it is advisable to improve the assessment of competitiveness for small businesses providing medical services, in which it is appropriate to use elements of the marketing mix. Additionally, it is necessary to: highly individualize patients' needs in the provision of medical services, significantly increase the capabilities of the diagnostic process, enhance patient satisfaction levels by providing medical services that align with patients' choice and consumption motives, as well as implement innovative trends in the development of the medical service sector in traditionally remote areas through the establishment of telemedicine and digital medical information systems and various integrated medical services.

The trend of the medical services market in Uzbekistan shows a positive dynamic in the areas of IVF services, aesthetics, dietetics, medical recreation, and psychological prevention, depending on customer satisfaction characteristics. This should be considered as a criterion for competitive advantage, allowing for deep specialization of the non-state sector in these segments.

We believe that improving the methodology for assessing the competitiveness of medical service providers based on the application of criteria such as digitalization, individualization of service processes, and the level of post-service medical care will enable the assessment of competitiveness based on the influence of components that affect and shape the service process.

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