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# **Evaluation of Social Media Tools in Health Tourism Marketing with Multi Criteria Decision Making Methods**<sup>1</sup>

Sağlık Turizmi Pazarlamasında Sosyal Medya Araçlarının Çok Kriterli Karar Verme Yöntemleri ile Değerlendirilmesi

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# ÖZET

Anahtar Kelimeler:

Güçlü Zayıf Yöntemi (BWM),

Birleştirilebilir Uzaklık Tabanlı Değerlendirme Yöntemi (CODAS),

Sağlık Turizmi,

Sosyal Medya,

Çok Kriterli Karar Verme (ÇKKV),

Günümüzde ülkeler, kitle turizminin yıkıcı ve yıpratıcı etkisi nedeniyle alternatif turizm türlerine yönelmektedir. Küresel pazardaki çeşitli faktörler tüketici tercihlerini etkilemekte ve taleplerini şekillendirmektedir. Bu durum ülkeleri alternatif turizm türleri arayışına yöneltmektedir. Gelişmiş ülkeler daha çok spor turizmine yönelirken, gelişmekte olan ülkeler için sağlık turizminin yükselen değeri öne çıkmaktadır. Gelişmiş ülkelerde sağlık hizmetlerinin yüksek maliyetleri, bekleme süreleri ve sigorta şirketleri tarafından sunulan birçok sağlık hizmetinin eksikliği, tüketicileri sağlık ihtiyaçlarını dışarıdan temin etmeye yönlendirmektedir. Sağlık turizmi hizmetlerinde ilişkisel pazarlama kilit bir rol oynamakta ve tüketiciler sorularına ilk elden yanıt aramaktadır. Sağlık sektörünün hassas ve karmaşık yapısı, tüketicileri ilişkisel pazarlama boyutları ekseninde bilgilendirmekte ve bilinçlendirmektedir. Bu çalışma, sağlık turizmi pazarlamasında kullanılan sosyal medya kanallarının çok kriterli karar verme yöntemiyle belirlenmesini ve sıralanmasını amaçlamaktadır. Kriter ağırlıkları Güçlü- Zayıf Yöntemi ile belirlenirken, sosyal medya kanallarının öncelik sırası Birleştirilebilir Uzaklık Tabanlı Değerlendirme Yöntemi ile belirlenmiştir. Kriterlerin belirlenmesi ve alternatiflerin sıralanması için uzman görüşlerine başvurulmuştur. Yapılan analizler sonucunda sosyal medyanın önemi bir kez daha vurgulanmaktadır. Sosyal medya araçları, özellikle mobil uygulamalar aracılığıyla ulaştığı kitle, bölgeler arası dağılım, harcanan zaman ve aktarılan bilgi ile çağı şekillendirmektedir. Sosyalleşme ihtiyacı, insanların bu alana hızla yönelmesi ile sonuçlanmakta ve teknolojinin gelişimini hızlandırmaktadır. Bu durumda hem kullanıcı sayısı hem de görsel ve işitsel unsurların bir arada kullanılmasıyla ivme kazanan youtube, bilgi kirliliği yaşansa da her kesime alan yaratması nedeniyle günümüzde ilişkisel pazarlamanın sağlık turizmine yansımasında liderliği elinde tutmaktadır.

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#### **ABSTRACT**

Keywords:

Best-Worst Method (BWM),

COmbinative Distancebased ASsessment (CODAS),

Health Tourism,

Social Media,

Multi Criteria Decision Making (MCDM),

Today, countries are turning to alternative tourism types due to the destructive and corrosive effect of mass tourism. Various factors in the global market affect consumer preferences and shape their demands. This situation leads countries to seek alternative tourism types. While developed countries tend to focus more on sports tourism, the rising value of health tourism stands out for developing countries. The high costs of healthcare services in developed countries, waiting times, and the lack of many health services offered by insurance companies lead consumers to outsource their helthcare needs. Relationship marketing plays a key role in health tourism services, and consumers seek first-hand answers to their questions. The health sector's sensitive and complex structure informs and raises consumers' awareness on the axis of relational marketing dimensions. This study aims to via multi criteria decision making to determine and rank the social media channels used in health tourism marketing. While the criteria weights are determined by the Best-Worst Method, the priority order of social media channels is determined by COmbinative Distance-based ASsessment. Expert opinions were consulted during the criteria determination and the ranking of the alternatives. As a result of the analyses, the importance of social media is emphasised once again. Social media tools, especially through mobile application applications, shape the age with the audience it reaches, the distribution between regions, the time spent and the information transmitted. The need for socialisation accelerates the development of technology with the rapid orientation of people towards this field. In this case, youtube, which has gained momentum with the number of users and the use of visual and auditory elements together, holds the leadership in the reflection of relational marketing on health tourism today, as it creates space for all segments, even though information pollution is experienced.

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#### 1. INTRODUCTION

The recent increase in health tourism returns has prompted countries to invest in this field. Especially in the service sector, marketing has been supported by modern trends, and relational marketing has become the most used tool. The fact that health services cannot be delayed increases the amount of budget allocated by people to this field and directs countries to it (Biçer et al., 2019). Turkey rapidly increases its capacity with new investments and benefits from modern marketing components in this field (Aydın, 2012).

The widespread use of social media brings with it the renewal and change of the digital environment. Almost constantly interacting businesses and consumers are rapidly outpacing other forms of media use. A study conducted in 2018 for the 13-17 age group reports that approximately 95% of this population is in constant access to a smartphone. Almost 90% of adolescents use the Internet several times a day (Rummo et al., 2020).

In terms of marketing, the use of social media for customer value has started a new and complex process for businesses (Sadyk and Islam, 2021). In order to become a brand in health tourism, social media channels are used while determine the strategies used to follow today's trend (Ogneva, 2020). The ease of acting based on the group market segmentation increases the ability of businesses to position themselves in the relevant market (Dharmayanti and Darma, 2020). The facilitation and acceleration of the customer's way of reaching the enterprises are decisive for enterprises both in terms of their empowerment and the sustainability of their life cycles (Aykın, 2020). It becomes easier to analyze what customers want and to provide insights for the consumer through platforms that contribute to the feedback system. Using social media to provide actionable insights, companies seek to gain a competitive advantage by truly aligning marketing and sales. In other words, it strengthens its own communication network and speed of information acquisition while supporting more customer-oriented economy structure initiatives (Purcarea, 2020). In terms of businesses that act holistically with all stakeholders, it is concluded that the purchases of customers are much more affected by the mental cost. The efforts of companies to maintain their life cycles depend on adaptive changes created by self-isolation, individualism, and egocentrism, which have become the new face of society, and creative and innovative actions and strategies in a competitive and global business environment (Fuciu, 2020).

In this study, social media platforms that consumers frequently refer to and their place and importance for consumers are analyzed with multi criteria decision making (MCDM) methods through relational marketing

elements within the scope of health tourism. Firstly, the criteria were determined in line with the opinions of three health tourism experts and one marketing expert. Then social media channels were prioritized with the evaluations of three decision-makers in the field of health tourism. Best-Worst Method (BWM) was used to determine the criterion weights, and CODAS was used to evaluate the alternatives.

## 2. HEALTH TOURISM

The tourism sector, which has the most important share in the service sector, develops the country's economy and acts as a dynamo. The tourism sector, which is expected to continuously contribute to the current account balance and catch up with today's trend, is called invisible export to provide foreign exchange income. Tourism activity, representing a motivational process, will require businesses to direct their work around obvious common features by examining the behavior of touristic consumers to create marketing strategies. Tourism exports in the band of 1.7 trillion dollars and international tourist volume with a capacity of 1.4 billion people are clearly revealed in the 2019 UNWTO report (UNWTO, 2019).

Health tourism, which can be examined under three main headings as Traditional, Complementary, and Functional, rapidly increases its place in tourism revenues in today's modern understanding (Tuna, 2021). Today's conditions show that the most important element of the 21st century is staying healthy and gaining health and is up-to-date on personal effort. The spread and use of mass media have become indispensable for every person, and the health sector has also been primarily affected. The relationship between health and tourism can be described as two sectors that constantly feed each other from various aspects and gain integrity.

Health tourism, which has a place in international trade as a mass phenomenon with cross-border patient flow, rapidly increases its share in the global market (Sezgin, 2021). Therefore, its popularity has been directly affected, and the benefit mechanism that spreads throughout the year has developed in destinations since it is not seasonal. Globalization, which is strengthened by international cooperation, also allows economic emergence of new alternatives. The importance of marketing activities comes to the forefront to transform opportunities into results in the health tourism field. While the activation of health communication continues around the world, users who benefit from digital media channels have especially turned to social media platforms (Gürcan and Özdemir, 2021). Today, the greatest improvement is provided by performance monitoring in this content (Güdük and Önder, 2021).

The importance of social media content in destination selection is constantly supported by up-to-date data. When the data of virtual media users are examined, it is observed that 63% of the users are constantly online and spend an average of 2 hours and 24 minutes of their daily usage time on social media platforms (Ţuclea et al., 2020). Change and transformation continue in terms of the widespread use of technology and its integration into every moment of life. The role of restructured tourism processes and health-related activities gains value day by day. Examinations on the social media comments on the tourism crisis regarding the Covid-19 process show that when the authenticity of social media and the data on the risk perception of tourists are taken into account in terms of service quality, the tourism infrastructure, which is vulnerable to crises, is losing at alarming levels (Yu et al., 2020). The pandemic process, which shapes the future of tourism, develops different perspectives and obligates social implications for service providers (Jamal and Budke, 2020).

## 3. RELATIONAL MARKETING

Contemporary marketing practices have not only taken the traditional marketing mix approach one step further under the influence of developing technology but have brought it a much different perspective. New tactics revitalize competition with brand new strategies in adapting to today's conditions, and now businesses accept constant renewal to stay one step ahead of the competition with different orientations in the relational marketing process. Interaction marketing, digital marketing, network marketing, and database marketing are the most applied (Hoeckesfeld et al., 2020). Relationship marketing, which has become very significant for the global economy and brings the social human element to the focus of marketing perspectives, actively uses technological advances and internet tools. Based on the idea that each individual can create a potential market, the prominence of relational marketing encourages social media marketing by considering the ease of use with other components of the service sector. Each sub-dimension of relationship marketing becomes a step on the basis of social media marketing.

Health care is one of the most suitable sectors for relational marketing due to its sensitive texture, and one-to-one communication comes to the fore (Biçer and Yıldırım, 2020). The impact of today's transformation process reflections on health communication shifts the effort of obtaining customer information directly to social media platforms (Öztürk and Vardarlıer, 2020). This process, which brings with it the necessity of cooperation between individuals, sectors, and even states, is possible with the correct transfer of activities carried out or developed on the basis of the maximum benefit provided for human values. The two-way interaction that customers need in health communication can only be actively provided through social media. The place that social media communication has in health is based on increasing the reliability, awareness, recommendation, and frequency of preference among the target audience. The quality, values, quality, and transparency of the relevant service are measured by the impact of the services it provides on the target audience. Social media is recognized as a complete provider of health promotion made of communication tools.

## 4. RELATIONSHIP MARKETING AND SOCIAL MEDIA ACTIVITY

Social power has been revived in the virtual world, and the ways of self-expression of individuals have expanded their spheres of influence within the scope of social media. Social networks create a public space by constantly finding a usage area and creating and influencing the masses. The development of the age in focus on technology and the rapid transition to digital create a new structure in sociological terms. Social media, which is evaluated within the scope of mass media, has created a new network of society and connects people. Social media, which is based on mutual interaction, is used by companies only for individual use and has become a determinant in society. Social media, which is described as online alternative life, has been reinterpreted by Michael Frunchter with the 5 C model, and the relevant steps are given in Figure 1 (Çalışkan and Mencik, 2015). Each step leads us to the next and plays an active role in helping users gain a new identity in the virtual environment.

Conversation Commenting Contribution Community Collaboration

Social media channels, which add a completely different dimension to the marketing mechanism, create a unique system within themselves, and each one is separated from the other by distinctive features. This system, which is open to the comments and expressions of people, has been complementary to the traditional media understanding with its technological features, and when evaluated as a whole, it comes to the fore in promotion activities (Göker, 2015). In addition to its widespread, easy, and flexible use, the fact that it does not recognize time and place limits provides ease of access by eliminating the anxiety of conveying the message you want to large audiences (Sarsar et al., 2015). Having power with social media is through content management. Companies that produce regular, relevant, and rich content and also manage it successfully find a place in the market (Şengöz and Eroğlu, 2017).

## 5. LITERATURE REVIEW

In today's conditions, health tourism, which stands out as the most important rising value of the 21st century, adds value to its value, especially with the decrease in the young population and the aging of societies. Strack (2021), who rates the supply-demand balance for health tourism with the wealth of countries and draws attention to its 12-month structure, emphasized the importance of coordination with the local community. Health tourism, a vital income item for enriching societies, has established itself as a dynamic and constantly renewing system in the global market. Hladkyi et al. (2021) examined health and recreation treatment possibilities and the forms of intervention used in their study and defined holism as a single mechanism cog. Işık et al. (2021) explained the effects of the economic dimension on the balance of payments and its contribution to national income. The volume of foreign trade and the support of public-private partnerships by governments in developing countries directly affect profitability ratios. Dunets et al. (2020) explained the requirements of the sensitive structure of the sector and emphasized the importance of complex experiences. The unifying effect of alternative tourism elements on the correct use of time brings with it the efficiency of many sectors.

Relationship marketing emerges as a result of the modern trend that combines the human-centered structure with the new formation of the market. In his study, Ballestar (2021) examined the adaptation process to digital platforms with a human focus on personalized images. Gill, et al. (2021) stated that offering dynamic processes to customers will only take shape based on modernization and high technology. Udayana et al. (2021) emphasized the importance of connecting customers and argued that this ability is most prominent in small and medium-sized enterprises. Weber et al. (2021) pointed out that direct interaction will form the basis of a network of sustainable relationships by influencing the relational closeness factor. Although relationship marketing is defined by Aqmala et al. (2021) as the ability to penetrate the target audience, Sánchez-Sánchez et al. (2021) stated that relationship marketing will be strengthened by transferring the feedback received by the customer to the applicability.

Keshavarz-Ghorabaee et al. (2021) evaluated the BWM used in our study as an easy-to-understand and objective method that stands out with its simplicity and usefulness among MCDM problem-solving techniques. Şahin (2021), on the other hand, points out that BWM is consistent but can be deceptive due to biases. Elavarasan et al. (2021), who examined the best and worst comparison in terms of the expert decision maker, explained the BWM as measuring performance with pairwise comparisons by focusing on the segmentation of alternatives. The new age, which started under the influence of technology, brings speed with it. BWM offers efficiency and effectiveness in terms of ease of use and analysis speed, as stated in Abbasi Shureshjani's (2021) study.

The CODAS method used to evaluate alternatives in our study aims to increase selectivity in a harsh competitive environment. It plays a decisive role in the final solution, as stated in the study by Banerjee et al. (2021). Arslan and Ayvaz (2021) emphasized that by using more than one MCDM method to solve the same problem, CODAS efficiency is a valuation criterion for authorities to clarify the perspective. The studies conducted by Çınaroğlu (2021), who explained the application steps in detail, and Ersoy (2021), who used three different MCDM methods together, reflect today's conditions on the analysis.

Alanya, the subject of much research and investments made in health tourism, has become a center of attraction with suitable climatic conditions for twelve months, as examined in the study of Büyükşahin (2021). With the SWOT analysis made by Özdemir (2021), the successful integration of tourism opportunities in health tourism distinguishes Alanya from its competitors in terms of transportation and accommodation. Alkan and Durduran (2021) analyzed the tourism values of Alanya with MCDM methods and turned their perspective to Geographic Information System (GIS) technologies. In their study, in which local people were evaluated, Yavuz and Unur (2021) examined the changing needs and the results of interaction before and after tourism movements.

## 6. METHODOLOGY OF RESEARCH

MCDM methods that seek solutions for performance measurement, evaluation, and comparison cover complex problems and decision support processes (İnce and Söyük, 2020). Although MCDM methods differ, they provide different perspectives with their analytical ability and shed light on uncertain situations, conflicting goals, and different opinions in the presence of different data. Increasing competition conditions have forced businesses to differentiate in order to achieve customer loyalty. It can be used to predict target audience movements due to its ever-evolving understanding of quality and to prioritize the dimensions of service content in terms of consumer preferences from MCDM methods for businesses (Kılıcı et al., 2020).

#### 6.1. Best-Worst Method

This method, known as the MCDM method, which is shaped in the comparison focus, compares the best criterion with all other criteria and the worst criterion and determines the consistency of purpose and optimal weights (Abadi et al., 2018). The Best-Worst Method (BWM) uses pairwise comparisons and the relative importance ratios of the criteria in the light of the evaluation made by the decision-makers in pairs (Liang et al., 2020). BWM, which stands out as one of the MCDM methods in the study of Dwivedi et al. (2021), was developed to overcome the disadvantages of previously existing methods. The process for BWM, which is used in a wide variety of decision-making fields such as health, information technology, engineering, business, economics, and agriculture, is used to rank these criteria among many options. Since the BWM model produces more stable results, leading to reliable, stable, logical, and rational comparisons. Decision criteria are based on systematic pairwise comparisons, and decision-makers or experts evaluate the best decision criterion and the worst decision criterion. The best criterion is the one that has the most important role in decision making, while

the worst criterion is scored as having the same importance, although it may seem the opposite. Decision-makers then evaluate the best decision criterion preferences as one according to all other criteria on the same table. They score other criteria according to their proximity to this main criterion, using a number from a predefined scale from 1 to 9. Then they do the same by scoring their preferences for all other criteria according to the worst decision criterion. Optimal results are resolved by a correlation with the weights of the criteria.

- Stage 1: Determining the criteria for the decision problem  $(C_1, C_2, ..., C_n)$ .
- Stage 2: Determining the most important and least important criteria in the decision problem. At this stage, the most important and least important criteria are determined for decision-makers.
- Stage 3: Determining the preference levels of the most important criterion based on the other criteria. At this stage, the preference levels of the most important criterion over the others are determined by making use of an evaluation scale in the range of 1-9 (1: equally important; 9: extremely important). As a result of the evaluations, the Best-Others vector (AB), which shows the preference of the most important criterion over the others, is formed as shown in Equation (1).

$$A_B = (a_{B1}, a_{B2}, \dots, a_{Bn})_{(1)}$$

 $a_{Bj}$  in the vector  $A_B$  in Equation (1) will show the preference of B, which represents the best criterion, according to the j criterion.

• Stage 4: Determining the preference levels of the other criteria according to the least important criteria. At this stage, the preference levels of the other criteria are determined according to the least important criteria by using the evaluation scale in the range of 1-9. As a result of the evaluations, the vector  $({}^{A}_{w})$  showing the preference of the other criteria according to the least important criterion is formed as shown in Equation (2).

$$A_w = (a_{1W}, a_{2W}, ..., a_{nW})^T$$
(2)

The  $a_{jW}$  in the vector  $A_W$  in Equation (2) will show the preference of the j criterion over the least important criterion.

• Stage 5: Calculation of criterion weights. At this stage, criterion weights  $\binom{W_{C1},W_{C2},...,W_{Cn}}{minimax}$  are calculated by solving a model).

The model that minimizes the maximum of the  $\left|\frac{w_B}{w_j} - a_{Bj}\right| ve \left|\frac{w_j}{w_W} - a_{jW}\right|$  differences are converted to the linear programming model shown in Equations (3)-(7).

$$\begin{aligned} \min \xi & (3) \\ \left| \frac{w_B}{w_j} - a_{Bj} \right| &\leq \xi, \ \forall_{j} \\ \left| \frac{w_j}{w_W} - a_{jW} \right| &\leq \xi, \ \forall_{j} \\ \sum_{j} w_j &= \mathbf{1}_{(6)} \\ w_j &\geq 0, \ \forall_{j,(7)} \end{aligned}$$

By solving the model shown in Equation (3)-(7), the criterion weights  $({}^{W_{C1},W_{C2},\ldots,W_{Cn}})$  and the  $\xi$  value that will show the consistency of the evaluations are calculated.

• Stage 6: Testing the consistency. At the last stage of the method, the consistency of the evaluations is tested by using the consistency index values. The consistency ratio is calculated using Equation (8).

Consistency Ratio (CR) = 
$$\xi$$
 / Consistency Index (CI) (8)

It would be correct to comment that the assessments made are more consistent as the consistency ratio approaches zero and less consistent as it approaches 1.

#### 6.2. CODAS Method

In CODAS (COmbinative Distance-based ASsessment) method, although the analysis is based on Euclidean and Absolute distances, the performances of alternatives with a negative ideal solution focus are evaluated. The value used as the threshold value parameter is determined by the degree of closeness of the Euclidean distances (Özcil, 2020).

**Stage1:** Creating the decision matrix (X). The X matrix is the decision matrix created by the decision-maker. In the first step to the solution, a decision matrix consisting of n alternatives and m criteria is created.

$$X = [x_{ij}]_{nxm} = \begin{bmatrix} x_{11} & x_{12} & \dots & x_{1m} \\ x_{21} & x_{22} & \dots & x_{2m} \\ x_{n1} & x_{n2} & \dots & x_{nm} \end{bmatrix}$$

While the performance values of i alternatives on j criteria are included in the decision matrix above, the equality of  $xij \ge 0$  should be provided in this step.

**Stage 2:** The normalized decision matrix is calculated. In the second step of the application, the normalization process is performed by using the X matrix. Equation (9) is used in this step, where the linear normalization method is applied.

$$n_{ij} = \begin{cases} \frac{x_{ij}}{\max_i x_{ij}} & j \in N_b & if, \\ \frac{\min_i x_{ij}}{x_{ij}} & j \in N_c & if, \end{cases}$$
(9)

The *Nb* and *Nc* values in Equation 9 represent the normalization processes of the benefit and cost criteria, respectively.

**Stage 3:** The weighted normalized decision matrix is calculated. After the weighting coefficients (wj) related to the evaluation criteria are determined, the weighting of the matrix is performed. This operation, which is based on multiplying the column elements of the normalized decision matrix with the relevant weight coefficients (wj), is performed with the help of Equation (10).

$$r_{ij} = w_i n_{ij(10)}$$

Stage 4: Determining the negative-ideal solution point (NIS). In order to obtain the solution from the CODAS method, the negative-ideal solution point must be determined. Accordingly, the smallest (minimum) of the column values in the weighted matrix are selected. Equation (11) was used to determine the negative-ideal solution point.

$$ns = [ns_j]_{1\times m} ns_j = min_i r_{ij(11)}$$

In this step, the alternative that is the farthest from the negative-ideal solution according to all criteria is the optimal alternative (Dahooei et al., 2018:176).

**Stage 5:** Calculating Euclidean and Taxicab distances. In the CODAS method, Euclidean and Taxicab distance approaches are used to determine the distances of the criteria values of the alternatives from the negative-ideal solution point. The calculation of the Euclidean distance (Ei) and Taxicab distance (Ti) values for each alternative are shown in Equation (12) and Equation (13), respectively.

$$E_i = \sqrt{\sum_{j=1}^{m} (r_{ij} - ns_j)^2}$$
(12)

$$T_i = \sum_{j=1}^{m} |r_{ij} - ns_j|_{(13)}$$

**Stage 6:** Creating the benchmarking matrix. Each alternative is compared in terms of Euclidean and Taxicab distances to other alternatives in this step. Finally, the creation of the benchmark matrix is shown in Equation (14).

$$R_{a} = [h_{ik}]_{nxn}$$

$$h_{ik} = (E_{i} - E_{k}) + (\psi(E_{i} - E_{k}) \times (T_{i} - T_{k}))$$
(14)

In the above function, the  $\psi$  value is at a threshold position that indicates the equality of the Ei distances. Equation (15) is used to calculate this value.

$$\psi(x) = \begin{cases} 1 & |x| \ge \tau & if, \\ 0 & |x| < \tau & if, \end{cases}$$

The value of  $\tau$  in Equation (15) is a parameter determined by the decision-maker. It is recommended to choose a value between 0.01 and 0.05 for this parameter (Ghorabaee et al., 2016:30). Accordingly, if the difference between the Euclidean distances of the two alternatives being compared is less than  $\tau$ , the relevant alternatives are compared according to their Taxicab distances.

**Stage 7:** Calculation of evaluation scores. In the last step of the CODAS method, the evaluation score of each alternative is calculated with the help of Equation (16).

$$H_{ik} = \sum_{k=1}^{n} h_{ik(16)}$$

By ordering the H scores of the alternatives from the largest to the smallest, the alternatives are ranked from the best to the worst.

**Stage 8:** Evaluation scores of the alternatives are sorted from largest to smallest. Euclidean and Taxicab distances are used as two different measures in this method. In the calculations made accordingly, the Euclidean distance indicates the distance of the alternatives from the negative ideal, while the normal indifference area is indicated by the Taxicab distance (Katrancı and Kundakcı, 2020).

## 7. FINDINGS

In recent years, tourists from all over the world come to Turkey for treatment, as it provides health services at a level that can compete with the qualified health services in developed countries. Turkey is at the top of the list among the countries that have Joint Commission International (JCI) certified hospitals in the world, which certifies international quality (Antalya Provincial Directorate of Culture and Tourism, 2022). The number of health tourists who came to Turkey to receive health services in 2019, 2020, 2021 and in the first quarter of 2022, respectively, is 662087, 388150, 642444 and 284577. In 2020, the global epidemic caused a noticeable decrease in the number of health tourists (USHAŞ, 2022).

Initially, criteria and alternatives were defined for the problem addressed in the application stage of the study. Afterwards, BWM and CODAS methods were carried out in line with the evaluations of experts and decision makers.

## 7.1. Determination of Criteria

While determining the criteria, a search was carried out in the relevant literature, and two studies came to the forefront in line with expert opinions. It was decided to use the criteria in Table 1 in line with the opinions of 3 decision-makers and marketing experts whose opinions were taken during the criteria determination process. Biswas (2020) and Enyinda et al.'s (2013) studies were found to be the most compatible with expert opinions, especially within the screening scope, in which two studies stood out. The criteria weighting, which was made by a total of 4 experts within the scope of BWM, was continued with three decision-makers using the CODAS method. Considering the results of the BWM analysis, it is pointed out that the evaluations of the consistency ratio move away from consistency as they approach 1, and the evaluations made as they approach zero are more consistent. With the CODAS method, the ranking of the alternatives expressed as social media channels were carried out.

In the first of the source articles for the criteria, Enyinda et al. (2018) analyzed consumer behavior while using social media channels, establishing relationships, maintaining existing relationships, and the related relationship marketing approach with MCDM. The related study contributed to relational marketing within the scope of the

ranking. Biswas (2020) analyzed the critical effects of digital marketing on the target audience, and the ranking of critical effects was carried out with MCDM methods.

Table 1. List of Criteria

Number of Criteria	Criteria Name	Source
1	Trust	Enyinda, C. I., Ogbuehi, A. O., and Hamouri, S. (2013).
2	Communication and Information Sharing	Biswas, S. (2020). Enyinda, C. I., Ogbuehi, A. O., and Hamouri, S. (2013).
3	Loyalty	Added with the opinion of experts.
4	Service Quality	Enyinda, C. I., Ogbuehi, A. O., and Hamouri, S. (2013).
5	Relationship Commitment	Enyinda, C. I., Ogbuehi, A. O., and Hamouri, S. (2013).
6	Customer Outreach	Biswas, S. (2020).
7	Feedback and Control	Biswas, S. (2020).
8	Relationship Building and Customer Engagement	Biswas, S. (2020). Enyinda, C. I., Ogbuehi, A. O., and Hamouri, S. (2013).

In-depth interview techniques and interviews with the decision-makers were used as the data collection method in the first stage of the evaluation made within the scope of this study. The qualitative part was concluded with the determination of the existing criteria. Each criterion generated by consulting expert opinions was compared with all the criteria obtained as a result of the literature review, and the common items were tabulated. And in Table 1, it was shown in which studies they were used. Quantitative data were collected over the eight criteria determined, and the relevant alternatives were listed, evaluated, and rated. In the second part of the research, the evaluation made within the scope of MCDM methods leads us to the conclusion. Brief descriptions of the criteria presented in Table 1 are as follows.

- *Confidence*: In the global market where consumers are getting stronger, mutual trust must first be built in order to protect and ensure shopping for health tourism systems. One of the criteria used in this respect is confidence.
- Communication and Information Sharing: Based on expert opinions, the importance of reaching, understanding, or connecting with patients in a sensitive, complex and complicated structure as well as health tourism is emphasized. Customers are constantly looking for answers to their own questions, so businesses that share information and are open to communication are called the strongest businesses.
- *Commitment*: Establishing long-term relationships is becoming the most valuable asset of all productivity-driven businesses. The cost of acquiring new customers affects the profitability negatively, and the effort to keep the existing ones motivates the loyalty principle.
- Service Quality: The health tourism sector makes investments to increase the number of accredited institutions and quality control processes due to its structure, which aims to accept patients, especially from developed countries.
- **Relationship Commitment:** Relationship commitment lays the groundwork for future prediction. In this way, businesses that want to act on solid ground maintain the effectiveness of the coordination process with other stakeholders and shape their investments.
- Customer Access: Businesses that resist contact with customers aim to be accessible. Easy access can make the business the first choice in some cases.
- *Feedback*: Today's technological infrastructure, which is based on continuous development, makes it necessary to follow customer requests and needs. Customer feedback, which acts as a guide for businesses, can make it easier to be in the right place at the right time.
- Customer Participation / Number of Followers: Businesses that determine their target audience and aim to attract the relevant audience attach importance to the number of followers to encourage word of mouth communication and be visible.

#### 7.2. Determination of Alternatives

Facebook; Founded in 2004, Facebook has risen to be the first portal created in this area (Solmaz et al., 2013). Facebook creates an important portfolio with its serious consumer audience, popularity, and constant access to many smart device contents. The Facebook application has an embedding-based information retrieval (EBR) search system (Huang et al., 2020). Facebook, which has reached 2.5 billion monthly active users and constitutes the largest potential market, brings the target market solution process for the creation of virtual communities within itself (Eghtesadi and Florea, 2020).

*YouTube*; It uses Adobe Flash Video infrastructure and provides the content order in this way (Shiva, 2021). It has created an invaluable space for content creators and media companies, which has captured a wide audience with its global content. Youtube, the market leader with more than 2 billion users, attracts especially the young generation and creates interaction open to consumer access for more than one billion hours every day (Duffett, 2020). Influencer marketing, which continues to grow rapidly with a budget of 10 billion dollars based on 2020 data, continues to be the focus of attention for businesses (Haenlein et al., 2020).

Twitter; Businesses that want to reach more consumers aim to contact potential users directly with messages called "tweets". The studies conducted by the Digital Marketing Institute show that 40% of Twitter users respond to interaction and create a purchase immediately after seeing it (Cong et al., 2021). Due to its systematic and data-driven structure, the general sensitivity to gathering around current issues attracts attention, and the ability to define customer needs in different cultures with tonality for the product makes the Twitter application more attractive for businesses (Wedel et al., 2021).

*Tiktok*; Tiktok application, which is included in the evaluations of 2020 with a budget of almost 10 billion dollars, which we can also call influencer marketing, shows its power in social media channels (Şeker, 2021). TikTok shows its potential in the framework of its online shopping activities within the framework of the short video industry. TikTok earns money through three main branches of advertising, event marketing, and live broadcasting, and in this context, it creates a new business model canvas and creates a revenue model with the self-feeding of its customer profile (Yao, 2021).

*Blogs*; By highlighting the distinctive features of widely used applications such as Tumblr, WordPress, and Blogger, Blogs stand out as areas where original individuals can share their diaries, ideas, or images and realize themselves (Susur and Gencer, 2021). Emerging as a form of marketing communication, blogs help influencers target consumers and build marketing perceptions (Nadanyiova et al., 2020).

Instagram; In his study, Konuk (2019) touches on the communication concerns of the new generation and draws attention to the fact that he maintains the information and communication system as "multi-media". The fact that activism movements come to life in new channels creates a need for people to integrate into a global connection. Instagram continues its rapid rise, enabling them to transform their mobile snapshots into the message they want to convey. It is stated that 38% of active users on Instagram are business accounts (Wulandari and Darma, 2020). The status adopted by businesses with a presence on Instagram profoundly impacts brands. Many brand positionings are based on exploration and mapping the agenda to key changes (Dias et al., 2020).

#### 7.3. Determination of Criterion Weights with BWM

In line with the opinions of four experts, weights were determined for the eight criteria discussed in the study. The process is presented by showing the BWM implementation steps.

Stage 1: Determining the criteria for the decision problem  $(C_1, C_2, ..., C_n)$ 

Table 2. Determination of Decision Problem Criteria

C1	C2	C3	C4	C5	C6	C7	C8
Trust	Communication and Information Sharing	Loyalty		Relationship Commitment			Relationship Building and Customer Engagement

Table 2 shows the eight criteria and their codes that were noted to be important by expert opinions.

Stage 2: At this stage, the most important and least important criteria are determined for the decision-makers.

Table 3. Best and Worst Criteria Determined By Dms

DM1		C4		C8
DM2	Best Criteria	C4	Worst Criteria	C6
DM3	Best Criteria	C4	worst Criteria	C3
DM4		C1		C8

The best criterion for decision-makers 1, 2, 3 was C4, and the best criterion for decision-maker 4 was C1. As the worst criterion, as a result of the scoring made by each decision maker separately, it was determined as C8 for decision-makers 1 and 4, C6 for decision maker 2, and finally C3 for decision maker 3.

**Stage 3:** The scoring of each decision-maker based on the best criterion selection is shown in Table 4. Each decision-maker first started this study by determining the best criterion, and the relevant scoring was completed over the distances to the best criterion.

**Table 4.** Evaluation From The Best to The Others According to The Dms (Finding The Vector  $A_B$ )

	C1	C2	C3	C4	C5	C6	C7	C8
According to DM 1 Level of Preference from the Best Criterion (C4) According to Other Criteria	2	3	3	1	4	2	5	6
According to DM2 Level of Preference from the Best Criterion (C4) According to Other Criteria	2	3	5	1	5	7	2	5
According to DM3 Level of Preference from the Best Criterion (C4) According to Other Criteria	2	3	7	1	4	4	6	4
According to DM4 Level of Preference from the Best Criterion (C1) According to Other Criteria	1	4	5	3	2	7	8	9

**Stage 4:** The scoring of each decision-maker on the worst criterion is shown in Table 5. Each decision-maker first started this study by determining the worst criterion, and the relevant scoring was completed over the distances to the worst criterion.

**Table 5.** Evaluation From Others to Worst (Finding The Vector  $A_W$ )

	C1	C2	C3	C4	C5	C6	C7	C8
Level of Preference According to Worst (C8) Criterion from Other Criteria According to DM1	4	3	3	6	3	5	2	1
Level of Preference According to Worst (C6) Criterion from Other Criteria According to DM2	6	5	4	7	3	1	5	3
Level of Preference According to Worst (C7) Criterion from Other Criteria According to DM3	5	2	1	7	3	3	2	2
Level of Preference According to Worst (C8) Criterion from Other Criteria According to DM4	9	7	6	2	3	5	4	1

Stage 5: By solving the model shown in Equation (3)-(7), the criteria weights  $({}^{W_{C1},W_{C2},\dots,W_{Cn}})$  given in Table 6, and the  $\xi$  values indicating the consistency of the evaluations were obtained.

Table 6. Calculated Criterion Weights and Consistency Ratios Of Dms

	C1	C2	C3	C4	C5	C6	C7	C8	ξ
DM1	0,1604	0,1070	0,1070	0,2807	0,0802	0,1604	0,0642	0,0401	0,0401
DM2	0,1752	0,1168	0,0701	0,2897	0,0701	0,0327	0,1752	0,0701	0,0607
DM3	0,1810	0,1183	0,0418	0,3271	0,0905	0,0905	0,0603	0,0905	0,0348
DM4	0,3432	0,1081	0,0865	0,1442	0,1739	0,0618	0,0541	0,0282	0,0893

Aiming to minimize errors, the mathematical model has been solved with Excel's Solver add-in. As a result, the analysis applied over the scores for each decision-maker shows the weights calculated from the criteria scores and the consistency ratio.

**Table 7.** Average Criterion Weights and Consistency Index Value

	C1	C2	C3	C4	C5	C6	C7	C8	یل
Weighted Mean	0,2150	0,1126	0,0763	0,2604	0,1037	0,0864	0,0884	0,0572	0,0562

Finally, Table 7 was created by taking the average of the weights found separately for the four decision-makers. The relevant data will be used in the application of the CODAS method. The consistency index value obtained in the form of a weighted average reveals the effectiveness of the study.

## 7.4. Application of the CODAS Method

Özçil (2020) has defined the CODAS method in detail in his study and summarizes the processing capability in 8 steps.

**Stage 1:** In Table 8, social media channels are evaluated in terms of 8 criteria (A1 (Facebook), A2 (YouTube), A3 (Twitter), A4 (Tiktok), A5 (Blogs) and A6 (Instagram)). Here, for each cell, the relevant value is obtained by first taking the average of the evaluations of the three decision-makers. The first line shows the criteria weights obtained from the best worst method.

Table 8. Decision Matrix Obtained by the Arithmetic Mean of Three Decision-Makers

	Code of Criteria	C1	C2	С3	C4	C5	C6	C7	C8
•	Weights of Criteria	0,2150	0,1126	0,0763	0,2604	0,1037	0,0864	0,0884	0,0572
	A1	3,0000	4,6667	3,6667	3,6667	3,6667	5,6667	5,3333	4,6667
Se	A2	7,0000	8,3333	7,6667	7,0000	5,6667	8,0000	7,3333	6,6667
Alternatives	A3	6,3333	7,3333	5,3333	5,6667	5,6667	6,0000	6,0000	7,3333
ltern	A4	1,6667	6,3333	7,0000	3,0000	4,3333	6,0000	4,0000	4,6667
A	A5	6,0000	6,0000	5,3333	5,3333	4,0000	5,6667	4,0000	4,3333
	A6	5,3333	7,3333	7,0000	5,0000	6,0000	8,3333	6,0000	8,0000

Stage 2: The Nb and Nc values in Equation 1 represent the normalization processes of the benefit and cost criteria, respectively. Although the normalization process is created in 2 different infrastructures, the benefit-based evaluation will be based on the CODAS negative ideal solution process. In case it was processed on the basis of cost, each cell would be divided by the smallest value in the relevant column, and the normalized value of each cell would be reached, but on the basis of utility, the division is done over the largest value.

Table 9. Normalized Decision Matrix

	Code of Criteria	C1	C2	С3	C4	C5	C6	C7	C8
	A1	0,4286	0,5600	0,4783	0,5238	0,6111	0,6800	0,7273	0,5833
es	<b>A2</b>	1,0000	1,0000	1,0000	1,0000	0,9444	0,9600	1,0000	0,8333
Alternatives	A3	0,9048	0,8800	0,6957	0,8095	0,9444	0,7200	0,8182	0,9167
ltern	A4	0,2381	0,7600	0,9130	0,4286	0,7222	0,7200	0,5455	0,5833
A	<b>A</b> 5	0,8571	0,7200	0,6957	0,7619	0,6667	0,6800	0,5455	0,5417
	<b>A6</b>	0,7619	0,8800	0,9130	0,7143	1,0000	1,0000	0,8182	1,0000

The determined eight criteria are divided by the largest value in the relevant column in the normalization process due to the benefit-based infrastructure of the CODAS method. After each cell data is proportioned separately, Table 9, the normalized decision matrix of 3 decision-makers, is created.

Stage 3: Each normalized value is multiplied by the value in its own column of the criteria; weights are shown in the first row of Table 8 in the relevant cell, and a weighted normalized decision matrix in Table 10 is created.

Table 10. Weighted Normalized Decision Matrix

	Code of Criteria	C1	C2	С3	C4	C5	C6	C7	C8
	A1	0,0921	0,0630	0,0365	0,1364	0,0634	0,0587	0,0643	0,0334
S	A2	0,2150	0,1126	0,0763	0,2604	0,0979	0,0829	0,0884	0,0477
Alternatives	A3	0,1945	0,0991	0,0531	0,2108	0,0979	0,0622	0,0724	0,0525
ltern	A4	0,0512	0,0855	0,0697	0,1116	0,0749	0,0622	0,0482	0,0334
A	<b>A</b> 5	0,1842	0,0810	0,0531	0,1984	0,0691	0,0587	0,0482	0,0310
	A6	0,1638	0,0991	0,0697	0,1860	0,1037	0,0864	0,0724	0,0572

**Stage 4:** Table 11 shows the minimum value of each column, that is, the alternative performance with a negative ideal solution focus. Each cell shows the smallest number in its column.

**Table 11.** Negative Ideal Solutions

Code of Criteria	C1	C2	C3	C4	C5	C6	C7	C8
NIS	0,0512	0,0630	0,0365	0,1116	0,0634	0,0587	0,0482	0,0310

**Stage 5:** The (Ei) and (Ti) values of each alternative were calculated as given in Table 12 by applying Equations 12 and 13.

Table 12. Euclid And Taxicab Distances

Alternatives	A1	A2	A3	A4	A5	A6
Euclid (E <sub>i</sub> )	0,0506	0,2381	0,1849	0,0419	0,1609	0,1558
Taksicab (T <sub>i</sub> )	0,0842	0,5176	0,3787	0,0731	0,2602	0,3745

**Stage 6:** The *Ra* matrix obtained by Equations 14 and 15 are presented in Table 13. In this study, Y=0.02 was taken.

Stage 7: Hi values are obtained by summing the row values of the alternatives in Table 13.

Stage 8: Evaluation scores of the alternatives are listed in Table 13, from largest to smallest.

**Table 13.** Relative Assessment Matrix (*Ra*)

	<b>A1</b>	<b>A2</b>	<b>A3</b>	A4	A5	<b>A6</b>	$\mathbf{H_{i}}$	Ranking
<b>A1</b>	0,0000	-0,6209	-0,4289	0,0086	-0,2863	-0,3955	-1,7231	5
<b>A2</b>	0,6209	0,0000	0,1920	0,6407	0,3346	0,2254	2,0135	1
<b>A3</b>	0,4289	-0,1920	0,0000	0,4487	0,1426	0,0334	0,8615	2
<b>A4</b>	-0,0086	-0,6407	-0,4487	0,0000	-0,3061	-0,4153	-1,8194	6
A5	0,2863	-0,3346	-0,1426	0,3061	0,0000	0,0051	0,1204	4
<b>A6</b>	0,3955	-0,2254	-0,0334	0,4153	-0,0051	0,0000	0,5471	3

According to the data and evaluation results obtained as a result of the analysis of Table 13, Youtube stands out as the social media with the highest impact area. Within the scope of the relevant rating, the investments made in the virtual environment attract attention, especially in order to make health tourism more visible and Turkey stand out in destination selection by preserving its dynamism. This study emphasizes the necessity of promoting from the right channel, and the competence of social media platforms has been evaluated within the scope of expert opinions.

#### 8. CONCLUSION AND RECOMMENDATIONS

Social change theory increases interaction with customers by using relational marketing dimensions and directly affects sales efficiency in the service sector (Çayırağası, 2016). Social media identities supported by institutions

and organizations which want to stand out in health tourism and see high demand play a decisive role in conveying the desired message. At the macro level, the role of social media as an intercultural mediator also allows bilateral communication to pass within the same framework (Özsöz, 2019). Social media platforms have settled in our lives as an important instrument that reflects the social culture in our age, and it plays a decisive role in terms of usage efficiency (Yayla, 2021).

The active use of dominant factors in the social network is possible with the prioritization of social media platforms, and it is of great importance to understand the mutual reactions (Ongun and Erbas, 2020). It provides easier access to the wishes and desires of those in need by the relevant providers and the emergence of the social media effect as a result of the social marketing understanding of the preference of health tourism elements (Uçar, 2020). The influence of social media is undeniable in creating a loyal consumer base of institutions and organizations that can respond to the patient and communicate with the target audience while ensuring consumer preference. The usefulness of use is tested, especially since these channels penetrate every aspect of life in measuring the effectiveness of social media channels. Two of the MCDM methods are used in this study. First of all, social media platforms, which are determined as alternatives, are rated as a result of the analysis made on the criterion weights with the best-worst method and the combination of the relevant analysis results with the CODAS method. As a result of the analysis, A2 (YouTube) is in the first place, A3 (Twitter) is in the 2nd place, A6 (Instagram) is in the 3rd place, A5 (Blogs) is in the 4th place, A1 (Facebook) is in the 5th place, and A4 (Tiktok) is in the last place. Standing out among the relevant alternatives, YouTube is preferred in terms of both the number of users and the frequency of use, and it has become the first channel for businesses to apply. Developing technology has encouraged individuals to participate in the virtual world, especially under the influence of the pandemic process, and the related sectoral growth has reached the highest levels. The increasing impact of social media platforms on our lives continues to gain strength with their inclusion in daily activities.

Another considerable result of this study is to bring the criteria to be considered during the determination of the importance of social media channels in health tourism to the literature. As seen in Table 7, the service quality criterion emerged as the most important criterion with a value of 26%, in line with the opinions of four experts. This criterion was followed by confidence (21.5%) and communication/information sharing (11.26%) criteria, respectively. When the two studies used as a source in the criterion determination phase are examined, Enyinda et al. (2018) obtained the first three criteria as customer participation, communication, and confidence, respectively. In the study by Biswas (2020), customer participation and communication criteria are also among the top three. As a result of this study, confidence and customer participation criteria are among the most important criteria. The order of the other five criteria used in the study, as seen in Table 7, is as follows: Relationship commitment, feedback, customer access, loyalty, and customer participation.

As a result, the studies show that benefiting from the health tourism potential is closely related to using social media channels efficiently. In the event that countries coordinate their activities and have to eliminate borders in a very important structure created by many different participants, such as health tourism, it is only possible by making use of the virtual structure. Social media has become the most useful area for penetrating the market, with the continuous flow of information and comfortable and fast access opportunities (Eryılmaz, 2014). Within the scope of this study, which is planned to help customers establish a presence in the area where they are concentrated, it is shown which social media is positioned by experts and where. Youtube determined as the most frequently used social media channel, has many competencies in attracting audiences of all ages and positioning the target audience according to their interests.

Social media channels that stand out in health tourism relational marketing and their usage status have not yet reached a sufficient level under the current influence. Social media channels, which have attracted attention in Turkey for the last ten years, also contribute to the operation by being an active factor in changing how patients' needs are met in Turkey. There is open message transmission originality based on social media, which was first created by Truscott and Ellis from Duke University in 1979 (Şamlı and Karabeyoğlu, 2018). Being able to take place on social media platforms, which is stated to play a key role in brand image and positioning in the future, is perhaps the return of the virtual environment, which will rise to the position of the only information provider. Being visible in the right channels and successful content management play a key role in keeping it in the relevant market.

In terms of forming ideas for future researchers, the useful results of this study can be developed and applied to more social media platforms. Most importantly, close follow-up of developing technologies and more emphasis on newly established concepts can provide important clues.

#### YAZAR BEYANI / AUTHORS' DECLARATION:

Bu makale Araştırma ve Yayın Etiğine uygundur. Beyan edilecek herhangi bir çıkar çatışması yoktur. Araştırmanın ortaya konulmasında herhangi bir mali destek alınmamıştır. Makale yazım ve intihal/benzerlik açısından kontrol edilmiştir. Makale, "en az iki dış hakem" ve "çift taraflı körleme" yöntemi ile değerlendirilmiştir. Makalede kullanılan ölçek için yazar(lar) tarafından ölçeğin orjinal sahibinden izin alındığı beyan edilmiştir. Yazar(lar), dergiye imzalı "Telif Devir Formu" belgesi göndermişlerdir. Mevcut çalışma için mevzuat gereği etik izni alınmaya ihtiyaç yoktur. Bu konuda yazarlar tarafından dergiye "Etik İznine Gerek Olmadığına Dair Beyan Formu" gönderilmiştir. / This paper complies with Research and Publication Ethics, has no conflict of interest to declare, and has received no financial support. The article has been checked for spelling and plagiarism/similarity. The article was evaluated by "at least two external referees" and "double blinding" method. For the scale used in the article, it is declared by the authors that permission was optained from the original owner of the scale. The author(s) sent a signed "Copyright Transfer Form" to the journal. There is no need to obtain ethical permission for the current study as per the legislation. The "Declaration Form Regarding No Ethics Permission Required" was sent to the journal by the authors on this subject.

#### YAZAR KATKILARI / AUTHORS' CONTRIBUTIONS:

Kavramsallaştırma, orijinal taslak yazma, düzenleme — Y1, Y2 ve Y3, veri toplama, metodoloji, resmi analiz — Y1, Y2 ve Y3, Nihai Onay ve Sorumluluk — Y1, Y2 ve Y3. — Conceptualization, writing-original draft, editing — Y1, Y2 and Y3, data collection, methodology, formal analysis — Y1, Y2 and Y3, Final Approval and Accountability — Y1, Y2 and Y3.

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