

Evaluation of the Knowledge of General Dental Practitioners in Tabriz about the Implant Treatment Planning

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Abstract

Introduction: Based on available evidence, demand for dental implants is on the rise in Iran similar to that in other countries. Therefore, it seems it is necessary to promote the knowledge and performance of dentists in this respect. The aim of the present study was to evaluate the knowledge of general dental practitioners in Iran about the implant treatment planning.

Materials and methods: In the present cross-sectional survey, 272 general dental practitioners in Tabriz were evaluated. Data were collected using a researcher-made questionnaire whose validity and reliability had been confirmed. Data were analyzed with descriptive and analytical statistical methods using SPSS 21.

Results: The results showed a mean knowledge score of 19.4 in relation to dental implant treatment planning among general dental practitioners in Tabriz; 1.1% of dentists had low knowledge level, 79% had moderate knowledge level and 19.9% had good knowledge level. Analysis of data showed a significant relationship between the dentists' knowledge level and job experience, gender and a history of participation in continuous education programs.

Conclusion: On the whole, the general dental practitioners in Tabriz had a moderate level of knowledge about dental implant treatment planning.

Keywords: Implant; Knowledge; Dentists; Tabriz

Introduction

The edentulous adult population size is decreasing in size gradually; however, due to the ever-increasing population of the world, the number edentulous individuals who need implants is increasing (1). This fact shows the necessity of increasing the knowledge of

dentists about the principles of fabrication and maintenance of prosthetic appliances and implant treatments. It is incumbent on the dentists to apply correct diagnosis and treatment planning for the placement of implants during clinical procedures (1); in this

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context, all the physiologic, anatomic and emotional aspects of the patient should be simultaneously considered in association with his/her general medical health status (2). After correct diagnosis and proper treatment planning, the dentist should make sure of the accuracy of clinical steps. Despite such considerations, dentists still encounter patients who have problems with their dental implants and cannot use them properly despite the fact that all the above-mentioned considerations have been taken into account. A large array of problems are encountered during or after loading (3).

The use of dental implants has increased all over the world because they have an efficacy rate of almost 100% (1-4); they have no problems similar to those with fixed and removable prosthetic appliances such as traumas to adjacent teeth; and they do not have some other problems, including resorption of the alveolar ridge, undesirable esthetic appearance etc (4). Dental implant science is making progress through the results of new research studies and through an increase in awareness about the biologic principles establishing the relationship between vital structures and artificial components. In addition, despite a high success rate, some failures have been recorded with implant treatments (4,5). Based on quantitative criteria, implant failure consists of a decrease in implant efficacy to a level below the acceptable threshold. A recent definition includes all forms of mechanical mobility (horizontal, vertical and rotational) and bone loss around the implant up to more than 0.2 after the first year of loading or bleeding on probing and probing depth more than 5 mm (5).

One of the concerns of implant patients is the outcome of treatment. Dental implants have been used for the reconstruction of edentulous areas in patients and their use has increased in recent years (6,7). There is still

limited data available about the results of implant treatments (8). If dental implants fail clinically or paraclinically, heavy costs will be inflicted on the patient and the dentist and also a lot of time will be wasted (9). Several factors are involved in the success of dental implants, the most important of which is the observation of surgical–prosthetic and hygienic criteria (10). The Committee of British General Dental Practitioners has issued a declaration, referring to dental practitioners who have carried out surgical operations without sufficient information about implant placement techniques, resulting in several lawsuits against dentists. Not all dentists have taken part in classes to learn the necessary skills required for implant placement, including treatment planning and the surgical technique; therefore, they are rarely successful if they render treatment. Efforts should be made to promote the skill of dentists for such treatment (11). However, achieving such a favorable goal requires knowledge in this field, which is not possible unless programs are prepared and coordination is achieved between specialist groups for classes and the relevant courses. Therefore, more educational courses should be programmed to achieve the desired goals (12).

Levin et al. carried out a study through interviewing and reported that 80% of general dental practitioners felt that they needed more educational courses on implant placement because they felt they were not adequately oriented in many cases of diagnosis and treatment planning; 60% of the subjects did not carry out many dental procedures due to a lack of proper knowledge (13).

Haghighi et al. reported that dentists in Isfahan did not have proper knowledge about dental implants, with general dental practitioners being less knowledgeable than specialists (14). Although no exact statistics is available in Iran about dental implant treatment, evidence indicates that the demand



for dental implants is on the rise similar to that in other countries and the majority of dentists are familiar with dental implants and introduce it as a proper treatment plan. If such a trend is held truly, it is necessary for all the dentists to become familiar with such a treatment modality. Therefore, promotion of awareness and knowledge of dentists up to a level proportional to routine needs is one of the necessities of continuous education programs (14). As a result, the aim of the present study was to determine the knowledge of general dental practitioners in Tabriz about dental implant treatment planning so that the results might be used in programming for educational courses in Tabriz Faculty of Dentistry and in preparing continuous education programs for dentists.

Materials and Methods

Study design

The present cross-sectional survey evaluated 272 general dental practitioners who had active dental offices in Tabriz in 2013. The subjects were selected randomly. Simple random sampling technique was used to select subjects. The dentists' list was provided by the Medical Council Tabriz Branch and the subjects to be included in the study were selected using the website at www.randomizer.org.

Data were collected with the use of a researcher-made questionnaire, which consisted of questions on age, gender, job experience, participation in seminars and continuous education programs and also questions on the level of knowledge about dental implant treatment planning. There were a total of 30 questions on the questionnaire. Each correct response received a positive score and wrong responses did not receive any scores. Each subject's total score in relation to knowledge was the sum of all the positive scores, with maximum and minimum scores of 30 and zero, respectively. Scores under 15 were considered low knowledge level, scores between

1 and 20 were considered moderate knowledge level and scores over 20 were considered good knowledge level.

To evaluate the validity of the questionnaire, it was given to 4 Faculty professors and the necessary revisions were made.

To determine the reliability of the questionnaire after confirmation of its validity, the questionnaire was distributed among 20 dental practitioners as a pilot study. Then Cronbach's alpha was calculated for its reliability and after approval of the proposal, the questionnaires were distributed. These procedures were carried out in April and Cronbach's alpha was calculated at 82.0.

Inclusion and exclusion criteria

Subjects who gave their consent to participate in the study were included. Questionnaires which were filled out incompletely were excluded from the study.

Analysis of data

To determine knowledge level, the sum of correct responses was calculated and the means and standard deviations of knowledge scores were determined. Data were analyzed with SPSS 21. Statistical significance was defined at $P < 0.05$. Chi-squared test was used to evaluate knowledge levels based on dependent variables.

Results

Of 272 dentists included in the study, 48.2% and 51.8% were female and male, respectively; 44.1%, 11.1%, 37.5% and 7.3% of the subjects were 25–30, 31–40, 41–50 and over 51 years of age, respectively. 41.2% of the subjects had job experiences for less than 5 years and 22.1%, 30.9%, 4.8% and 1.1% had job experiences of 5–10, 10–20, 20–30 and over 30 years, respectively. 57% of the subjects had participated in seminars and continuous education programs and 43% had not participated in such courses.



The results of the evaluation of knowledge level of general dental practitioners in Tabriz in relation to dental implant treatment planning based on 30 questions in the questionnaire showed a mean knowledge score of 19.44 with a standard deviation of 1.83 and a range of 15–

25. The maximum attainable score was 30. The results showed that 1.1% of dentists had low knowledge level, 79% had moderate knowledge level and 19.9% had good knowledge level (Figure 1).

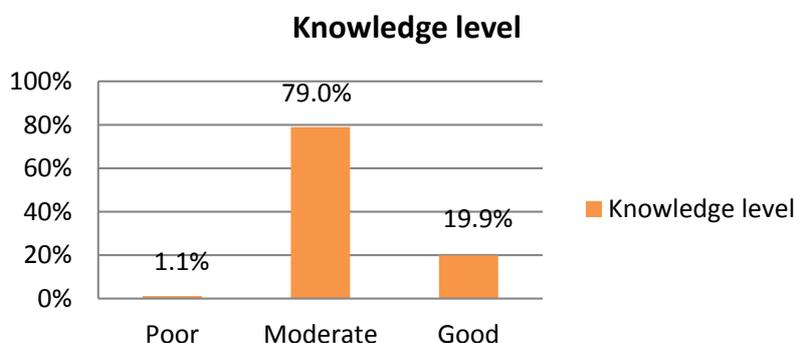


Figure 1: Evaluation of knowledge level of general dental practitioners in Tabriz in relations to implant treatment planning

Knowledge about implant treatment planning among female dental practitioners was as follows: poor (2.2%), moderate (80.3%) and good (17.5%); knowledge among males was as follows: poor (0%), moderate (77.8%) and good (22.2%) (Figure 2).

Chi-squared test showed a significant difference in knowledge between male and female dental practitioners, with a higher knowledge level in males compared to females ($P < 0.05$).

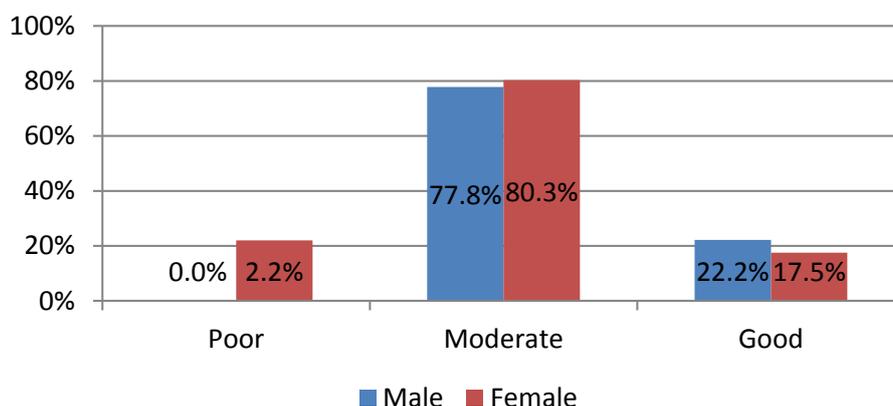


Figure 2: Evaluation of the level of knowledge of dentists about dental implant treatment planning based on gender

Chi-squared test revealed significant differences in the knowledge level of dental practitioners about dental implant treatment planning based on job experience. In this context, knowledge

level increased with an increase in job experience ($P = 0.005$) (Figure 3).

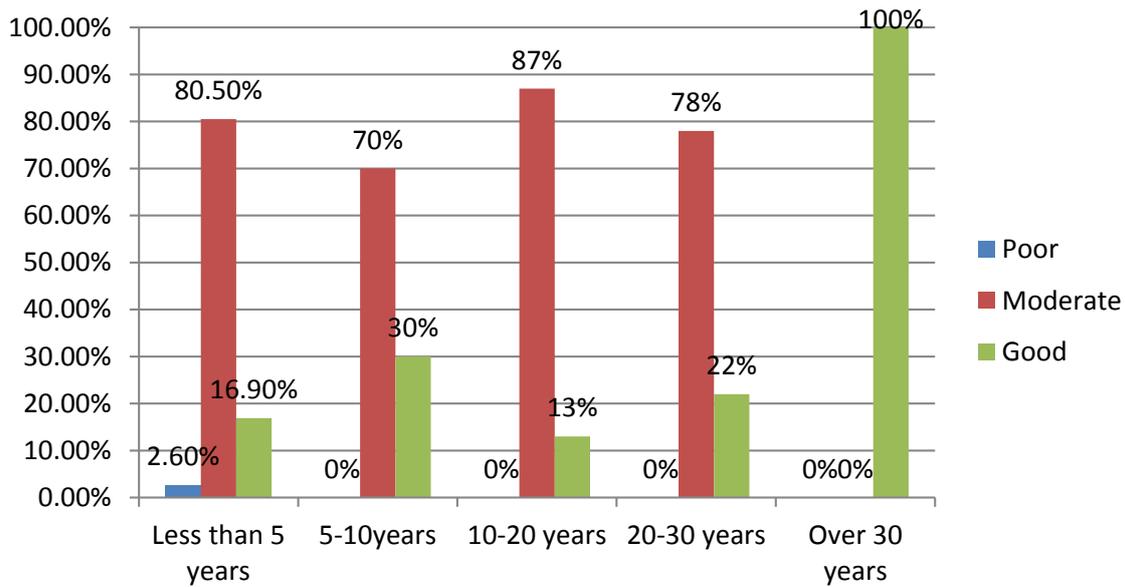


Figure 3: Evaluation of knowledge level of general dental practitioners about implant treatment planning based on job experience

Evaluation of knowledge level of general dental practitioners about implant treatment planning based on participation in continuous education programs using chi-squared test showed significant differences between dentists, i.e.

dentists participating in such courses had significantly higher knowledge levels compared to those not participating in such courses (P=0.007) (Figure 4).

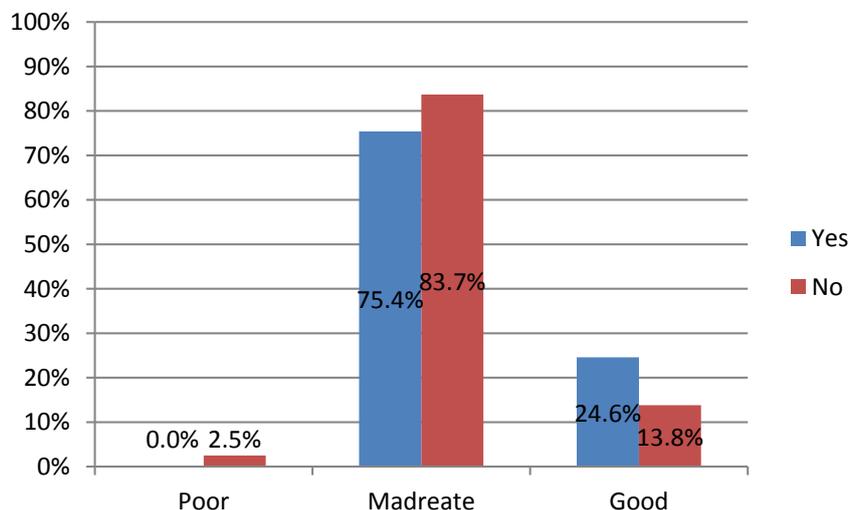


Figure 4: Evaluation of knowledge level of general dental practitioners about dental implant treatment planning based on participation in continuous education programs

Discussion

Usually teeth are lost with aging. Based on experience, maxillary teeth are lost earlier than

the mandibular teeth and posterior teeth are lost earlier than the anterior teeth (15).



The chief need of patients is replacement of lost teeth. Therefore, it is absolutely necessary for dentists to be aware of the principles of the fabrication and maintenance of implants and prosthetic appliances that have correct and proper function (1). It is the responsibility of the dentist to apply correct diagnostic and treatment protocols during fabrication of dental implants,¹ by considering all the physiologic, anatomic and emotional aspects of the patient in association with his/her general medical health. After correct diagnosis and proper treatment planning, the dentist should make sure of the accuracy of laboratory steps, too. In spite of all such considerations, dentists still encounter patients who have problems with their implants and cannot properly benefit them. Therefore, the present study was an effort to evaluate the knowledge level of general dental practitioners in Tabriz about dental implant treatment planning (1).

The results of the present study showed a mean knowledge score of 19.4 in relation to dental implant treatment planning, with a range of 15–25. In addition, 1.1% of dentists had poor knowledge, 79% had moderate knowledge and 19.9% had good knowledge. In general, the dentists had moderate knowledge about dental implants.

Haghighi et al. evaluated 300 general dental practitioners in Isfahan in relation to their level of knowledge about dental implants and reported poor knowledge, indicating the necessity to promote knowledge in this respect (14). In another study, dentists believed, after some years of working, that their education in relation to dental prostheses was not sufficient and asked for the promotion of such education in dental schools (16). However, in another study, although the general attitudes of dentists were positive toward their education, they believed that instructions provided by dental schools should be promoted to make dentists ready to enter their professional life,

especially the practical aspects of dental treatment (17).

Levin et al. carried out a study through interviewing and reported that 80% of general dental practitioners felt that they needed educational courses on dental implants because they had insufficient knowledge about dental implants and 60% of interviewees did not carry out many dental procedures due to their lack of knowledge (13).

Chi-squared test revealed significant differences between dentists based on job experience, i.e. the knowledge level increased with an increase in job experience. Other studies have reported a decrease in knowledge level with the time elapsed after graduation from university (18), which might be attributed to the fact that young dentists have low knowledge level due to a decrease in the quality of education. In addition, it is possible that dentists with more job experience have been able to acquire higher knowledge scores because of their active participation in continuous education and self-learning programs. Further studies are necessary considering the discrepancies mentioned above.

In a study by Mosharraf et al., the mean knowledge scores decreased with an increase in the years after graduation (18), which might be attributed to the fact that dentists get involved in professional and personal problems and are distanced from the academic sources. Therefore, it is necessary to revise continuous education courses from quantitative and qualitative viewpoints and motivate dentists to preserve their contact and relationship with academic sources and continue learning.

Another study showed that newly graduated dentists had higher scores and their scores decreased gradually with the elapse of time after graduations (19), which might be attributed to the fact that the theoretical



knowledge of newly graduated dentists are at a higher level compared to dentists who are preoccupied with professional and personal problems.

In another study, it was emphasized that despite improvements in dentists' abilities and skills which are acquired due to clinical experience, there is the fact that the practitioner experiences some drawbacks in some aspects after graduating from the university (18,19), necessitating the continuation of learning. In addition, another study showed a higher knowledge level in dentists taking part in continuous education programs and seminars compared to those not participating in such programs. Studies have shown that practical and theoretical educational programs and self-learning courses have a role in promoting the dentists' knowledge and expertise to treat their patients (20).

Conclusion

It can be concluded from the results of the present study that:

1. The knowledge of general dental practitioners in Tabriz about dental implant treatment planning is not sufficient.
2. The dentists' knowledge is directly proportional to their history of participation in seminars and continuous education programs.
3. The dentists' knowledge is directly proportional to their job experience.

Recommendations

Considering the results of the present study and the low level of knowledge of dentists and the direct relationship between knowledge level and participation in continuous education programs, it is suggested that instructions be provided in direct and distant-learning continuous learning programs through technical journal and other means. It is also recommend that the contents of the currently available programs be revised. In addition, the educational programs provided for dental students should be revised.

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