CONTENT ANALYSIS OF GREEK MEDICAL TOURISM WEBSITES FOR A SUCCESSFUL IMPLEMENTATION OF AN E-MARKETING STRATEGY

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The growing international demand for top medical services in combination with consumers' constant research for competitive prices in such services, has led to the growth of medical and health tourism in Greece, mainly because of the country's Mediterranean climate and its qualified health experts. In accordance with the above, the use of the Internet enables the Greek medical community to expand its marketing and advertising outside its borders. In this paper, the authors try to form a data base of the medical tourism providers in Greece and then they proceed in a website evaluation of the medical tourism providers in order to investigate and appraise their internet appearance. The results of the website evaluation can in turn lead to useful practical results with the aim of providing a successful e-marketing strategy implementation of the medical tourism providers.

INTRODUCTION

Medical tourism is an alternative form of tourism in which Greece can and has to invest given its climatic and geographical characteristics. However, medical tourism has been very recently prioritised in the political agenda; data on medical tourist flows are poor and the Greek medical tourist sector is unable to follow the rest of the well-established destinations in terms of ICTs integration (Sampaniotis, 2006).The aim of this research is first to develop of a database of Greek medical tourism providers for the first time in the country and then to propose a comprehensive evaluation framework for medical tourism websites.

The rest of the article is organized as follows: first we discuss medical tourism in Greece, and we introduce the role of ICTs in medical tourism as well as the role of the e-medical tourism facilitators and providers. Then we present our proposed evaluation framework by evaluating the web sites of 107 medical tourism providers using as methodological tool, 29 criteria drawn from the international literature along with our findings, and in the final section we discuss concluding remarks and present future directions for further research.

LITERATURE REVIEW

Medical Tourism in Greece

Greece is among the countries with the highest demand on Mediterranean destinations and it also offers natural advantages,

tourist infrastructures and expertise at a high level. It is a fact though, that Greece is a rather atypical tourist destination and has problems competing with emerging tourist destinations of the wider area of Eastern Europe (Sampaniotis, 2006). The total contribution of Travel & Tourism to GDP (including wider effects from investment, the supply chain and induced income impacts) was EUR32.5bn in 2015 (18.5% of GDP) and is expected to decrease by 1.8 % to EUR31.9bn (18.6% of GDP) in 2016. Tourism's total contribution to Greece's GDP will reach 46.7 billion euros, according to the World Travel & Tourism Council's (WTTC) Economic Impact Report in 2016.

Nowadays, the growth of the medical tourism industry usually follows the trends of general tourism as well as those of the national and/or international economy and medical tourism has a significant impact on countries' national economy as well as on the hospital budgets generating up to 10% of total revenue from international patients (Hungarian Central Statistical Office, 2010). According to international data, emerging markets in Asia, such as India, Malaysia, Singapore, Thailand, in Europe and Latin America are some of the most attractive and low cost medical tourist destinations. Rich country tourists started to exploit the possibility of combining tourist aspects with medical ones. (Horowitz et al., 2007). According to Medical Tourism Association (2011), "medical tourism refers to people who live in one country and travel to another country in order to receive medical, dental and surgical care, while at the same time receiving equal to or greater care than they would have in their own country, and are traveling for medical care because of affordability, better access to care or a higher level of quality of care".

However, empirical results clearly demonstrate that medical tourism is highly underdeveloped in Greece; a survey by Mckinsey & Company in Athens (2011) confirms that, "while Greece has to play an important role in the rapidly growing market of medical tourism, it is lacking a comprehensive national development strategy for the industry. Indicatively, only one medical unit is accredited by the

Joint Commission International, an international certification body for health care organizations, compared with 43 in Turkey, 21 in Italy and 14 in Thailand. Greek hospitals haven't yet established official agreements with top international hospitals, which could enhance the international medical profile of the country" (Mckinsey & Company, 2011:59).

ICTs and web-evaluation strategies for an online medical tourism marketing strategy

The medical tourism industry has realized the importance of the internet as an innovative distribution channel for disseminating information on products and services, for online purchases and for opportunity to communicate directly with e-consumers (Stratigea & Katsoni, 2015; Stratigea et al, 2015; Katsoni & Venetsanopoulou, 2012) and websites may be the first and only contact with the potential customers (Katsoni & Kavoura, 2013). The adoption of new technologies in a deliberate marketing strategy of medical tourism has as a result a globalization of health services' (Levett, 2005: 27). India for example, has upgraded and imported technology, absorbed western medical protocols and emphasized low cost and prompt attention, but also advertised as important the links to its highly successful IT industry (Connell, 2006:1095).

ICTs use in medical tourism affects the whole structure of the medical tourism industry, not only supply and demand side, but also medical tourism intermediaries (Lunt et al, 2012), since it helped in the emergence of a third party intermediary (rather than being directly referred or receiving informal recommendations from a domestic consultant) and this emergence of new companies, "that are not health specialists, but brokers between international patients and hospital networks" Connell, 2006: 1095), act as advisers and help the consumer/patient select, negotiate and access health care abroad (Crooks, et al. 2010; Cormany & Baloglu, 2010). Their services range from information about health care regulation, qualifications and special competences and other forms of

specialization of the individual and/or public host country's providers, to typical travel agents' tasks, such as booking of hotels and flights according to the client's special requirements. Sometimes, special tailor- made surgical packages are offered, according to the medical market of the country of destination. The need for the creation of these intermediaries mainly stems from the following reasons:

- Medical tourists' lack of the technical knowledge to assess the quality and appropriateness of care and may struggle with a foreign language or navigating a different health system (Legido-Quigley et al., 2008).
- medical tourism companies need for differentiation from their competitors by consistently managing to attract news coverage and by developing social media strategies that take advantage of free marketing opportunities provided by social media such as YouTube, Facebook, and Twitter (Turner, 2012).

These e-medical tourism intermediaries can be specialized travel agencies, electronic medical tourism guides (e.g. treatmentabroad.net) and specialized e-journals (e.g. International Medical Travel Journal- imtjonline.com). Network creation between hotels offering special services for medical tourists is also developed, as for example StarHospitals network) and these services can be included in the above mentioned services of e-medical tourism intermediaries. However, keen competition, varying degrees of business savvy and marketing sophistication, changes in the consumer market, limited financial and human resources intermediaries are maybe the most possible threats in medical tourism intermediaries existence and function.

As the medical providers' internet appearance is crucial, their website performance becomes a very important aspect of their marketing strategy. Evaluation is considered the process through which website owners achieve the harmonization of the site to customers' needs and requirements (De Marsico & Levialdi, 2004). Evaluation involves concepts such as quality, truthfulness, and

accuracy as well as the use of criteria and standards that enable one to appraise the extent to which particulars are accurate, effective, economical, or satisfying (Dragulanescu, 2002). The growth of e-Commerce renders a company's success depends on its website quality (Mich, Franch, & Gaio, 2003). The quality of the various website attributes (e.g. content, structure, navigation, human engineering, user interface, and usability, internet marketing strategies) influence users' opinion as well as the perception of the related organization's identity (Susser & Ariga, 2006; Sigala, 2003). The evaluation criteria used in the present study, are discussed in the methodology section below.

METHODOLOGY

The authors used a combination of content analysis methods to explore, compare and analyze the Greek medical tourism websites based in Greece. This study uses a Quantitative Research method which means that statistical tools have been used in order to extract results (Christou, 1999). It also means that the questionnaire that was set can only be answered with 'yes or no' replies from the researchers. The Comparative Content Analysis method is also used, due to the fact that the above mentioned websites are compared and analyzed by examining the information available to their visitors (Weber, 1990). The authors followed a two-step procedure:

In the first step the authors had to identify all providers that are based in Greece and market medical tourism products and services to both domestic and international medical tourists. The identification process started from October 2015 until January 2016, by conducting repeated Internet searches to identify medical tourism providers with head offices or affiliate offices in Greece. The authors made a clear distinction between medical tourism services

and health and wellness tourism services provided; the findings of the latter are discussed in another paper.

In total 107 Greek medical tourism providers were identified and data of the identified medical tourism providers and their location in Greece were gathered. This led to the development of a database of Greek medical tourism providers for the first time.

When conducting Internet searches the authors used the most popular medical tourism services in the major search engines as discussed by Lunt & Carrera (2010), that is Plastic Surgery, Dental Surgery, Cardiologic Surgery, Bariatric Surgery, Orthopedic Surgery, IVF Transplantation, Ophthalmic Surgery, General Check ups ; therefore, we used such phrases as "medical tourism Greece", "medical Greece", "plastic surgery Greece", "dental surgery Greece", "cardiac surgery Greece", "bariatric surgery Greece", "orthopedic surgery Greece", "IVF Greece", "organ transplantation Greece", "eye surgery Greece", "checkups Greece" "stem cell tourism Greece""transplant tourism Greece", and "global health care Greece".

The authors also used these terms when searching for newspaper articles describing Greek medical travel companies. Searches for newspaper articles were conducted using Google News Greece and Use of Google Alerts. Newspaper reports of medical tourism companies assisted with tracking the development of Greek businesses marketing medical travel. Phone calls and emails were used to establish whether companies continue to function. Companies were deemed to have exited the marketplace if they had expired websites, non-functioning email accounts and disconnected phone service, or when phone calls and/or emails failed to elicit a response. Companies were deemed operational if respondents reported that the companies remain in business.

In the second step, content analysis was used to study the websites of the remaining medical tourism providers. Content analysis was performed by analyzing printed versions of company websites. Detailed information was recorded for each category of analysis. Information extracted through content analysis was fact-

checked and feedback was solicited from the research team. Our evaluation framework included the completion of questionnaires with the aim to examine and compare the above mentioned websites by using criteria that already exist in the scientific literature, modified to fit the needs of our research. The combination of four criteria mentioned below provide a holistic view of the current Greek medical tourism websites:

1. ***General website information***: About us section, FAQs section, Photo gallery, Downloadable material, Maps, Weather information, External links, Last updated date of the website, Site map, Logo existence, Languages support.
2. ***Information about services provided by each provider***: Air tickets, Visa, Ground transportation, Insurance, Hotel booking, Direct hotel booking, Sightseeing, Medical records transfer, Pre/Post care services, International mobile phones, Translation services.
3. ***Website interactivity and contact information***: Email, Phone number, Postal address, Social media links, Newsletters, Information request forms, Patients' testimonials.
4. ***Medical tourism exclusive information***: Hospital names, Hospital credentials, Available procedures, Estimated cost, Medical staff CVs.

The above criteria, as well as their origin in the relevant literature review are analyzed thoroughly below.

● About us section: The purpose of the website, general information about the services provided (Mason & Wright, 2011:171).

● FAQs section: Questions regarding common matters. This is a very useful tool as the patient can get quick answers to his questions without having to communicate with the provider (Sobo et al. 2011:125).

● Photo gallery: Photos taken by the provider regarding its facilities, services or even satisfied patients (Giannopoulos & Mavragani, 2011:722).

● Downloadable material: Material such as travel guides, useful articles, video files, informative leaflets (Giannopoulos & Mavragani, 2011:723).

● Maps: For tourists that visit Greece for the first time or patients who wish to know the exact location of the facilities so they can make the appropriate arrangements (Tanrisevdi & Duran, 2011:727).

● Weather information: Information regarding the weather conditions so the patients can visit the country prepared (Tanrisevdi & Duran, 2011:755).

● External links: Links that are relevant either with the provided services or with touristic information (Cormany & Baloglu, 2010: 711).

● Last updated date of the website: The exact date when the website was last updated. If the website hasn't been updated for a long time, it might not be considered as trustworthy (Cormany & Baloglu, 2010:711).

● Site map: A way for the website's visitor to take a glance at the website's content (Sobo et al. 2011:125).

● Logo existence: The provider's own logo which makes visitors remember the website (Sobo et al. 2011:125).

● Languages support: The languages each website supports (Panagopoulos et al. 2011:703).

● Air tickets: Information regarding issuing air tickets (Cormany & Baloglu, 2010:712).

● Visa: Visa related issues information (Gan & Frederick, 2011:171).

● Ground transportation: Information regarding tourists' transportation while in the country (Cormany & Baloglu, 2010:712).

- Insurance: Information regarding public and/or private insurance plans (Mason & Wright, 2011:171).
- Hotel booking: Information regarding available hotels near the provider's facilities (Cormany & Baloglu, 2010: 712).
- Direct hotel booking: The website provides an application to book directly a hotel within its website. This way, the visitor doesn't have to visit another website to make his hotel booking (Panagopoulos et al., 2011:703).
- Sightseeing: Information regarding sightseeing services (Cormany & Baloglu, 2010: 712).
- Medical records transfer: Information regarding the ways of transferring each patient's medical records (Cormany & Baloglu, 2010: 712).
- Pre/Post care services: Information regarding pre medical care and post medical care services (Gan & Frederick, 2011:171).
- International mobile phones: Information regarding the use of international mobile phones (Cormany & Baloglu, 2010:712).
- Translation services: Information regarding the translation services provided from the health provider (Cormany & Baloglu, 2010:712).
- Email: Existence of a valid email address (Cormany & Baloglu, 2010:711).
- Phone number: Contact number of the provider (Cormany & Baloglu, 2010:711).
- Postal address: Postal Address of the provider (Cormany & Baloglu, 2010: 711).
- Social media links: Links to the social media platforms of the provider (Cormany & Baloglu 2010: 711).
- Newsletters: The ability to sign up for a newsletter (Giannopoulos & Mavragani, 2011: 723).

● Information request forms: The existence of a contact form so the visitors can request further information on the services provided (Cormany & Baloglu, 2010:711).

● Patients' testimonials: Comments from patients that have used the provider for an operation, check up or a medical service (Cormany & Baloglu, 2010:711).

● Hospital names: A list of all the hospital names the provider cooperates with (Gan & Frederick, 2011:171).

● Hospital credentials: The credentials of the hospitals that the provider cooperates with (Cormany & Baloglu, 2010: 711).

● Available procedures: A list of all the available procedures provided (Cormany & Baloglu, 2010:711).

● Estimated cost: An estimated cost for each service (Cormany & Baloglu, 2010:711).

● Medical staff CVs: Detailed CVs of the medical staff (Mason & Wright 2011:171).

The last stage of the analysis involved the statistical analysis using SPSS v.17 and R open source software. Descriptive statistics, in the first instance, provide an overview of the frequency of use for each one of the criteria under study. Frequency tables have been produced to discuss occurrence of the criteria for the different groups of criteria. ANOVA analysis has also been used to compare the use/occurrence of the criteria among different types of medical health providers (i.e. portal, medical facilitator, clinic and private doctor). Comparison has been based on a group-index that has been calculated as the sum of the criteria of the same group used by each provider. ANOVA is thus used to determine whether differences between the mean values of the index for different types of providers are statistically significant. Finally, Principal Component Analysis (PCA) has been employed to look at the data in lower dimension. Principal components are linear combinations of the original variables (in our case the 40 criteria), less in number

than the original variables, that explain as much of the variability of
the data as possible without losing information.

RESULTS

Descriptive statistical analysis

The results yielded by the current survey (107 sites in total) and
which were further analyzed and interpreted according to the
international criteria of website evaluation, are presented below:

Table 1. Frequency (number and %) of health providers' sites
with available information about First group of criteria: general
information that is offered in the health providers' websites

First group of criteria	Frequency	Percentage Frequency
11. Languages	107	100
10. Logo	97	90.7
5. Maps	79	73.8
1. About us	75	70.1
3. Photo gallery	71	66.4
7. External links	70	65.4
2. FAQ – frequently asked questions	41	38.3
4. Downloadable Material	29	27.1
9. Site Map	20	18.7
6. Weather information	5	4.7
8. Last updated date	1	0.9

Note: criteria have been sorted in descending order according to
frequency

'Languages' is the only criterion among all groups of criteria that has been provided in the websites of all health providers. The second most frequent criterion of the first group is 'Logo' (90.7%). More than half of the health providers have also information about 'Maps', 'About us', 'Photo galley' and 'External links' in their websites (73.8%, 70.1%, 66.4% and 65.4% respectively). One out of three websites provide information about 'FAQ' (38.3%) and 'Downloadable material' (27.2%), while 'Site maps' are used to a lesser extent (18.7%). Only 5 and 1 health providers have used 'Weather information' and 'Last updated date'.

Table 2. Frequency (number and %) of health providers' sites with available information about Second group of criteria: Services each health provider offers his customers

Second group of criteria	Frequency	Percentage Frequency
16. Hotel booking	44	41.1
14. Group transportation	29	27.1
18. Sightseeing	29	27.1
20. Pre and post care services	24	22.4
19. Transfer of medical records	20	18.7
22. Translation services	20	18.7
12. Air tickets	14	13.1
15. Insurance	12	11.2
13. Visa	8	7.5
17. Direct booking	5	4.7
21. International Mobile phones	4	3.7

Note: criteria have been sorted in descending order according to frequency

All of the services of this group have been provided by less than half of the health providers. In particular, 'Hotel booking' is the most commonly used by 41.1% of health providers, followed by

'Group transportation' and 'Sightseeing' both of which are used by 27.1% of the health providers. Almost 20% of websites provide information about 'Pre and post care services' (22.4%), 'Transfer of medical records' (18.7%) and 'Translation services' (18.7%). 'Insurance' and 'Visa' are available in even less websites (13.1% and 11.2%), while 'Visa', 'Direct booking' and 'International Mobile phones' are the least frequently used (7.5%, 4.7% and 3.7% respectively).

Table 3. Frequency (number of sites and % in total number of sites) of health providers' sites with available information about Third group of criteria: interactivity of the website and the means of communication with the visitors

Third group of criteria	Frequency	Percentage Frequency
25. Phone number	99	92.5
26. Postal address	97	90.7
29. Info Request Form	93	86.9
24. Email	90	84.1
27. Social media links	75	70.1
30. Patients Testimonials	40	37.4
28. Newsletter	23	21.5

Note: criteria have been sorted in descending order according to frequency

The majority of the health providers have 'Phone number', 'Postal address', 'Info Request Form' and 'Email' in their websites (92.5%, 90.7%, 86.9% and 84.1%). 'Social media links' are available in 70.1% of the websites under study, while 'Patients testimonials' and 'Newsletter' are provided by 37.4% and 21.5% of health providers.

Table 4. Frequency (number and %) of health providers' sites with available information about Fourth group of criteria: Medical tourism exclusive information

Second group of criteria	Frequency	Percentage Frequency
31. Hospital names	85	79.4
35. Medical staff CVs	78	72.9
Surg6. IVF	49	45.8
32. Hospital credentials	39	36.4
Surg5. Orthopedic surgery	27	25.2
Surg4. Bariatric surgery	24	22.4
Surg9. Check up	24	22.4
Surg8. Ophthalmic surgery	22	20.6
Surg3. Cardiological surgery	21	19.6
Surg7. Transplantation	21	19.6
34. Estimated cost	20	18.7

Note: criteria have been sorted in descending order according to frequency

Only two of the criteria of the category 'Medical tourism exclusive information' are provided by more than 70% of the websites: 'Hospital names' (79.4%) and 'Medical staff CVs' (72.9%). Information about IVF is available by 45.8% of health providers, while 'Hospital credentials' are provided in 36.4% of the websites. Information about 'Orthopedic surgery' is provided by 1 out of 4 health providers (25.2%). Smaller frequencies are observed for 'Bariatric surgery' (22.4%), 'Check up' (22.4%), 'Ophthalmic surgery' (20.6%), 'Cardiological surgery' (19.6%), 'Transplantation' (19.6%) and 'Estimated cost' (18.7%). Figure 1 gives a visual presentation of frequencies for the different criteria in ascending order by group. Evidently, the most commonly used criteria across all groups, i.e. those that are used in more than 97

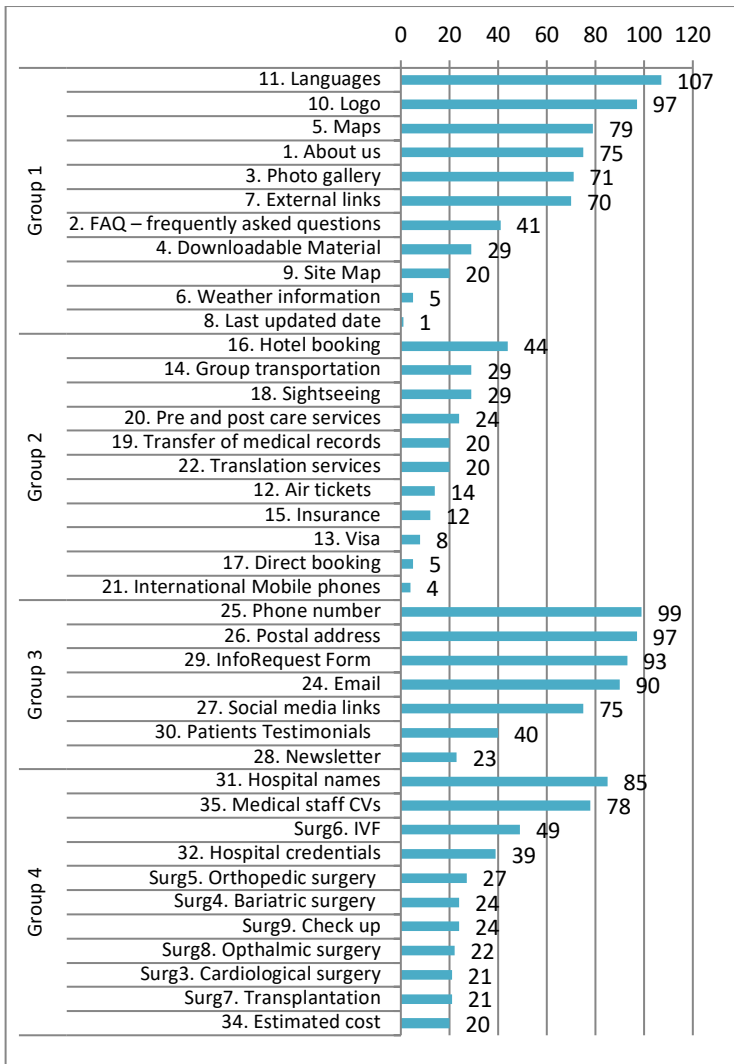websites under study (i.e. more than 90%), are 'Languages', 'Phone number', 'Logo', and 'Postal address'.

With frequencies between 70% and 90% we also observe the following criteria in ascending order (from the most to the least frequent): 'Info Request Form', 'Email', 'Hospital name', 'Maps', 'Medical staff CVs', 'About us' and 'Social media link'.

More than half of the websites, but with smaller frequencies, we also observe the 'Photo gallery' and 'External links' criteria (66.4% and 65.4% respectively).

The rest of criteria can be grouped in two categories according to their prevalence in the websites under study:

- 25%-50%: 'IVF', 'Hotel booking', 'FAQ', 'Patients testimonials', 'Hospital credentials', 'Downloadable material', 'Group transportation', 'Sightseeing' and 'Orthopedic surgery'.
- Less than 25%: 'Pre and post care services', 'Bariatric surgery', 'Check up', 'Newsletter', 'Ophthalmic surgery', 'Cardiological surgery', 'Transplantation', 'Site Map', 'Transfer of medical records', 'Translation services', 'Estimated cost', 'Air tickets', 'Insurance', 'Visa', 'Weather information', 'Direct booking', 'International Mobile phones', 'Last updated date'

Figure 1. Frequency (number) of health providers' sites with available information about all groups of criteria

Group 1
11. Languages	107
10. Logo	97
5. Maps	79
1. About us	75
3. Photo gallery	71
7. External links	70
2. FAQ – frequently asked questions	41
4. Downloadable Material	29
9. Site Map	20
6. Weather information	5
8. Last updated date	1

Group 2
16. Hotel booking	44
14. Group transportation	29
18. Sightseeing	29
20. Pre and post care services	24
19. Transfer of medical records	20
22. Translation services	20
12. Air tickets	14
15. Insurance	12
13. Visa	8
17. Direct booking	5
21. International Mobile phones	4

Group 3
25. Phone number	99
26. Postal address	97
29. InfoRequest Form	93
24. Email	90
27. Social media links	75
30. Patients Testimonials	40
28. Newsletter	23

Group 4
31. Hospital names	85
35. Medical staff CVs	78
Surg6. IVF	49
32. Hospital credentials	39
Surg5. Orthopedic surgery	27
Surg4. Bariatric surgery	24
Surg9. Check up	24
Surg8. Opthalmic surgery	22
Surg3. Cardiological surgery	21
Surg7. Transplantation	21
34. Estimated cost	20

Analysis of different types of providers

215

Health tourism providers under study have been categorized into four types: portal, medical facilitator, clinic and private doctor. Table 5 is a frequency table of health providers by type. Apparently the majority of health providers are clinics (56,1%), followed by private doctors (24,3%). Portals and Medical facilitators comprise a smaller group in our study population, with 10 (9,3%) and 11 (10,3%) health providers respectively.

Table 5. Number of health providers by type

	Frequency	Percentage frequency
Type 1. Portal	10	9.3%
Type 2. Medical facilitator	11	10.3%
Type 3. Clinic	60	56.1%
Type 4. Private doctor	26	24.3%
Total	107	

In this section we test whether there is difference in the occurrence of the criteria among the four types. At that stage, and due to the large number of criteria, we have grouped the criteria as suggested earlier in the report into:

- Group1: general information that is offered in the health providers' websites
- Group 2: Services each health provider offers his customers
- Group 3: interactivity of the website and the means of communication with the visitors
- Group 4: Medical tourism exclusive information

Based on the suggested grouping, and for the needs of this analysis, we calculate an index as the sum of available criteria for each health provider by group. We thus calculate four different

indexes for each provider, one for each group of criteria. Table 6 presents three examples with calculated indexes for three health providers. The value of 6 for Group1 index (Group 1_index) for 'Greek Medical Travels' suggests that 6 out of the 11 criteria of Group 1 have been provided by 'Greek Medical Travels'. The value of 2 for Group3 index (Group 3_index) for 'Health tourism in Greece' suggests that 'Health tourism in Greece' provide 2 out of the seven criteria of Group 3 and so forth.

Table 6. Indexes summarizing information of occurrence of criteria - Examples for three health tourism providers

	Group 1_i	Group 2_i	Group 3_i	Group 4_i
Greek Medical Travels	6	2	3	9
Health Tourism in Greece	5	0	2	2
Dental Holidays	8	1	4	1

The four indexes will be treated as four different variables. Statistical test will be used to determine whether differences between the mean values of the different types (i.e. portal, medical facilitator, clinic and private doctor) are statistically significant. Table 7 presents summary information, i.e. mean value and standard deviation, for about each index in relation to the health providers' type. It also presents the results of the ANOVA that has been used to compare variation in the scores of the each one of the indexes between the four health providers' types. ANOVA results suggest that different types of health providers show different behavior in the selection of the criteria of Group 2 and Group 4. P-value of less than 0.0.5 reveals statistically significant difference in the mean values of Group 2_index and Group 4_index among the four different types.

More specifically, regarding Group 2_index, there is significantly statistical evidence that Clinics and Private doctors offer less services (Group 2 services, like hotel booking, group transportation, sightseeing, etc.) to their customers compared to

Portals and Medical facilitator. Clinics and Private doctors show similar behavior concerning the use of criteria of Group 2 (mean value 3,7 and 4,0 respectively), and the same happens with Clinics and Private doctors (mean value 1,53 and 1,39 respectively).

Regarding Group 4_Index that describes medical tourism exclusive information (hospital name, medical staff CVs, IVF, Hospital credentials, etc.), the results of the ANOVA suggest that Portals and Medical facilitators score significantly higher than Clinics and Private doctors. While Portals and Medical facilitators use on average 7,1 and 7,46 of the 11 medical tourism exclusive criteria of Group 4, Clinics use on average 3,58 and Private doctors use only 1,62.

Criteria of Group 1 (general information) are used equally and in a uniform way by all types of health providers, and the same happens with criteria of Group 3 (interactivity of the website).

Table 7. Summary information (mean and standard deviation) of the four indexes by group of health providers. ANOVA to compare each index in relation to type of health provider

	Portal	Medical facilitator	Clinic	Private doctor	ANOVA
Group 1_i	5.6 (0.967)	5.36 (1.567)	5.77 (1.64)	5.15 (1.317)	F-value=0.479, p-value=0.49
Group 2_i	3.7 (4.448)	4.0 (3.193)	1.53 (2.119)	1.39 (2.192)	**F-value=10.3, p-value=0.0018**
Group 3_i	4.4 (1.776)	4.82 (1.470)	5.03 (1.119)	4.54 (0.947)	F-value=0.012, p-value=0.913

Group 4_i	7.1 (3.871)	7.46 (2.945)	3.58 (1.889)	1.62 (0.697)	F-value=75.32, p-value<<0.0005

Principal component analysis

All websites under study have been scored for the different criteria according to a binary scale: 1 for available information, 2 for non-available information. Due to the large number of criteria under study (40 criteria in total), it is useful to simplify the analysis by seeking a small number of linear combinations of the original variables which can account for as much variability of the data as possible. A standard explanatory practice to look at the data in lower dimension is the analysis of principal components. Principal components are linear combinations of the original variables (in our case the criteria), less in number than the original variables, that explain as much of the variability of the data as possible without losing information.

Table 8 presents the importance of the first 10 components. The first four components together account for 45.6% of the total variance and these are considered to be the most important ones. The decision about the cut-off point (i.e. number of important components) is taken looking at the screeplot in Figure 2, which is used to assess in a visual way which components explain most of the variability of the data. The line in Figure 2 starts to straighten after component 4, which means that the first four components provide sufficient information to explain the variability of the data. The remaining components explain a very small proportion of it and are therefore not very important.
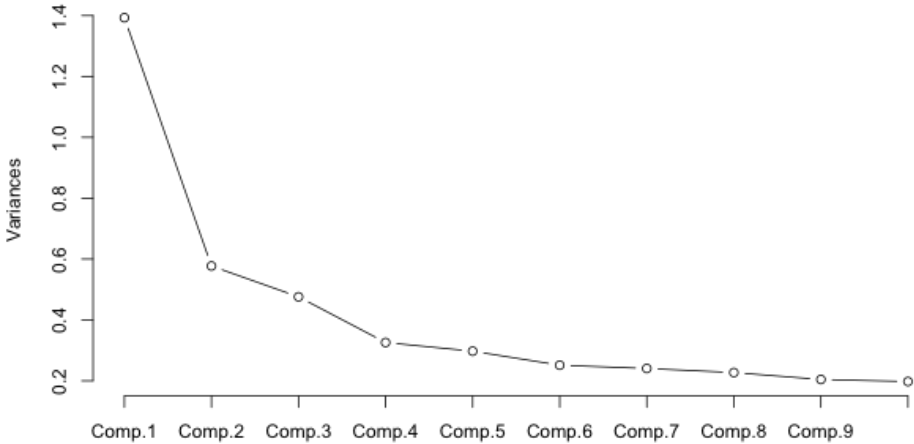
Table 8. Summary information on the importance of the 10 first components

	Comp.1	Comp.2	Comp.3	Comp.4	Comp.5	Comp.6	Comp.7	Comp.8	Comp.9	Comp.10
Standard deviation	1.180	0.760	0.690	0.571	0.545	0.501	0.490	0.477	0.452	0.445
Proportion of Variance	0.229	0.095	0.078	0.054	0.049	0.041	0.040	0.037	0.034	0.033
Cumulative Proportion	0.229	0.324	0.403	0.456	0.505	0.546	0.586	0.623	0.657	0.690

Figure 2. Screeplot – cumulative variance (eigenvalues) explained by each component

Each one of the principal components is a linear combination of correlated variables. Table 9 presents the

coefficients (loadings) of the original variables that are used as linear combinations to explain each component. In other words, the loadings of the first four principal components are the coefficients that show how much each of the original variables contributes to each principal component. The first principal component has the largest variance and therefore explains most of the variability of the data. Not all variables that comprise a component are important. For the needs of this analysis we analyze variables that contribute with loadings greater than 0.25 (in absolute terms) to the construction of a component (Table 9).

The first principal component is **described by** seven of the original criteria, most of which comprise criteria of the 'Medical tourism exclusive information' group:

- Surg9. Check up
- Surg3. Cardiological surgery
- Surg4. Bariatric surgery
- Surg5. Orthopaedic surgery
- Surg7. Transplantation
- 16. Hotel booking
- Surg8. Ophthalmic surgery

The ranking of the criteria is descending, from the most to the least important. Apparently the first component is very much related to most of the Group 4 criteria, and therefore has a 'Medical tourism exclusive information' character. Positive loadings for all criteria suggest that they vary together, i.e. that if a health tourist provider uses Surg9 .Check up, he will also use the other six criteria and vice versa if a health tourist provider does not use Surge9. Check up, he will not use any of the other six criteria.

The second principal component is described by five of the original criteria:

- 16. Hotel booking
- 2. FAQ
- Surg5. Orthopaedic surgery

- 14. Group transportation
- 27. Social media links

All criteria, except for the Surg5.Orthopedic surgery, are negative correlated to the second principal component. In that respect, those providing Surg5.Orthopaedic surgery, will not provide any of the other four criteria.

The third principal component is correlated with six of the original criteria:

- 32. Hospital credentials
- Surg6. IVF
- 30. Patients Testimonials
- 4. Downloadable Material
- 18. Sightseeing
- 14. Group transportation

Positively related to the third principal components, are 14. Group transportation and 18.Sightseeing. The rest of the criteria have an opposite effect, in that those providers selecting criteria 14 and 18 will not select any of the other four medical-specific criteria of the component.

Finally, the fourth principal component is correlated with nine of the original variables:

- 2. FAQ
- 1. About us
- 4. Downloadable Material
- 30. Patients Testimonials
- Surg6. IVF
- 5. Maps
- 27. Social Media links
- 9. Site maps

While 1.About us, 27. Social Media links, 30. Patient testimonials and Surg6. IVF have the same positive behaviour, the rest (2.FAQ, 4. Downloadable material, 5. Maps, 7. External links

and 9. Site maps) have negative effect. Apparently this component is very much related to criteria of general information (Group 1).

Table 9. Loadings of the first four principal components

	Comp.1	Comp.2	Comp.3	Comp.4
1. About us		-0.22	-0.17	**0.33**
2. FAQ		**-0.28**	-0.24	**-0.38**
3. Photo gallery		-0.21	-0.19	
4. Downloadable Material			**-0.32**	**-0.37**
5. Maps		-0.23		**-0.25**
6. Weather information				
7. External links	0.14		-0.17	**-0.30**
8. Last updated date				
9. Site Map		-0.13		**-0.23**
10. Logo				
11. Languages				
12. Air tickets	0.12		0.11	
13. Visa	0.12			
14. Group transportation	0.23	**-0.26**	**0.23**	
15. Insurance	0.15			
16. Hotel booking	**0.26**	**-0.29**	0.18	0.11
17. Direct booking				
18. Sightseeing	0.23	-0.21	**0.24**	
19. Transfer of medical records	0.16	-0.13	0.10	-0.12
20. Pre and post care services	0.22	-0.24	0.10	-0.20
21. International Mobile phones				
22. Translation services	0.23	-0.15	0.11	

24. Email				
25. Phone number		-0.12		
26. Postal address				
27. Social media links		**-0.25**		**0.24**
28. Newsletter	0.11			
29. InfoRequest Form			-0.15	-0.14
30. Patients Testimonials		-0.23	**-0.33**	**0.34**
31. Hospital names	0.11		-0.15	
32. Hospital credentials	0.16	-0.12	**-0.42**	-0.13
34. Estimated cost	0.12		-0.16	
35. Medical staff CVs	-0.19	-0.14		-0.10
Surg3. Cardiological surgery	**0.29**	0.21		
Surg4. Bariatric surgery	**0.28**	0.17		
Surg5. Orthopedic surgery	**0.28**	**0.27**		
Surg6. IVF	0.16		**-0.42**	**0.26**
Surg7. Transplantation	**0.28**	0.19		
Surg8. Opthalmic surgery	**0.23**	0.20		
Surg9. Check up	**0.31**	0.20		

DISCUSSION

As mentioned before, Greece is a suitable destination to develop medical tourism due to its climate, its location, its well-trained professionals etc, however its development is much smaller than this of other similar countries. The results of this study confirm this assertion. Apart from the fact that Greece does not have a specific marketing strategy towards medical tourism, there are not enough

businesses that promote and evolve medical tourism. There were only 107 medical tourism providers with internet appearance found in our sample of the whole country. Also, the businesses that want to attract medical tourists through the web are not fully developed towards this niche market hence there is a significant need for improvement, as it was found from the analysis of our results.

Moreover, there is evidence that different types of health tourism providers (portal, medical facilitator, clinic and private doctor) have a different behavior in what regards the use of internet marketing criteria. More specifically, there is significantly statistical evidence that Clinics and Private doctors' offer services (Group 2 services, like hotel booking, group transportation, sightseeing, etc.) to their customers to a lesser extent compared to Portals and Medical facilitator. Regarding the criteria of medical tourism exclusive information (Group 4 criteria like hospital name, medical staff CVs, IVF, Hospital credentials, etc.), the results of the ANOVA suggest that Portals and Medical facilitators use them more frequently than Clinics and Private doctors. Criteria of Group 1 (general information) are used in a uniform way by all types of health providers, and the same happens with criteria of Group 3 (interactivity of the website).

In the methodology section of this study the authors have categorized the criteria of the evaluation into four groups. The results of this study will be discussed according to those groups.

a. General website information

Most of the websites show a very positive image to their visitors by having an 'about us' section. This makes the medical tourist aware of the company as well as what it represents and its values. Also, the majority of the websites has a photo gallery and interactive maps which familiarizes the user with the facilities and the destination. A brand name is present to almost every website as most of them own their personal logo. Another attribute present in many websites is the existence of external links. These links are either advertisements

- from which each provider gets paid for, or useful information for medical tourists.

However, the FAQs section appears to be non-existent in many of the websites that have been evaluated. This might make a website less attractive to a visitor as he would have to call or email the provider for a simple question that could have been included in such a section. Downloadable material and weather conditions are also attributes that are not mentioned in most of the websites even though, they can make a website look updated and richer. Lastly, almost none of the websites has a last updated date or a site map. These attributes might seem 'too technical' to a user but they make the websites look more trustworthy.

b. Information about services provided by each provider

The available services Greek providers offer definitely need improvement.

Medical tourism can benefit both the health and tourism sectors of each country. However, none of those sectors comprehend its importance as shown in this study's statistics.

For example, not many of the medical tourism websites, that have been evaluated, have a hotel or a flight booking service. In fact, most of them include only general information about such services and do not offer direct bookings by implementing small applications (widgets) in their websites. Also, not many of the websites have visa information, insurance information, international mobiles' information, medical records transfer services, sightseeing services and pre/post care services. Those are all information and services which are very attractive to a future medical tourist. For example, other medical tourism websites abroad, even offer all-inclusive packages with all of the above services in very competitive prices.

Lastly, translation services are not as present as they should be. Most of the providers mention that their doctors and general staff can speak in English but they do not mention other languages or translation services. Therefore, for example, even though a website

might be translated in German, a German medical tourist might have to contact and communicate with the provider in English.

c. Website interactivity and contact information

As this is probably the most important attribute a medical tourism website can have, most of the evaluation percentages are high in this category. Most of the providers provide an email, a phone number, their physical address as well as an information request form. Also, many of the providers have social media pages from which they interact with their visitors. This percentage can be improved however, as this is an almost free and efficient way to advertise products and services.

However, as we can see, the patients' testimonials percentage is low. This is one of the most important attributes that should be in such web pages as it adds credibility to the provider.

Lastly, the newsletter percentage is also low which might indicate that the website doesn't update its content regularly with relevant medical news.

d. Medical tourism exclusive information

This category might sound mandatory for each provider, however statistics show that there is not enough emphasis on the relevant attributes. An excellent example would be the 18.5% of the estimated cost attribute. This means that the majority of the websites does not include one of the most important factors that a medical tourist thinks about - the price.

In addition, not many of the providers include in their websites hospitals' credentials which makes the services less reliable. However, most of the websites include their staff's CVs which means that they want to advertise their personnel's skills and abilities.

The rational about grouping the 40 criteria into the four groups analyzed above has been thoroughly discussed in this paper. However, in order to use the information of the criteria to explain the data and try to find patterns in the use of the criteria by different

providers, it is necessary to use more sophisticated statistical techniques and look at the data in lower dimension. The Principal Component Analysis that has been selected for the needs of this analysis suggests that four principal components, that are linear combinations of the original criteria/variables, account together for 45.6% of the total variance and can thus be used to explain much of the variability of the data without losing much information. The composition of each of the principal components suggests a different way of grouping the criteria that helps to identify patterns in the behavior of health tourist providers in what regards the selection of internet marketing techniques. Evidently, the fact that the first and most important principal component comprises mostly criteria of the 'Medical tourism exclusive information' group plus the Hotel booking information suggests that this mix of criteria is important to observe differences in the behavior of health tourism providers regarding the use of internet marketing criteria.

CONCLUSIONS AND FURTHER WORK

In this article, we offered a systematic database for Greek medical tourism providers for the first time in the Greek scientific community. Then, we proposed a comprehensive evaluation framework for medical tourism providers' websites. The proposed framework is based on the medical tourism website evaluation by the authors and consists of four main categories. Each category consists of a variety of attributes which are examined individually. The proposed evaluation model is generic, open, and standardized as it can be applied for evaluating websites of various medical tourism providers' categories. This information can be used to help website designers and managers to improve the corresponding website attributes taking into account customers' needs and preferences, thus promoting an effective e-marketing strategy of the medical tourism providers.

There are several limitations in our recent study, as it is confined mainly to descriptive attributes. By expanding or modifying the evaluation questionnaire (for example by using Likert scaling) we can be able to rate performance indicators and to analyze each given provider's website sample specific features. Website evaluation of the most important features could also be linked with the profile of the tourist looking at the internet for such information. Moreover, comparisons between different groups of providers could also be looked into in more detailed, like for example providers grouped by region (Greek territory) or/and Greek providers compared with foreign providers.

<u>NOTE</u>

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