



## Attitudes of Thai Dentists in Providing Implant Maintenance Care

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### Abstract

This study aimed to survey the attitudes of Thai dentists toward dental implant maintenance care in their daily practice. The online questionnaires were sent to Thai dentists who graduated between 2000 and 2016. A total number of 429 valid responses were included for the assessment. Most of the respondents gained their basic knowledge about implant dentistry from undergraduate and postgraduate curriculum (44.6% and 43.6%, respectively). There were 64.3% and 59.4% of the participants who agreed that surgical placement and restoration of dental implant should be obligated only by dental implant specialist, nevertheless, 22.4% agreed that dental implant maintenance care should be limited to only by specialists. The majority of the participants (88.5%) reported their willingness to give comprehensive oral examination on natural teeth and implant, only half of them (51%) would provide dental implant maintenance care. The present study revealed that, in daily practice of general dentists, there were some obstacles in providing dental implant maintenance care that caused most of the respondents who decided not to provide maintenance care thought that their knowledge and training were not enough to provide the procedures (79%).

**Keywords:** Attitudes, implant maintenance, Thai dentist

### 1. Introduction

Dental implant is a new mainstream treatment modality and now considered as an efficient option for tooth replacement. The number of implants those are increasing tremendously worldwide as well as Thailand. Success outcome of dental implant is considered high whereby the 10 years survival rates is 92.4% (Karoussis, Brägger, Salvi, Bürgin, & Lang, 2004). Nonetheless, dental implant presented the complication rates in 10-16 years follow up period as 48.03% and increased with time in function (Roos-Jansäker, Lindahl, Renvert, & Renvert, 2006; Simonis, Dufour, & Tenenbaum, 2010). Regarding this issue, long-term follow-up care is needed after successful implant restoration. Adherence to implant maintenance recall was crucial for implant survival as well as receiving professional maintenance care at least once a year could also prevent implant loss (Gay et al., 2016; Monje et al., 2016). Since there were an absent of universal protocols for dental implant maintenance care and ambiguous role of the dentist who first initiated dental implant treatment and subsequent care. The procedure of dental implant maintenance care might vary among dental practitioners, while it typically includes oral examination of surrounding tissue and restoration of dental implant, periodontal evaluation, radiographic examination and oral hygiene instruction (Todescan, Lavigne, & Kelekis-Cholakis, 2012). Subsequently, increasing number of implants being treated, implant maintenance care will be more common in daily practice so as implant-related complications. From our experiences, not all of the implant patients could have their maintenance visit with the dentist who initiated their implants for some reasons. As such, many implant patients happen to have their implant checkup with their family dentists who work on general dental care, the so called general dental practitioners (GDP).

In Thailand, most of GDP do not provide dental implant treatment and may have some obstacles in providing implant checkup and maintenance care. Although implant basic knowledge is currently provided in the graduate curriculum and more accessible on websites, the attitudes of Thai dentists toward dental implant care is not clarified. This study aimed to investigate the attitudes of Thai GDP in giving dental implant maintenance care.



## 2. Objectives

To investigate the attitudes of Thai GDP in giving dental implant maintenance care

## 3. Materials and Methods

This study was a descriptive cross-sectional survey and approved by the Human Research Ethic Committee of the Faculty of Dentistry, Chulalongkorn university. Sample size calculation was done by Yamane's formula resulted in 381 samples from 9,490 of population. The participants were Thai dentists who graduated during 2000-2016 and currently providing general dental treatment such as oral examination and dental cleaning in Thailand. A set of 17 items online questionnaires validated by 3 experts in the field of dentistry both clinical and dental education. The multiple choices questionnaires composed of 3 parts: consent of participation, general information, attitudes and response in dental implant maintenance care. The volunteers were asked to share the link to their friends.

The data were analyzed using IBM SPSS statistics for Windows, Version 22.0 (IBM, Armonk, NY). A P-value < 0.05 will be considered statistically significant. The relationship of participants 'general information was access with descriptive statistic.

## 4. Results and Discussion

### 4.1 Results

Among 435 completed responses, 6 were excluded because the respondents provided only their specialized procedures which did not include general dental treatment. The characteristic of the study subjects is shown in Table 1. Most of the participants were female (75.5%), aged between 28-33 years (50.1%). Most of them had experience in dental practice for 1-10 years. About half of them were working in a public hospital and primary healthcare unit (59.3%). Around 70% of the participants have offered dental implant maintenance care to less than 10 patients in the past six months. Regarding the dental implant knowledge acquisition, the participants reported that they have gained from post-graduate education (44.6%), undergraduate education (43.6%) and few of them had never learned about dental implant (4%). For dental implant experiences, over half of the participants had never provided implant surgery (59%) or implant prosthesis (62.9%).

**Table 1** Characteristic of study subjects

Characteristic of study subjects	N	%
<b>Age (Years)</b>		
22-27	69	16.1
28-33	215	50.1
34-40	118	27.5
More than 40	27	6.3
<b>Gender</b>		
Female	324	75.5
Male	105	25.5
<b>Years of practice</b>		
1-5	174	40.7
6-10	158	36.9
11-15	73	17.1
16-20	23	5.4
<b>Employment status</b>		
Public hospital and primary healthcare unit	254	59.3
Private hospital	26	6.1
Private dental clinic	44	10.3
University based dental clinic	104	24.3

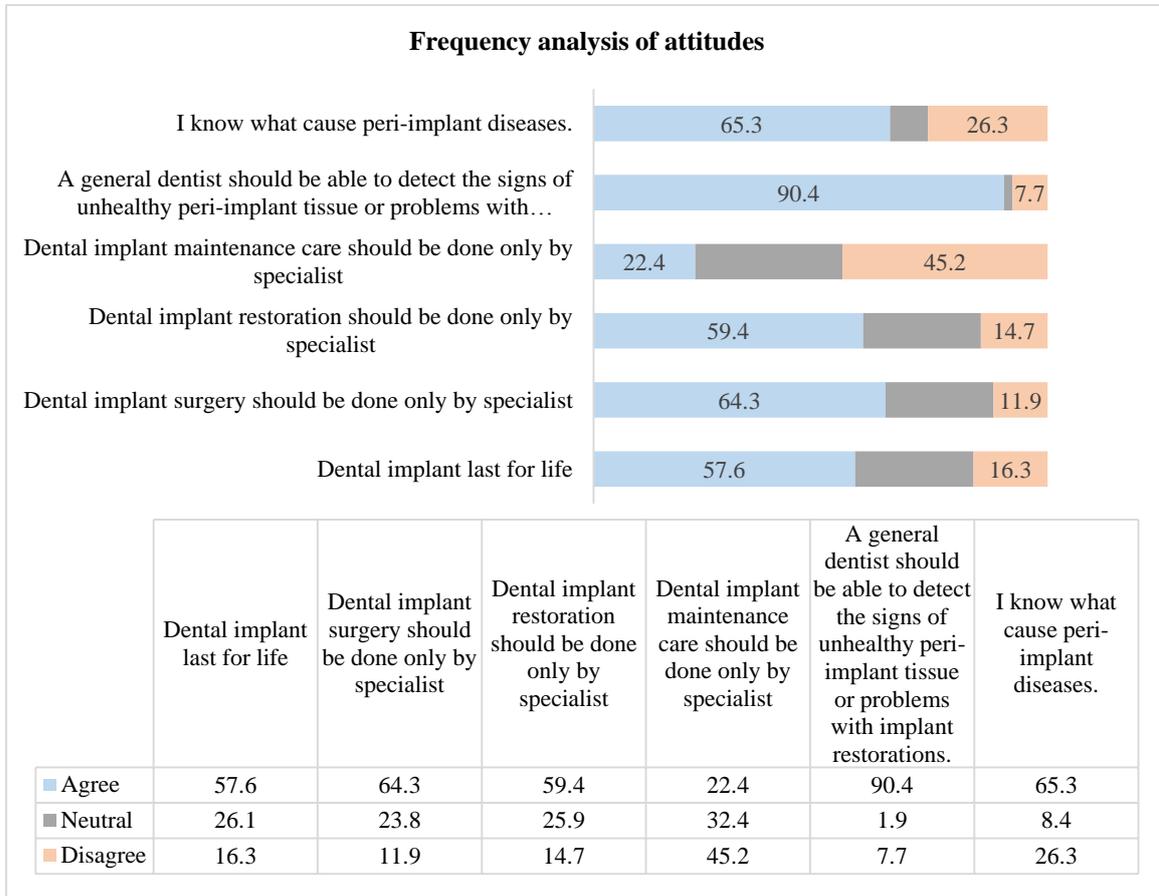
**Table 1** Characteristic of study subjects (Continue)

Characteristic of study subjects	N	%
<b>Number of patients have you offered implant maintenance care in the past 6 months</b>		
None	29	6.8
1-5 patients	197	46
5-10 patients	109	25.5
6-20 patients	39	9.1
More than 20 patients	54	12.6
<b>Basic knowledge about dental implant</b>		
Never	17	4
Undergraduate education	200	44.6
Post-graduate education	187	43.6
Self-directed learning	25	5.8

Attitudes about dental implant, 57.6% of the participants agreed that dental implant was a life time lasting treatment with mean score of  $3.54 \pm SD 1.103$  (Figure 1 and Table 2) 64.3% and 59.5% of them agreed that the surgical part and restorative parts of dental implant should be offered by a specialist only, with mean score  $3.78 \pm SD 1.065$  and  $3.67 \pm SD 1.088$  respectively. However, 45.2% of the participants disagreed and 32.4% neither agreed nor disagreed with the idea that implant maintenance care should be limited only to specialists. Moreover, most of them (90.4%) agreed that a GDP should notice the signs of dental implant problems with mean score of  $4.48 \pm SD 0.766$ . More than half of them (55.2%) thought they knew what cause peri-implant diseases with mean score  $3.73 \pm SD 0.941$ . Next, how they respond when they met a patient with dental implant in their practice, 31% of them reported that they would provide a comprehensive oral examination and maintenance of dental implant/restorations, 20% reported to provide comprehensive oral examination, maintenance and treatment of problems including problems of dental implants/restorations, 37.5% reported to provide comprehensive oral examination but treat natural dentition and refer any treatment related to dental implant to the specialist and 17.4% reported to provide oral examination only and refer implant examination, maintenance and treatment to the specialist. Despite a great number of participants (89.6%) reported their willingness to provide comprehensive oral examination on natural teeth and dental implant, still, 48.9% of them would refer the patients to the specialist for implant maintenance. (Table 3) The reasons for those who did not provide implant maintenance care were insufficient knowledge/training or unfavorable practice setting (Table 4).

**Table 2** Frequency analysis of attitudes

Item	Mean	SD
Dental implant last for life	3.54	1.103
Dental implant surgery should be done only by specialist	3.78	1.065
Dental implant restoration should be done only by specialist	3.67	1.088
Dental implant maintenance care should be done only by specialist	3.62	1.159
A general dentist should be able to detect the signs of unhealthy peri-implant tissue or problems with implant restorations.	4.48	0.766
I know what cause peri-implant diseases.	3.73	0.941



**Figure 1** Frequency analysis of attitudes

**Table 3** Response in dental implant treatment maintenance care

Items	Number of answer (%)			
	Provide comprehensive oral examination and maintenance of dental implant/restorations	Provide comprehensive oral examination, maintenance and treatment of problems including problems of dental implants/restorations	Provide comprehensive oral examination but treat natural dentition and refer any treatment related to dental implant to the specialist	Provide oral examination only and refer implant examination, maintenance and treatment to the specialist
When you see a patient with dental implants for regular dental check-up you will...	133 (31)	86 (20)	161 (37.5)	49 (11.4)

**Table 4** Reason for who were not provide dental implant maintenance

Reasons for not providing maintenance care (N=210)	Yes	No
Insufficient knowledge and training	79	21
Practice setting is unfavorable	45.7	54.3
Other	4.8	95.2

#### 4.2 Discussion

The sample in this study were dentists who currently provide general dental procedures such as oral examination and tooth cleaning in Thailand, most of them aged 28-40 years while the majority had work experiences below 10 years. The number of female genders were greater than male concordance with the data from registered dentists in Thai dental council between 2000-2016.

The majority of the participants perceived that dental implants would last for life, implying the high expectation in dental implant treatment. Since dentists are patient's main source of information, the unrealistic perception of dentists may affect patient's attitudes (Kashbour, Rousseau, Thomason, & Ellis, 2018; Yao et al., 2017). In fact, the prevalence of dental implant pathologies increasingly found to be correlated with time in function (Derks & Tomasi, 2015; Roos-Jansäker et al., 2006; Simonis et al., 2010). Furthermore, there is an evident that patient compliance in dental implant maintenance therapy was significantly associated with fewer conditions of peri-implantitis (Monje, Wang, & Nart, 2017). From this point, it is important to revise the expectation or attitudes, about dental implant treatment from dentists' perspective in order to create awareness and clarifying how crucial maintenance care after successful implant installation to avoid those unrealistic patients' expectations.

There were more participants who agreed that implant surgery (64.3%) and restoration (59.4%) are limited to the extent of specialist field than implant maintenance care (22.4%) and up to 90.4% agreed that all dentists should be able to detect the sign of unhealthy implants. This suggested that most of the participants agreed that GDP should take part in providing implant maintenance care even almost half of them would refer patients with dental implant for maintenance care. Indeed, there is a lack of information about the insight of the practitioners' opinion about responsibility and boundaries of multispecialty associate to dental implant treatment and follow-up care.

Interestingly, most of the participants reported that they attained their basic knowledge about dental implants from formal curriculum in undergraduate and post-graduate education. From this study, it revealed that the participants are still unconfident in being able to be provided treatment about dental implant complications. This can imply that implant education they had learned might not suit their daily practice. Resemble to the study in the United Kingdom that current dental implant education does not make general dentists confidently provide dental implant maintenance. It was indicated that undergraduate education had failed to cover adequate implant training and needed improvement (Jayachandran, Bhandal, Hill, & Walmsley, 2015). Moreover, the variety of institution and education pathway are mass (Koole, Vandeweghe, Mattheos, & Bruyn, 2014) as well as the absent of universal guidelines for implant maintenance may be another obstacle. However, favorable practice setting and supply of equipment for dental implant maintenance should be reorganized.

Limitations of this study are the lack of diversity in participants' employment status, location of workplace and experience in dental practice which may affect their daily practice procedures. In addition, the factors about how they attained dental implant education and their sources of dental implant knowledge should be indicated. Added to such, this study is based on quantitative approach which prevails somehow over superficial details from the participants.

#### 5. Conclusion

Thai dentists who provide general treatment participated in this study still feel less confident in providing dental implant checkup and maintenance care. These obstacles, perhaps, due to insufficient knowledge and unfavorable practice setting. Further studies might be beneficial to investigate the



understanding in how GDPs perceive dental implant maintenance care. Besides, the factors about practice setting the practitioners' requirement for providing dental implant maintenance care should be indicated to improve suitable working environment.

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