

Patient Satisfaction with Services in a University Oral and Maxillofacial Surgery Clinic during the First Wave of COVID-19 Pandemic

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ABSTRACT

Aim: This study aimed to assess patient satisfaction with the services provided by a University Oral and Maxillofacial Surgery Clinic in Bangkok, Thailand, during the first wave of the COVID-19 pandemic.

Materials and methods: This cross-sectional study was conducted between 5th October and 15th December 2020. Data were collected using a validated patient satisfaction questionnaire through a telephone survey administered by a trained interviewer who had not previously interacted with the patients. Descriptive statistical analysis, Mann–Whitney *U* test, Pearson's Chi-squared test, and binary logistic regression were performed to analyze the data.

Results: One hundred and sixty patients were recruited by means of consecutive sampling, of the 88 (54.82%) agreed to and completed a telephone interview. Mann–Whitney *U* test analysis revealed a statistically significant association between age and patient satisfaction, with patients aged >44 years having higher mean scores of satisfaction level than younger patients (p -value = 0.029). The bivariate regression model also indicated a statistically significant association between age and patient satisfaction, with older patients being 60.3% and 61.8% more likely to report a high level of satisfaction with the telephonic triage (p = 0.044) and postoperative instructions/recommendations, respectively (p = 0.043). However, the multivariate regression model revealed no significant associations.

Conclusion: Overall, our findings warrant incessant development of patient management protocol interventions to ensure patient satisfaction and service quality amidst the pandemic.

Clinical Significance: This study highlights the need for various triage and communication methods for different age groups of patients, that aim to increase their satisfaction level by maintaining the quality of services provided to them during the COVID-19 pandemic.

Keywords: COVID-19, Maxillofacial surgery, Patient satisfaction, Telephone, University clinic.

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INTRODUCTION

In late December 2019, a novel coronavirus originated in Wuhan City, China, and rapidly spread to other countries and the outbreak has become a major public health issue across the world.¹ The Thai government officially announced a national emergency decree on 26th March 2020 to prevent and suppress the first wave of the COVID-19 (coronavirus disease 2019) pandemic.² Consequently, the Department of Oral and Maxillofacial Surgery (OMFS), Faculty of Dentistry, Chulalongkorn University (DCU), implemented pandemic protective guidelines³ that were consistent with national policies and international recommendations, such as those by the US Centers for Disease Control and Prevention⁴ and American Dental Association (ADA).⁵

The OMFS clinic complied with the above-mentioned guidelines,^{3–5} to categorize cases as either emergency or urgent; dental emergencies that can compromise the patient's airway such as uncontrolled bleeding and infection and trauma, are potentially life-threatening and thus require immediate treatment; conversely, an urgent case is one that requires immediate attention to relieve severe pain and/or the risk of infection and to alleviate the burden on hospital emergency departments. All patients were asked to undergo a COVID-19 risk assessment before they entered the clinic, and their body temperatures were measured before they underwent treatment. Telephonic triage was used for patients who had an appointment as the first step before acceptance in dental care. Patients and visitors were required to wear a mask and keep

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social distancing when they were present in the department. During treatment, dentists were advised to avoid aerosol-generating procedures where possible. The clinic was required to ensure that every staff member had the appropriate personal protective equipment (PPE). Moreover, the clinic reduced the number of staff members as much as needed and all staff members were asked to regularly monitor themselves for fever and symptoms consistent with COVID-19 and to undergo a COVID-19 risk assessment before

starting work each day. Air quality management was implemented; surface cleaning, alcohol, and sanitizer for hand cleaning were available in the OMFS clinic.³

With COVID-19 continuing to spread across the world, and Thailand is going through the next wave of the pandemic, the restrictions on healthcare activities can considerably affect patient satisfaction.⁶⁻⁹ Patient satisfaction is a crucial indicator of healthcare quality¹⁰⁻¹² and is correlated with clinical outcomes.¹³ Patient satisfaction offers an important balance against the typically dominant perspective of the healthcare provider.¹⁴ It provides the patient's perspective and can be considered as giving an endpoint to the assessment of the quality of healthcare.¹⁰⁻¹² Hence, the measurement of satisfaction is an essential part of healthcare quality assessment.¹⁵

Subsequent to the COVID-19 situation, the faculty reopened. All students and staff members were vaccinated and strictly followed the guidelines for safety as well as provided effective operations.

Evidence on patients' perception of OMFS services during the emergence of COVID-19 is limited, especially in Thailand. Therefore, this study aimed to assess patient satisfaction with the services provided by a university OMFS clinic during the first wave of the pandemic.

MATERIALS AND METHODS

Study Design

This cross-sectional study on patient satisfaction used a telephone interview. The study report was based on the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement.¹⁶ The study was approved in accordance with the Declaration of Helsinki by the Human Research Ethics Committee of the DCU, on 2nd October 2020 (study code: HREC-DCU 2020-088; approval no. 097/2020), informed consent and agreement to publish were obtained as verbal discussions by the patients through a telephone interview.

Setting, Source, and Study Population

Patients were identified from a database of patients who received dental services at the OMFS Clinic during the COVID-19 lockdown under the first emergency decree.²

All participants who received emergency treatment at the university OMFS clinic from 26th March until 31st May 2020, were interviewed between 5th October and 15th December 2020.

Inclusion and Exclusion Criteria for Participants

Patients who were ≥ 18 years old, had a telephone number that can be contacted and provided verbal consent to participate a telephone interview were included in this study. Those patients who had signs and symptoms of COVID-19 such as symptoms of respiratory illness, dry cough, fever, tiredness, during the triage³; were excluded from the study.

Variables

The following variables were evaluated in this study: independent variables were sex; age; medical condition; type of treatment (urgent or emergency); type of procedure (nonaerosol or aerosol) and dependent variables were patient satisfaction based on making an appointment; telephonic triage; waiting area; using personal protective equipment (PPE); dental treatment; environmental cleanliness; postoperative instructions/recommendations.

Data Sources/Measurement

The telephone interview questionnaire for assessing patient satisfaction comprised seven questions. All questions were answered

using a 5-point Likert scale as follows: 1= "not at all satisfied"; 2= "slightly satisfied"; 3= "moderately satisfied"; 4= "very satisfied"; and 5= "completely satisfied." The questions are given in Table 1.

Validity and Reliability of the Questionnaire

The telephone interview questionnaire was a modified version of a questionnaire from a previous study,¹⁵ which showed high consistency (Cronbach α , ≥ 0.85). The content validity of the questionnaire was agreed upon by study advisers, and 20 patients who attended other clinics of the same faculty confirmed its face validity. A pilot test was conducted among 30 patients who attended the OMFS Clinic after 1st June 2020. Internal consistency was analyzed and revealed a Cronbach α value of 0.9, which indicated excellent reliability.

Bias

The validated telephone interview questionnaire was used for data collection to eliminate measurement bias. Furthermore, the telephone interview was performed by a trained interviewer who had not previously interacted with the patients to reduce interviewer bias.

Study Size

We used the G Power statistical power analysis program for sample size calculations.¹⁷ Based on the pilot test, we assumed the effect size 0.5 at a statistical power of 80% and 5% significance level. The resulting calculated sample size was 86—a previous study by L'Engle et al.¹⁸ reported a response rate of 54.8% to telephone surveys conducted in Ghana, which was consistent with the pilot test's telephone outcomes, considering a refusal rate of ~53.75%. Therefore, a target respondent of 160 was required.

Statistical Analysis

Data were analyzed using IBM SPSS ver. 22.0 (IBM Corp., Armonk, NY, USA). Descriptive statistical analysis was used for describing variables' characteristics. All variables were non-normally distributed, Mann-Whitney *U* test was calculated for continuous variables and Pearson's chi-squared test was performed for categorical variables. Binary logistic regression analysis was employed to model the associations between patient satisfaction and potential covariates. All analyses were two-sided with a 95% confidence interval and considered significant when the *p*-value was < 0.05 .

Table 1: Patient satisfaction telephone interview questionnaire

Q1. Appointment	How satisfied are you to make an appointment at the OMFS Clinic?
Q2. Telephonic triage	How satisfied are you with the COVID-19 telephonic triage?
Q3. Waiting area	How satisfied are you with the waiting area before receiving treatment?
Q4. PPE	How satisfied are you with the personal protective equipment (PPE) of dental professionals during the oral examination or/and during the procedures?
Q5. Dental treatment	How satisfied are you with the dental treatment?
Q6. Cleanliness	How satisfied are you with the environmental cleanliness of the clinic?
Q7. Instructions/recommendation	How satisfied are you with the postoperative instructions/recommendations?

RESULTS

General Characteristics of Study Patients

All patients who received emergency dental care at the clinic from 26 March until 31 May 2020, were interviewed between 5 October and 15 December 2020. Of the 160 participants, 84 (52.4%) were female and 76 (47.5%) were male. Their mean age was 45.54 years; the oldest and youngest patients were 84 and 18 years old, respectively. Figure 1 shows the final outcomes of calls, 88 (55%) agreed to and completed a telephone interview, whereas 24 (15%) refusal; 30 (18.7%) ring/no answer; 14 (8.8%) answering machine; 4 (2.5%) wrong number. However, the differences in demographic data (age, sex, medical condition, type of treatment, and type of procedure) between patients who completed, and those excluded patients were not statistically significant (Table 2).

Patient Satisfaction

The procedures that were given in this study were emergency, included tooth extraction, surgical removal of tooth, biopsy, medication, and follow-up after surgery or infection. While nonurgent treatments were postponed such as dental surgery for an esthetic or orthodontic reason, routine follow-up, and implant surgery. Patients who were postponed due to this situation received

a follow-up call in necessary cases and all of them received a call to make an appointment when the faculty was open as usual. There was no clinical implication from postponing the treatment plan because patients were screened for the severity of their condition and those who needed urgent care were treated.

Table 3 presents the mean patient satisfaction scores in various aspects of the services provided, with the overall patient satisfaction score of very satisfied. The most satisfied aspect of the patients was the use of PPE with 80.7% followed by Cleanliness with 71.6%, but only 45.5% favored the waiting area.

As shown in Table 4, Mann-Whitney *U* test analysis revealed a statistically significant association between age and patient satisfaction, with patients aged >44 years having higher mean scores of satisfaction level than younger patients (*p*-value = 0.029). Significant associations between patient satisfaction and sex, medical condition, the type of treatment, and type of procedure were not observed.

Table 5 presents the results of the binary regression analysis. The unadjusted model revealed statistically significant associations between age and patient satisfaction, with patients aged >44 years being 60.3% and 61.8% being more likely to report “very satisfied” on Q2: telephonic triage (*p* = 0.044) and Q7: postoperative instructions/recommendations (*p* = 0.043), respectively. However, the multivariate regression model revealed no significant associations.

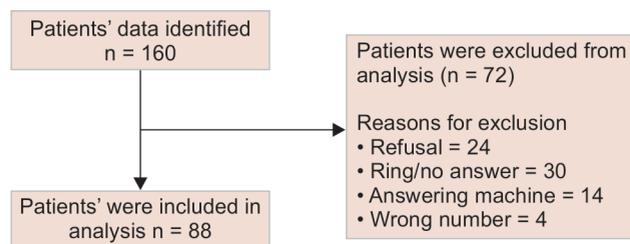


Fig. 1: A flow diagram of study participants

DISCUSSION

This study highlights the importance of patient satisfaction during high-risk situations.⁶⁻⁹ Although currently, the DCU reopened and the OMFS clinic provides both urgent and nonurgent treatment, dental emergencies are the priority along with strictly protective protocols. The virus is continuing to spread across the world,

Table 2: Characteristics of the participants (N = 160)

Variables	Complete telephone interview n (%)	Incomplete telephone interview n (%)	<i>p</i> -value ^a
Total (160)	88 (55)	72 (45)	
Age group			0.340
≤44 years	41 (51.2)	39 (48.8)	
>44 years	47 (58.8)	33 (41.3)	
Gender			0.484
Female	44 (52.4)	40 (47.6)	
Male	44 (57.9)	33 (42.1)	
Medical condition			0.947
Denied any systemic diseases	57 (54.8)	47 (45.2)	
Has some systemic diseases	31 (55.4)	25 (44.6)	
Treatment			0.972
Urgency	83 (55.0)	68 (45.0)	
Emergency	5 (55.6)	4 (44.4)	
Procedure			0.130
Non aerosol	82 (57.3)	61 (42.7)	
Aerosol	6 (37.3)	10 (62.5)	

^aVariables were analyzed by Pearson Chi-Square test.

Table 3: Patient satisfaction in 5-point Likert scale interview (N = 88)

Question	5-point Likert scale: N (%)				
	1	2	3	4	5
Q1. Appointment	1 (1.1)	3 (3.4)	8 (9.1)	29 (33.0)	47 (53.4)
Q2. Telephonic triage	0 (0)	0 (0)	7 (8)	24 (27.3)	57 (64.8)
Q3. Waiting area	1 (1.1)	1 (1.1)	10 (11.4)	36 (40.9)	40 (45.5)
Q4. PPE	0 (0)	0 (0)	3 (3.4)	14 (15.9)	71 (80.7)
Q5. Dental treatment	1 (1.1)	2 (2.3)	7 (8.0)	22 (35)	56 (63.6)
Q6. Cleanliness	0 (0)	1 (1.1)	1 (1.1)	23 (26.1)	63 (71.6)
Q7. Instructions/recommendation	0 (0)	2 (2.3)	5 (5.7)	20 (22.7)	61 (69.3)

Table 4: Associations between general characteristics and patient satisfaction scores (N = 88)

Variables	N (%)	Mean rank of satisfaction scores	p-value ^a
Age group			0.029
<44 years	41 (51.2)	37.78	
>44 years	47 (58.8)	49.54	
Gender			0.244
Female	44 (52.4)	47.16	
Male	44 (57.9)	40.91	
Medical condition			0.164
Denied any systemic diseases	57 (64.8)	41.29	
Has some systemic diseases	31 (35.2)	49.15	
Treatment			0.912
Urgency	83 (94.3)	44.07	
Emergency	5 (5.7)	42.80	
Procedure			0.314
Non aerosol	82 (93.2)	44.73	
Aerosol	6 (6.8)	34.08	

^ap-value from Mann–Whitney U test

therefore, understanding patient satisfaction with dental services during the first wave of the COVID-19 pandemic, is important for a sustainable approach to enhancing the quality of care and outcomes for patients.

Our findings can be ascribed to the numerous restrictions for Thai people, including older adults, imposed by the government of Thailand after it officially announced a national emergency decree to prevent and suppress the first wave of the pandemic,² thereby making telephonic triage and screening were the most convenient methods to access healthcare services. Although the faculty provided the surgical procedures, reducing the number of staff and patients to maintain the social distancing were concerned, for example, dissolvable sutures were used instead to reduce patient contact. Moreover, minimally invasive treatments were recognized to reduce the aerosol-generating procedures, such as medication for pain. Additionally, sufficient postoperative instructions and understandable recommendations were essential for supporting patient self-care, especially under the COVID-19 lockdown.⁸

The study's key results include overall patient satisfaction scores on the survey indicated that the patients had a high level of satisfaction with the services they received after the DCU-OMFS clinic implemented COVID-19 guidelines during the first wave of the pandemic.³ However, patients aged >44 years

had higher scores of satisfaction level compared with younger patients, especially on telephonic triage and postoperative instructions/recommendations aspects.

A previous study of Wittayapiroch et al.,¹³ who reported that age was positively correlated with patient satisfaction scores in the areas of clinical treatment. Similarly, in our study, older patients inclined to report higher satisfaction scores in the OMFS clinic. Moreover, the older patients favored the telephonic triage for the period of lockdown than those young patients, this finding is consistent with a previous study by Ramaswamy et al.,⁹ who concluded that younger age was associated with lower patient satisfaction with telemedicine during the pandemic.

In terms of postoperative instructions/recommendations aspect, the initial analysis revealed a significant association between older age and selecting “very satisfied” for this aspect ($p = 0.043$). The finding is in concordance with data from previous studies, such as the study by Desideri et al.,⁷ which was conducted among older adults (median age, 61–75 years) and found that a high level of satisfaction supported effective communication and cordial assistance from the healthcare team in their center. Similarly, Bin Traiki et al.⁶ reported that patient satisfaction was related to the way healthcare providers treated patients with courtesy and respect, listened to patients carefully, and provided clear explanations to patients.¹⁹

Table 5: Simple bivariate and multivariate binary logistic regression analyses of age and patient satisfaction aspects

Patient satisfaction aspects	Unadjusted OR (95% CI)	p-value	Adjusted OR (95% CI)	p-value ^b
Q1. Appointment				
Very satisfied	1	0.965	N/A	N/A
Others	1.019 (0.44–2.36)			
Q2. Telephonic triage		0.044		0.073
Very satisfied	1		1	
Others	0.397 (0.162–0.975)		0.134 (0.015–1.210)	
Q3. Waiting area				
Very satisfied	1	0.259	N/A	N/A
Others	0.613 (0.262–1.434)			
Q4. PPE				
Very satisfied	1	0.264	N/A	N/A
Others	0.543 (0.185–1.587)			
Q5. Emergency treatment				
Very satisfied	1	0.072	1	0.560
Others	0.443 (0.183–1.074)		0.648 (0.151–2.783)	
Q6. Environmental cleanliness				
Very satisfied	1	0.116	N/A	N/A
Others	0.468 (0.182–1.205)			
Q7. Instructions/ recommendation		0.043		0.961
Very satisfied	1		1	
Others	0.382 (0.150–0.972)		1.045 (0.178–6.126)	

^ap-value from simple bivariate binary logistic regression; ^bp-value from multivariate binary logistic regression

Concerning the other patient satisfaction items, for Q1 (making an appointment with the DCU during the COVID-19 pandemic), the patients reported being “very satisfied” overall and did not exhibit any significant differences in their responses. For Q3 (waiting area before receiving treatment, where the OMFS Clinic established a seating distance of ~2 m following the DCU guidelines,³ the patients also reported being “very satisfied” overall. For Q4 (use of PPE by healthcare professionals and patients), most patients expressed moderate to high levels of satisfaction. For Q5 (dental treatment, with the accessibility thereof becoming limited owing to lockdown measures), nearly all patients could access the OMFS clinic with urgent or emergency care and therefore reported being “very satisfied” with the services that they received. These findings are similar to those of Ahmed et al.,¹³ who concluded that most of their participants agreed that COVID-19 is a highly contagious disease, and that daily screening of staff members, dental assistants, dentists, and patients is necessary, along with proper sterilization of instruments and disinfection of dental operator. Many participants also agreed that proper disposal of waste is of utmost importance for cross-infection control and that the patient waiting area should be marked with social distancing signs. For Q6, the cleanliness of the surroundings and maintenance of the facility were identified as quality-of-service measures regarding the hospital’s physical services as mentioned in a study by Ali.¹²

Our study also found that the associations between patients’ demographic data and patient satisfaction scores were not significant; the findings of this study are similar to a previous study of Hussain et al.¹⁴ that found no association between patient satisfaction and sex.

Although the DCU has administered teleconsultation and telephonic triage prior to the admission of patients to the OMFS clinic during the pandemic period, it does not provide regular telephone-based recalls for all patients after they have visited the clinic. Consequently, improvements in the outcomes of the

treatment could not be guaranteed. Therefore, a telephone-based recall system after surgical treatment might prove useful in monitoring their health and sustain patient satisfaction.

Limitations

Our study explored patient satisfaction after different policies and precautionary measures were implemented during the COVID-19 pandemic using online databases and telephone interview questionnaires; the use of a telephone survey will always have its limitations and will never be able to fully replace face-to-face interviews in terms of reliability. As this study focused on the specific circumstances of DCU-OMFS clinic patients, the results may not be generalizable to patients from other locations. Future research comparing patient satisfaction before, during and after the pandemic with a larger sample size is recommended.

CONCLUSION

The overall patient protective protocol adopted by the DCU is acceptable. Most study participants reported high levels of satisfaction; moreover, COVID-19 transmission among dental staff members and patients has not been reported to date. However, older patients tended to report greater satisfaction than younger ones, especially in terms of the telephonic triage and postoperative recommendations.

CLINICAL SIGNIFICANCE

Various methods for triage and communication that target increasing patient satisfaction by maintaining the quality of services during the COVID-19 pandemic are necessary.

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