

Applying Marketing Tools in Dental Practice: The Case of Greek Dentists

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Abstract

Introduction: Dentists who run their own business must be much more than specialized doctors. They need to exhibit managerial and marketing skills. This study explores the use of the 7ps marketing mix in the Greek dental practice. Methods: The questionnaire survey was conducted on 111 dental office owners. Results: The results reveal that Greek dentists have not yet fully exploited marketing tools for promoting exposure of their service to increase their customer base, such as online marketing, use of reminders, educational lectures. Discussion: It is proposed, that incorporation of marketing and management courses in their University curriculum may have a profound impact on the optimization of their operations and the quality of service offered to patients.

Key Words: Dental practice, Marketing, Advertising, Education, Curriculum

Introduction

The knowledge and skills that dentists must meet, have significantly changed. The commercialization of health is substantially affecting the way treatment options are selected by patients [1]. Dentists must be much more than a good practitioner, and exhibit entrepreneurial skills, financial management knowledge and innovative marketing ideas. However, health professionals do not see their practice as a business venture and differentiate themselves from the business world [2]. Moreover their main studies in dentistry do not prepare them for such a role.

Primary dental care in Greece, which accounts for 90% of dental care, is provided by the private sector for around 90% of the population [3]. Most dentists run individual businesses with the majority of them not having any hygienist, assistant, or secretary and are compensated by “fee for service” [4]. Lower fee limits, previously imposed by the Competition Committee were lifted in 2005 [5].

As for the external environment, the economic downturn led to significant challenges, with family income having become the key factor affecting the usage rate of dental services [6]. In the current period, there has been a decrease of 25-30% in the use of private health services, including dental services [7]. The Greek private dental sector counts 1.27 dentists per 1000 inhabitants, which is the highest proportion amongst the Organization for Economic Cooperation and Development (OECD) countries [8]. Dentists have to compete with their colleagues for each patient and at the same time, there is an ongoing shift towards a more patient-centric approach, where patient satisfaction determines the quality offered and its achievement has become an important target for the dentist [9,10].

In these circumstances and in light of the current economic crisis in Greece, the present study aims to document the perception of dentists regarding the awareness and application of marketing principles to their individual businesses. The key question is whether dentists know and apply marketing tools to help their business survive in an environment of intense competition and economic crisis. In this study, deficiencies are identified, and recommendations for improved visibility,

better service provision and appropriate education are proposed with reference to the literature.

Marketing of dental services

Marketing is a significant functional area which helps dentists to achieve the objectives of a business. From a business perspective, this is equally important as the clinical skills of dental practitioners [11]. The functions of marketing are an enabler to the service demand growth. Therefore, in times of crisis, it is an oversight, for a dentist, to reduce marketing efforts in response to diminishing returns. On the contrary, the right response would be to increase them [12].

The marketing mix is a set of marketing tools used by a company in order to implement a marketing strategy, in the pursuit of a positive response from the target market. The tools of the marketing mix for services are the 7Ps: Product, Place, Price, Promotion, People, Process, Physical evidence [13]. These are widely applied in the service sector. In the case of dental care providers, these may be translated as follows:

1) Product (Service): The services provided by the dentist should be comprehensive and cover not only operational issues, but also issues of hygiene and aesthetics. Particularly cosmetic dentistry has developed to such an extent that it is a key expectation of most patients and a standard of dental care [14]. The dentist must estimate the factors associated with dental aesthetics, including individual preferences, cultural and socio-demographic factors. Positive results may derive by offering flexibility, especially in economic matters, in times of economic crisis, to compensate the reduction of patients' income, value-added services may be offered by the dentists, for example by providing free screening, teeth whitening, payment in installments and other conveniences [15].

2) Place: The layout of the dental practice, the decoration and atmosphere are features that, among other things, patients regard as service quality [16]. In difficult economic times, the renovation, the replacement of furniture, change in wall colors and improved aesthetics in general, can positively affect patients' psychology as well as the dentist's [12]. Besides the appearance, the convenient location of the business seems to

be an important criterion for patients when choosing the dental practice [11,17].

3) Price: The majority of dentists determine remuneration based on respective charges of other colleagues, but also the main factors affecting the final decision is the time spent on the patient, the laboratory costs and the overhead costs of the dental practice [18]. The sharp reduction of charged prices do not seem to increase treatment acceptance rates and leads to negative results by attracting the wrong customers who easily change services to save money [12].

4) Promotion: The communication of the message which should promote the solutions offered by the dentist in patients' problems should be continuous and come in various ways. The promotional tools are categorized as being external and internal. Advertising and promotions in magazines, newspapers, yellow pages, TV, radio, internet, and public lectures and speeches, fall in the external marketing tactics. However, in some countries some of these tactics are against the code of conduct in dentistry. The improvement of dental practice's image, patient's welcome strategies, internal distribution of brochures and business cards, clarifications on the provided services, maintaining an internet website, sending by post or e-mail greeting cards and follow-up telephone contacts to patients asking about the course of treatment are examples of internal marketing tactics. Of significant assistance is the use of digital (e) marketing, which involves participation in social media and website development, allowing for online appointments, payments, updating prices and information on dental procedures [19]. This type of online material [20] can be updated more easily and enables interactive communication with patients [20]. Internal marketing tactics are usually the most economical, effective and widely used methods in dental practice [21].

5) Process: the success of marketing depends to a great extent on the patient's waiting time and the proper appointment scheduling for the provision of dental care. Dentists should avoid planning appointments for more than 3 weeks ahead, as this tactic fills up the dentist's schedule for a long time, without guarantying that patients will stay on to complete the whole treatment [22]. New patients in particular should be treated within a week from the time of contact. This strategy helps to radically increase the number of new patients. Systematic preservation of time gaps in the dentist's appointment schedule to meet new demand is also identified as a very good business strategy [23]. Patient's appointment confirmation must be made no later than two days before the scheduled day and appointment cancellation should be closely monitored. A well-organized appointment system can deal with the problem of long waiting times in the dental practice, which is a factor of patient dissatisfaction [24,25].

6) People: A dentist should pay particular attention to communication skills in order to respond effectively to the evolving relationship with the patient in the process of care. Therefore they should develop capabilities such as empathy, cooperation, active listening and other [10]. Also, adequate and accurate information, and patient consent on treatments, contribute to the development of trust [10,26]. For example, costs should always be discussed before treatment, so that the patient is not caught by surprise. The dentist-patient

relationship, according to the literature, is a key factor of patient satisfaction [27]. In addition, the meticulous physical appearance of the dentist encompasses an element of professionalism which is related to the willingness of the patient to reveal disease symptoms to the doctor [28]. The welcoming of patients, an appropriate professional behavior and a pleasant atmosphere has positive impact on the patients. Establishing good relations with the patient leads to the spoken reputation of the particular dentist. The American Dental Association (ADA) states that 70%-80% of new patients in a typical dental practice comes from the recommendations of existing patients [29].

7) Physical evidence: The technological infrastructure of the dentist can be an important tool in the success of dental marketing. When technology is properly used, can be very effective by increasing the speed and range of services [30]. Advanced technology has a strong and positive impact to the image of a dental practice and offers the possibility of attracting more patients, since patients evaluate positively the technology [31]. In addition, the use of advanced dental equipment helps in better presenting the solution to the problem and to the acceptance of the proposed solution/treatment by the patient [32].

Methods

The survey involved a convenience sample of 111 dentists who run their own dental practice, mainly in north Greece. This research was approved by the Institutional Review Board of the Hellenic Dental Association via which the dentists were approached in person or by telephone and agreed to participate in the survey by signing the questionnaire. This study was conducted in accordance with the World Medical Association Declaration of Helsinki. *Table 1* shows the demographic data of the sample. Data collection was conducted using a closed-ended questionnaire which was constructed for the needs of this study based on the 7ps of services. The questionnaire's reliability measurement, regarding ordinal data, yielded a Cronbach's a coefficient of 0.69.

The survey results are analyzed in the next section, in which general conclusions about the sample and the responses are drawn. By inductive analysis we also investigate the effect of age, sex, years of service, education level, and of whether a dental practice was inherited from a family member (independent variables), to the views of dentists for dental marketing actions (dependent variables). For the data analysis, we used the appropriate statistical test for each the type of variable. All relationships indicated in the analysis below are statistically significant (p -value <0.05). Following the statistical analysis of the questionnaire, interviews with a handful of dentists were conducted, using open-ended questions, for documenting their opinion on the analyzed results. These views are presented in the results and discussion section.

Results

The questionnaire attempts to reveal the level at which the 7p's of the marketing mix are applied by the Greek dentists. The respondents' answers are summarized in *Table 2*.

Table 1. Sample demographics.

		% (Frequency)
Sex	Male	63% (70)
	Female	37% (41)
Age	20-30	6.3% (7)
	30-40	37.8% (42)
	40-50	24.3% (27)
	50-60	26.1% (29)
	60-70	5.4% (6)
Working Experience	< 5	11.7% (13)
	05-Oct	23.4% (26)
	Oct-15	19.8% (22)
	15-20	12.6% (14)
	>20	32.4% (36)
Level of Education	First Degree in dentistry	71.2% (79)
	Masters	22.5% (25)
	PhD	6.3% (7)
Inherited dental practice	Yes	17.1% (19)
	No	82.9% (92)

Column 2 shows the average response value in the five-point Likert scale from 1 "strongly disagree" to 5 "strongly agree".

Table 2. Dentists' perceptions related to the marketing mix of dental services.

Product (Service)	Mean	1	2	3	4	5
I treat the whole range of dental conditions, because it is important for the success of my profession	4.24	4%	8%	4%	28%	56%
I address only specialized dental conditions, because this more effectively meets the needs and requirements of patients	1.71	61%	15%	17%	4%	3%
Place						
The decoration of the premises of the dental service is of great importance	3.94	2%	5%	24%	36%	33%
Price						
Competition on price level is the most common way of addressing the competition	3.05	13%	20%	26%	29%	12%
The prices of my services are not very high for not turning the patient to another dentist	3.14	10%	15%	34%	32%	9%
The prices of my services are not very low, because it suggests low quality dental treatment	3.78	9%	3%	17%	43%	28%
I am trying to reduce the cost of my services, to keep prices low	2.43	31%	26%	21%	14%	8%
Promotion						

agree". The corresponding percentages at each scale are shown in columns 3-7. The percentage of agreement to a statement is the sum of the responses "agree" and "strongly agree". Similarly, the percentage of disagreement to a statement is the sum of the responses "disagree" and "strongly disagree". Apart from the Likert scale type questions, there are also some other questions for every tool of the marketing mix, that are answered with a different method (YES / NO, hierarchical order). These are not included in the tables below but they are discussed directly in the text.

1) Product (Service): In our sample, 84% of the dentists agree with the statement that they offer the whole range of dental services and only a small percentage (7%) addresses exclusively specialized dental conditions. It is apparent that a majority of Greeks visit the dentist for solely operative treatments (in response to pain and for rehabilitation) such as dental fillings, root canal treatment, extractions, crowns, dentures, etc., and not for prevention or aesthetic purposes [33]. On the other hand, from the interviews, it appears that Greek dentists are less focused on cosmetic dentistry. This is possibly because cosmetic dentistry involves expensive treatments (porcelain veneers, orthodontic, layering techniques) that are currently less attractive, also due to income reduction in Greece. The situation is similar for other expensive services such as implants. Aesthetic treatments, already very popular in dental services in other countries, such as face anti-wrinkle injections and the use of hyaluronic acid, due to ambiguous legislative issues restrict dentists from offering them. As a result, dentists are prone to offer the range of traditional dental services and not to concentrate on more specialized, expensive ones. Finally, 88.3%, of the dentists in our sample facilitate payment installment schemes for expensive treatments.

I avoid advertisement of my dental practice, because it contradicts the ethical Code set in the legislation	3.96	14%	8%	9%	7%	62%
I participate in social clubs for expanding my patients' circle	2.37	40%	13%	25%	13%	9%
I apply a reminder program (by phone or letter) for alerting my patients	2.68	31%	22%	15%	14%	18%
I send greeting cards to my patients for Christmas and Easter	1.45	74%	14%	7%	4%	1%
People						
I always inform the patient about the cost before of any dental activity	4.54	1%	4%	4%	24%	68%
Before performing any dental activity I always receive patient's consent	4.74	1%	0%	4%	14%	81%
I attend at least every two years a seminar to improve my scientific knowledge	4.53	0%	3%	9%	21%	68%
I occupy an assistant for faster-better service	2.17	62%	4%	9%	5%	20%
Process						
I take care on the same day an urgent need of a patient	4.59	2%	3%	3%	18%	74%
I ensure that a non-urgent appointment with a patient is scheduled within 3 days of the initial request.	4.21	3%	4%	13%	29%	51%
Physical Evidence						
I bought new generation equipment the last 5 years.	4.05	14%	5%	3%	18%	60%

2) Place: Regarding interior design of the dental practice, 69.3% of respondents highly value the importance of interior decoration, with 29.7% of respondents undertaking some kind of renovation on an annual basis. Education levels are statistically significant with the importance given to the interior designing of the facility room of the dental practice ($p=0.029$). As for enhancing comfort, 76.6% use music as a means of relaxation for the patients.

3) Price: As shown in *Table 2*, pricing of dental services based on competition appears not to be an option for the majority of dentists, as only 40.5% has replied positively to the relevant question. Likewise same rate of respondents agrees with tactic of setting the prices at such a level that would not turn patients to another dentist. Nevertheless, 25.2% of the dentists disagree with this tactic. Conversely, greater agreement (71.1%) is observed, in that low prices suggest poor service. In an interesting correlation, dentists, with an inherited customer portfolio, express lower level of agreement to the policy of low prices aiming at preventing patients from shifting to another dentist ($p=0.031$).

4) Promotion: In the field of promotion and public relations, about 7 out of 10 avoid advertising because of prohibitions laid down in the dental code of conduct. In particular, the law prohibits advertising in the media, yellow pages, internet, as well as the distribution of leaflets for dental practices. However, it allows the use of websites. A restrained approach is also followed in the case of public relations, since only about half of the sample (53.1%) is involved in social activities aiming at widening their circle of patients. An even more conservative approach is exhibited towards their participation in information events organized in schools by the

dental association for preventive care and oral hygiene (55% do not participate). Interviews revealed that dentists place more emphasis on the dental practice itself (knowledge, technology, service quality) for expanding their patient pool and less emphasis on image promotion via their involvement in social events.

About online marketing, only 9.9% of dentists have a website, 11.7% use social media to communicate with patients and 21.6% recommend internet information sources to patients. Dentists with a Ph.D. displayed a greater level of agreement on maintaining a website ($p=0.002$), than dentists with master's and bachelor's degrees, and an even more positive relationship with the recommendation of internet information to patients ($p=0.002$). Also, 32.4% of the sample uses a reminder system (telephone or letters) for alerting patients. This practice is positively related to education level ($p=0.043$). However, only 5.4% sends greetings cards to patients. A more positive attitude is exhibited towards informing patients through leaflets, with 64% providing brochures on dental topics in the waiting room. Dentists claimed that this negative attitude towards online marketing is attributed to poor computer and internet skills but also to doubt in the effectiveness of such methods in relation to the corresponding cost. Besides, there is the perception that such actions may be perceived negatively by patients.

In a question about customer feedback and word of mouth advertising, 90% of dentists don't use exit questionnaires for monitoring patients' satisfaction, although 98.2% assert that patient satisfaction is a main advertising driver.

5) People: Regarding the human factor, a positive attitude of dentists is observed towards communication tactics before starting treatment. A percentage of 91.9% inform patients

about the cost of treatment and 94.6% seek the consent of patients before they start an examination or treatment session. In addition, practicing experience is negatively correlated to seeking consent in advance ($p=0,021$). The interviews revealed that this correlation may be due to a more authoritative medical mentality adopted by dentists with many years of service. It may also be the result of long-term and trustworthy relationships with patients, which can allow more autonomy in decision making for a dentist.

Another finding is a high willingness for advancing their level of knowledge, as 88.3% of dentists stated that they attend a seminar at least every two years to improve their scientific knowledge. Seminar attendance was found to have a negative association to both age ($p=0.033$) and years of service ($p=0.029$). This is in contrast to the fact that senior dentists showed statistically significant difference, with a higher level of agreement, in the statement that patients evaluate higher the knowledge of dentists ($p=0.020$) than the level of dental technology ($p=0.007$).

Furthermore, only 1 out of 4 dentists occupy an assistant in their dental clinic. The employment of an assistant was negative related with age ($p=0.032$) and positive related with education level ($p=0.000$). From the interviews it was revealed that senior dentists are used to practicing dentistry on their own, without providing specialized services, in contrast to Ph.D. dentists, who often apply treatments requiring four-handed dentistry.

6) Process: Regarding the process of providing dental care, as shown in *Table 2*, 91.9% of respondents address emergencies on the same day of request, 80.2% address a non-urgent appointment within 3 days from contact, while 79.3% of respondents, schedule longer appointments, in order to avoid long waiting times for patients. The years of service was negative related to same day emergency treatment ($p=0.039$). The interviews revealed that senior dentists put more effort to keeping their personal life unaffected by their profession. This is achieved by avoiding stressful situations such as emergency appointments, which disturb their regular workflow and results in extended working hours. Other reasons include heavy workload which limits slack times, but also lack of accounting for emergencies in their scheduling strategy. On the other hand, younger dentists seem to hope that they may attract new patients or maintain existing ones through emergency availability.

7) Physical Evidence: A large percentage of the sample showed appreciation to the importance of technological infrastructure in dental practices. More specifically, 78.4% have bought new generation dental equipment the last 5 years, with 52.3% having spent more than 5,000 euros on this investment. Statistical differences in the median values of the specific responses are dependent on age and years of service. Dentists over 50 years old and dentists with more than 20 years in the profession bought less equipment ($p=0.03$) and also invested less money on these purchases ($p=0.028$).

Table 3 lists the dental equipment technologies by popularity of possession in dental practices. Equipment popular to dentists includes the intraoral camera (62.2%), electronic locator root tip (60.4%) and software for history/patient records (52.3%). However, less than 1% of the sample

possesses laser equipment for treating hard tissues. Statistically significant relations emerged regarding the type of technology, based on years of service ($p=0.002$), and education level ($p=0.002$). More specifically, it was found that dentists with less experience are more likely to possess dental technology equipment, such as intraoral camera ($p=0.034$) and digital radiography ($p=0.002$). On the other hand, dentists with 10-20 years of service possess more sophisticated devices such as laser for soft tissue ($p=0.012$) and teeth whitening systems ($p=0.028$). Finally, dentists with 5-10 years in the profession had the highest possession rates of implant equipment, followed by dentists with less than 5 years of service ($p=0.033$). On the level of education, dentists with PhDs showed higher possession rates for implant ($p=0.000$), digital photo ($p=0.043$) and dental record systems ($p=0.011$).

Table 3. Possession of dental equipment technologies.

The dental practice possesses	% of positive responses
Intraoral camera	62.20%
Apex locator	60.40%
Patient dental record management software	52.30%
Endodontic rotary instruments	45%
Digital x-ray	45%
Digital photo	33.30%
In practice whitening system	28.80%
Appliances for implant placement	21.60%
Laser for soft tissues	14.40%
CAD/CAM	5.40%
Laser for hard tissues	0.90%

Discussion

The study presented in this paper aims at assessing the utilization level of marketing applications by Greek dentists who run private dental practices.

Regarding the marketing mix for services and especially pricing, the study revealed that more dentists dismiss price lowering, as an indication of low quality services. Less than half of the dentists (41%) follow a competition based pricing policy, aiming at preventing patients from shifting to another dentist. In related research [34] managers of large dental practices in Finland stated that their prices were not affected by the prices of other competitor dentists, except from the era of the Great Depression in the early 90's. Rather, they appear to compete on quality and choice of services. Nevertheless, price competition remains in the agenda of health services that wish to gain a market share [35].

An important result of this study is related to the technological infrastructure in dental surgery. 8 out of 10 dentists have bought new generation equipment during the last 5 years, and half of them have spent more than 5000 euros for this investment. Age and years of service were found to be negatively correlated to the financial investment in new technologies. This is because senior dentists believe that

patients put more weight on the level of knowledge than on technology. However, though often over-looked by senior dentists, the importance of new and emerging technologies to the dental practice, quality of services is profound, as supported by studies worldwide [36-39].

9 out of 10 dentists in the sample attend at least one seminar every two years to improve their scientific knowledge. Again, attendance was found to be negatively related to both age and years of service. This, however, contradicts the fact that senior dentists are more strongly convinced that patients value higher the knowledge of a dentist. A study on the perception of Greek patients about dental care, reported low satisfaction of patients regarding the continuing education of dentists and their participation in conferences and seminars [40]. In similar studies in Great Britain, 90% of dentists said that they attended a relevant seminar within the past year as part of their continuing professional education [41,42]. They also stated that the main obstacles to further improving their qualifications are the high workload as well as the high seminar costs which often don't provide a proportionate benefit [42].

In our sample, a very low rate of dentists employ an assistant (25%). The employment of an assistant is negatively correlated with age and positive related with education level. The low employment rate of assistants from Greek dentists has also been observed in other studies [4]. However, developments in dental techniques propose the four-handed dentistry as a means of improving the productivity of the dental practice [43].

Regarding promotion, about 7 out of 10 participants in our sample avoid advertising, in compliance with the prohibitions of ethical regulations. Contradictory opinions are expressed in the literature regarding this matter. Studies in the US [44] and New Zealand [45], in the years when restrictions on dentists' advertising were waived, reported a positive turn of dentists towards advertising. Conversely, in Hong Kong [46] and South Africa [47] the majority of dentists expressed disagreement towards advertising and opposed the removal of the ads prohibition. Certainly these studies are quite old and may not reflect the current situation. Patients, however, seem to be positive towards advertising as in more recent assessments the majority of respondents believed that dentists who advertise themselves provide higher quality services than those who did not [11] and that advertising is welcome when it aims at providing information rather than at attracting sales [48].

Our study revealed low interest on public relations, with more than half of the dentists refraining from participating either in social actions or in information events of the dental association for broadening their circle of patients. For attracting new patients, their approach is rather focused on the quality of dental practice and less on image promotion via their involvement in social events. Again, this is in contrast to studies that show improvement in attracting patients from the use of social and public relation activities [49]. A negative attitude was also observed in our sample towards online marketing, possibly due to the low level of computer experience but also due to doubt on their effectiveness. Only 1 out of 10 dentists maintain a website or use social media to

communicate with their patients, while only 2 out of 10 suggest to their patients internet sources for obtaining information. This negative attitude towards the use of internet contradicts studies regarding the use of internet for health matters. In one such study it was shown that the majority of young Greeks (15-35 years old) consider the existence of a clinic's website as an important criterion for selecting a doctor [50]. Limited use of internet services were also reported in a survey in Wales. There, dentists stated that their patients were interested in dentistry services about which they read on the internet, with 39% of the dentists agreeing that this information has led patients to demand inappropriate services [51].

A reticent attitude is also reported in our sample towards implementation of reminders (by telephone or letters/emails) for alerting patients. The level of education was found to impact positively the implementation of these practices. Additionally, very few dentists send greeting cards to their patients considering that such actions are not only costly but that they may also raise negative views. In contrast, in other countries, the re-call system, in conjunction with the development of a personal relationship with the patient, is the most common strategy for increasing demand rates, even when the most conservative marketing approaches are applied [34]. Moreover, the reminder of appointments makes patient realize that the office is well-organized and interested in the patient [16]. Finally, a more positive attitude of the participants in our sample was identified in promoting messages through dental leaflets in the waiting room, which is generally considered by patients a handy communication tool [52].

A positive attitude is also reported towards the response and availability in emergency situations. The majority of dentists try to temporarily address an emergency situation on the same day, and arrange a non-urgent appointment within three days. Another good practice that is identified is the use of long booking slots for appointments, resulting in low waiting times for patients. All these activities are fundamental to customer satisfaction as documented in the literature [24].

Conclusion

Dentists, who own and manage their practice, do not seem to follow an integrated approach to the marketing process, regardless of the reduced demand for dental services which occurs due to the economic recession. Greek dentists are more attached and acquainted to their medical role, relying at improving their product (dental care) for retaining or attracting patients, although they could also substantially benefit from adopting management and marketing methods. The present study shows hesitancy to acknowledge or adopt marketing techniques that could potentially assist them in running a better service. This may be due to the belief that investing in such techniques will not eventually pay-off, as patients can't afford more than the absolute necessary, or due to lack of initial capital or time to invest in such techniques.

However, dentists in Greece, but in other countries too, can benefit from the acquisition of managerial education and marketing insight, which could alert future dentists-entrepreneurs about their upcoming professional challenges in

order to run their business more efficiently. The adoption of some of the marketing principles, well acknowledged for their benefits in the business world, may help dentists address the impact of the economic crisis, uncertainty and competition by recognizing and leveraging existing opportunities and enhancing creativity [53], retaining their client base and do that at a small cost. The necessary knowledge can be acquired via the (online [54] or traditional) attendance of relevant educational seminars, elective courses in their undergraduate studies or postgraduate studies. Moreover, a careful review of the regulations for dental advertising, especially the online marketing possibilities, would allow greater freedom to dentists in this field. More importantly, many of these practices would lead to improved quality service and improved dental health as, for example, patients would be more informed about their dental problem [55], would be reminded for not missing their dental appointment and would receive better dental care with less pain by advanced dental technology.

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Conflict of interest

The authors declare that they have no competing interests.

References

1. Umesan UK, Lay CK, Balakrishnan P. Are we victims of aggressive marketing? *American Journal of Orthodontics and Dentofacial Orthopaedics*. 2012; **141**: 132.
2. SAMA. Marketing your medical practice -part II. *South African Medical Journal*. 2004; **94**: 618-620.
3. Oulis K, Yfantopoulos I. Promotional program and documentation of oral health in Greek population. *Greek Dental Association*. 2011; **152**: 18-19.
4. Damaskinos P, Economou C. Systems for the provision of oral health care in the Black Sea countries part 10: Greece. *Oral Health and Dental Management*. 2012; **11**: 3-10.
5. Decision of the Competition Committee. *Greek Dental Association*. 2005; **122**: 10-12.
6. Zavras D, Economou C, Kyriopoulos J. Factors influencing dental utilization in Greece. *Community Dental Health*. 2004; **21**: 181-188.
7. Simou E, Koutsogeorgou E. Effects of the economic crisis on health and healthcare in Greece in the literature from 2009 to 2013: A systematic review. *Health Policy*. 2014; **115**: 111-119.
8. OECD. OECD Health Data. Organisation for Economic Co-operation and Development, Paris. 2009.
9. Dewi FD, Sudjana G, Oesman YM. Patient satisfaction analysis on service quality of dental health care based on empathy and responsiveness. *Dental Research Journal*. 2011; **8**: 172.
10. Hill CJ, Garner S, Hannafin ME. What dental professionals should know about dental consumers. *Health Marketing Quarterly*. 1990; **8**: 45-57.
11. Edwards DT, Shroff B, Lindauer SJ, Fowler CE, Tufekci E. Media advertising effects on consumer perception of orthodontic treatment quality. *The Angle Orthodontist*. 2008; **78**: 771-777.
12. Creamer B. The slight edge to success. *Catalyst Magazine*. 2009: 46-50.
13. Booms BH, Bitner MJ. Marketing strategies and organization structures for service firms. *Marketing of Services*. 1981; **25**: 47-52.
14. Shah P. Optimizing aesthetics and function through interdisciplinary dentistry. *General Dentistry*. 2008; **56**: 268-272.
15. Esfandiari S, Lund JP, Penrod JR, Savard A, Mark Thomason J, et al. Implant overdentures for edentulous elders: study of patient preference. *Gerodontology*. 2009; **26**: 3-10.
16. Giovino JM. You should see my doctor: Cost-effective marketing ideas for your practice. *Family Practice Management*. 2002; **9**: 33-40.
17. Arora R. Influence of pain-free dentistry and convenience of dental office on the choice of a dental practitioner: An experimental investigation. *Health Marketing Quarterly*. 1999; **16**: 43-54.
18. Kabir J, Mellor A. Factors affecting fee setting for private treatment in general dental practice. *British Dental Journal*. 2004; **197**: 200-203.
19. Downes P. Putting it all together; dentistry and the internet. *British Dental Journal*. 2007; **203**: 75-86.
20. Miller SA, Forrest JL. Dental practice websites: creating a web presence. *Dental Clinics of North America*. 2002; **46**: 463-475.
21. Smith RN, Smith M. Marketing the cosmetic practice via television. *Current Opinion in Cosmetic Dentistry*. 1994; 100-106.
22. McKenzie S. Traveling in circles? Take the direct route to practice success. *Dental Tribune: Middle East & Africa edition*. 2006: 6.
23. Runkle K. The business of dentistry. *Dental Economics*. 2011; 101.
24. Luzzi L, Spencer AJ. Factors influencing the use of public dental services: An application of the Theory of Planned Behaviour. *BMC Health Services Research*. 2008; **8**: 93.
25. Chu C, Lo E. Patients' satisfaction with dental services provided by a university in Hong Kong. *International Dental Journal*. 1999; **49**: 53-59.
26. Diaz-Lundstedt F, Eshaghian R. Essential marketing skills for dentists: discover the new basics for attracting first-rate patients to your office. Dental Marketing Center, Chatsworth CA. 2002; 5-62.
27. Griffith AS, Abratt R. The consumer-provider relationship in the dental industry. *Health Marketing Quarterly*. 2013; **30**: 221-234.
28. Brosky ME, Keefer OA, Hodges JS, Pesun IJ, Cook G. Patient perceptions of professionalism in dentistry. *Journal of Dental Education*. 2003; **67**: 909-915.
29. Schiff A. Dental office marketing budget review. *Dental Economics*. 2009: 99.
30. Levin R. Technology in dentistry. *Compendium of Continuing Education in Dentistry*. 2002; **23**: 774-776.
31. Land T. Market research: What patients think of dental services. *British Dental Journal*. 2000; **189**: 21-24.
32. Levin R. Smaller practices can be profitable. *Dental Economics-oral Hygiene*. 1997; **87**: 22-22.
33. Pavi E, Karampli E, Zavras D, Dardavesis T, Kyriopoulos J. Social determinants of dental health services utilisation of Greek adults. *Community Dental Health*. 2010; **27**: 145-150.
34. Mikkola H, Vesivalo A, Jauhiainen S, Widstrom E. An outlook of dental practices-drivers, barriers and scenarios. *Liiketaloudellinen aikakauskirja*. 2007; **2**: 167.
35. Kotler P. Reinventing marketing to manage the environmental imperative. *Journal of Marketing*. 2011; **75**: 132-135.
36. Lund A. Does keeping up with the latest technology affect the quality of patient care? *Journal of the American Dental Association*. 2003; **134**: 425.
37. Bjørndal L, Reit C. The adoption of new endodontic technology amongst Danish general dental practitioners. *International Endodontic Journal*. 2005; **38**: 52-58.
38. iP Tay K, Wu JM, SS yew M, Thomson WM. The use of newer technologies by New Zealand dentists. *New Zealand Dental Journal*. 2008; **104**: 104-108.

39. Armstrong JL, Boardman AE, Vining AR. Key steps in the strategic analysis of a dental practice. *Health Marketing Quarterly*. 1999; **16**: 33-51.
40. Karydis A, Komboli-Kodovazeniti M, Hatzigeorgiou D, Panis V. Expectations and perceptions of Greek patients regarding the quality of dental health care. *International Journal for Quality in Health Care*. 2001; **13**: 409-416.
41. Bullock A, Firmstone V, Fielding A, Frame J, Thomas D, et al. Participation of UK dentists in continuing professional development. *British Dental Journal*. 2003; **194**: 47-51.
42. Leggate M, Russell E. Attitudes and trends of primary care dentists to continuing professional development: A report from the Scottish dental practitioners survey 2000. *British Dental Journal*. 2002; **193**: 465-469.
43. Guay AH, Lazar V. Increasing productivity in dental practice: The role of ancillary personnel. *The Journal of the American College of Dentists*. 2011; **79**: 11-17.
44. Bergiel B. A longitudinal analysis of dentists' attitudes toward advertising their fees and services. *Journal of Dental Education*. 1982; **46**: 703-706.
45. Fay M, Bell J. A longitudinal study of the attitudes of the dental profession towards competition and advertising. *The New Zealand Dental Journal*. 1997; **93**: 10-13.
46. Newsome P, Sun D, Walters R. A survey of Hong Kong dentists' attitudes towards advertising. *International Dental Journal*. 2001; **51**: 428-434.
47. du Preez I, van der Merwe C, Hugo L. Attitude of South African dentists and final year dental students to advertising. *The Journal of the Dental Association of South Africa*. 1989; **44**: 433-438.
48. Chandler EW, Weller RB. The practice of marketing by dentists. *Health Marketing Quarterly*. 1994; **12**: 73-96.
49. Pickett GM, Grove SJ, Ratcliff R. Using promotion to increase dental practices. *Journal of Health Care Marketing*. 1992; **12**: 22-30.
50. Roumeliotaki T, Chronaki CE. Using the internet for health purposes: Perceptions and attitudes of Greeks in the 15-35 years age group. *Archives of Hellenic Medicine*. 2009; **26**: 246-256.
51. Chestnutt I, Reynolds K. Perceptions of how the Internet has impacted on dentistry. *British Dental Journal*. 2006; **200**: 161-165.
52. Ashford R. An investigation of male attitudes toward marketing communications from dental service providers. *British Dental Journal*. 1998; **184**: 235-238.
53. Handal B, Groenlund C, Gerzina T. Academic perceptions amongst educators towards eLearning tools in dental education. *International Dental Journal*. 2011; **61**: 70-75.
54. Joffe H. Adherence to health messages: A social psychological perspective. *International Dental Journal*. 2000; **50**: 295-303.
55. Chisholm-Burns MA. A crisis is a really terrible thing to waste. *The American Journal of Pharmaceutical Education*. 2010; **74**: 19.