Original Article

Survey of Patients' Understanding of Postoperative Self-care Instructions Given by Dental Students

Amornluck Tepphabutra[1], **Keskanya Subbalekha**[1]

[1]Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

Abstract

The aims of this study were to evaluate patients' understanding of postoperative self-care instructions and to compare patients' understanding of the instructions given by undergraduate (UG) with those given by postgraduate (PG) dental students. This was a cross-sectional descriptive study. Self-administered questionnaires were given to patients aged >15 years-old who could read and understand Thai language, after they received postoperative self-care instructions. Sixteen items evaluating their understanding of postoperative self-care were used. Participants received one point for each correct answer. The IBM SPSS Statistics software was used for descriptive and inferential statistical analysis. Two hundred and four patients participated in this study (124 and 80 received instructions from UG and PG dental students, respectively). There were no patients in the low level of understanding (score 0–6); while 76.6 % and 87.5 % of the patients receiving instructions from UG and PG, respectively, were at the good level of understanding (score 12–16). The mean±SD of understanding scores were 12.74±1.74 and 13.16±1.44 in patients receiving instructions from UG and PG, respectively, which was not significantly different when comparing between both groups with the *t*-test (t=1.803, p=0.07). In conclusion, most of the patients receiving instructions from dental students understood postoperative self-care well. There was no difference in the understanding score between the patients receiving instructions from UG or PG dental students.

Keywords: Oral surgery, Patients' understanding, Postoperative complication, Postoperative instruction, Postoperative self-care

Received Date: Mar 15, 2021 **Revised Date:** Apr 2, 2021 **Accepted Date:** May 28, 2021
doi: 10.14456/jdat.2022.4

Correspondence to:
Keskanya Subbalekha, Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University, 34 Henri-Dunant Road, Patumwan, Bangkok, 10330 Thailand. Tel: 02-218-8581 Email: skeskanya@gmail.com

Introduction

Postoperative bleeding, pain, swelling, and trismus are common complications after minor oral surgical procedures, such as tooth extraction, unerupted/impacted tooth removal, and contouring osseous tissue for dentures.[1] These com-

plications impact the daily activities and the quality of life of a patient.[2,3] In addition to good surgical techniques and experiences of the surgeon, appropriate postoperative self-care can lower the risks and severity of these complications.[4,5]

For bleeding control, patients are advised to bite the gauze roll firmly for an hour. However, prolonged or excessive bleeding can occur if the patient talks or chews the gauze, resulting in gauze displacement. Re-bleeding may occur due to excessive tongue or cheek movement, sucking the surgical wound, constant spitting of their saliva, or forceful gargling. The appropriate use of analgesics is recommended for pain relief. Patients often feel pain when the effect of the anesthetic agent diminishes; the pain intensity is usually high in the first 24 h (maximum at 6 h) postoperatively then gradually subsides.[6,7] The frequent application of an ice pack over the cheek on the surgical side within 48-72 h after the procedure can also reduce postoperative pain and swelling.[8,9] Moreover, patients should resume their routine oral hygiene care as soon as possible, but should refrain from frequent and/or forceful gargling that might dislodge the blood clot.

Clear postoperative self-care instructions should be given to the patients and make sure that they can comprehend and follow the advice. However, the practitioner's communication skills may vary based on their experience level. A study reported that dental students had a moderate level of communication skills.[10] In addition, less than 50 % of primary school-aged patients complied with the post-dental filling instructions given by undergraduate (UG) dental students.[11] At the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University, patients are mainly treated by UG or postgraduate (PG) dental students. The students are taught to give patients appropriate postoperative self-care instructions and are evaluated by supervisors; however, the patients' understanding of the postoperative self-care instructions has never been investigated. To the best of our knowledge, there is no report concerning the understanding of postoperative self-care instructions following oral surgery given by dental students.

The main purpose of this study was to assess the patients' understanding of postoperative self-care instructions. The secondary purpose was to compare the level of understanding between patients receiving the instructions from UG and PG dental students. The results of this study may lead to developing effective postoperative self-care instructions that can minimize the risk or severity of complications, improve the patients' quality of life, and create a positive attitude toward dental treatment.

Materials and methods

This study was a cross-sectional, observational study approved by the Human Research Ethics Committee of the Faculty of Dentistry, Chulalongkorn University (HREC-DCU 2014-30). Patients receiving treatment at the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University from 1 June 2014 to 31 August 2014 were invited to participate. The inclusion criteria were patients who had a tooth removed by extraction or surgical removal, aged over 15 years-old, could read and understand Thai language fluently. The exclusion criteria were the patients who did not want to participate in the study.

Data collection

After receiving the postoperative self-care instructions from their operators (UG or PG dental students), patients were asked to complete the questionnaire which was the same for all participants. This self-administered Thai language questionnaire consisted of eight items collecting the patients' demographic information, 16 items evaluating the patient's understanding of postoperative self-care instructions, and three items of postoperative self-care instructions acquisition. The content validity of postoperative self-care instruction (16 items) was performed by two experts in providing post-operative care instructions, one is a member of the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University and the other is a member of the Department of Public Health, College of Medicine and Public Health, Ubon

Ratchathani University. The reliability of the questionnaire was tested by giving it to 30 patients who had a tooth removed at the Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Chulalongkorn University. Cronbach's Alpha coefficient was 0.7. The three items of postoperative self-care instructions acquisition included 1) the experience of receiving postoperative self-care instruction, 2) the source of postoperative self-care instruction, and 3) the appropriate media for providing postoperative self-care instruction. The patients could choose more than one answer in the item 2) and 3) of this part.

Understanding postoperative self-care instructions score

The answer choices for the 16 items evaluating patients' understanding were true, false, and do not know. Patient received one point for the correct answer, the "do not know" and incorrect answer resulted in 0 points. The total score was 16 and was categorized into three levels according to the Criterion Reference as: good understanding (12–16 points), moderate understanding (7–11 points), and poor understanding (0–6 points).[12]

Statistical Analysis

The independent variable was the level of the dental students (UG or PG) who gave the postoperative self-care instructions. The dependent variable was the patients' understanding score. The constant variables were the demographic data. Appropriate descriptive and comparative analysis was performed using SPSS® for window version 22.0 (IBM Corp., Armonk, New York, USA). A p-value <0.05 was considered significant.

Results

This study consisted of 204 patients, 124 treated by UG and 80 treated by PG. The mean±SD (range) of the patients' age was 21.0±10.6 (15–70) and 23.6±6.9 (15–55) years-old in the UG and PG groups, respectively (Table 1).

Table 1 *Patients' demographic data*

Data	Postoperative self-care instructions by			
	PG students		UG students	
	N (80)	%	N (124)	%
Sex				
Male	33	41.2	52	41.9
Female	47	58.8	72	58.1
Age (year)				
Mean	23.6		21.0	
SD	6.9		10.6	
Range	15-55		15-70	
Marital status				
Single	78	97.5	109	87.9
Married	2	2.5	14	11.3
Widow/Divorced/Separated	0	0	1	0.8
Educational level				
Senior high school/Vocational Certificate	10	12.5	20	16.1
Diploma/Vocational Diploma	3	3.7	6	4.8
Bachelor's Degree	56	70.0	84	67.7
Master's Degree	8	10.0	10	8.1
Doctor's Degree	2	2.5	1	0.8
Other - Junior high school	1	1.3	-	-
- Primary school	-	-	2	1.6
- Dhamma Scholar Intermediate Level	-	-	1	0.8

Table 1 *Patients' demographic data (cont.)*

Data	Postoperative self-care instructions by			
	PG students		UG students	
	N (80)	%	N (124)	%
Occupation				
Government/State-enterprise employee	3	3.8	13	10.5
Student	53	66.2	77	62.1
Househusband/Housewife	2	2.5	4	3.2
Freelance	10	12.5	14	11.3
Business owner	9	11.3	9	7.3
Private employee	3	3.7	7	5.6
Salary (Baht/month)				
< 5,000 (150 USD)	24	30.0	42	33.9
5,000 –10,000 (150-300 USD)	16	20.0	21	16.9
10,000 –20,000 (300-600 USD)	25	31.2	47	37.9
Over 20,000 (600 USD)	15	18.8	14	11.3
Type of operation				
Tooth extraction	11	13.8	56	45.2
Surgical removal of impacted tooth	69	86.2	68	54.8
Have you ever received any treatment at this clinic?				
No (it is my first visit)	47	58.8	72	58.1
Yes	33	41.2	52	41.9
Number of treatment visits at this clinic				
Mean	2		2	
SD	0.5		1.1	
Range	2 - 5		2 - 8	

In each group, approximately 60 % of the patients were female, most were students, with or studying a Bachelor's degree. About 86.2 % and 13.8 % of the patients in the PG group had an impacted tooth removed and tooth extraction, respectively and 54.8 % and 45.2 % of the patients in the UG group had an impacted tooth removed and tooth extraction, respectively. Approximately 40 % of the patients had received treatment at this clinic with an average of two treatment visits. Moreover, 61.2 % and 67.7 % of the patients in the PG and UG groups, respectively, had received postoperative self-care instructions. The main source of instructions was from dentists.

Patients' understanding of postoperative self-care instructions

All 16 items evaluating the patient's understanding of postoperative self-care instructions are shown in Table 2. The mean±SD (range) of the understanding scores were 13.16±1.44 (8–16) and 12.74±1.74 (7–16) in the PG and UG groups, respectively. The scores were not significantly different between the groups when comparison analysis was performed with the *t*-test (t=1.803, p=0.07). The PG group had 87.5 %, 12.5 %, and 0 % in good (score 12-16), moderate (score 7-11), and poor understanding levels (score 0-6), respectively. The UG group had 76.6 %, 23.4 %, and 0 % in good, moderate, and poor understanding levels, respectively. No patient in both groups was in the poor understanding level.

Considering each item of understanding, more than 90 % of the patients gave the correct answers to most of the statements (Table 2).

Table 2 *The number of patients who gave the correct answers for each item of 16 items evaluating the patient's understanding of postoperative self-care instructions*

Items	Postoperative self-care instructions by			
	PG students		UG students	
	N (80)	%	N (124)	%
1. While biting the gauze, I can widely open my mouth while talking .	76	95.0	114	91.9
2. I should bite the gauze firmly for 1-2 h until the bleeding stops.	79	98.8	120	96.8
3. After removing the gauze pack if bleeding continues, I should bite the gauze for another 30 min.	77	96.3	108	87.0
4. I can lick or touch the wound.	78	97.5	118	95.2
5. Immediately after surgery, I can talk (if necessary) but keep biting the gauze securely over the wound.	55	68.8	71	57.3
6. I can spit or rinse my mouth on the surgical day.	67	83.7	95	76.6
7. I can vigorously rinse my mouth with antiseptic mouthwash after surgery.	78	97.5	121	97.6
8. An ice pack on the cheek of the surgical side for 2 days after the surgery can prevent massive swelling.	63	78.8	76	61.3
9. Keeping ice cubes in my mouth can help stop bleeding.	62	77.5	90	72.6
10. I can smoke and drink alcoholic beverages after surgery.	77	96.3	120	96.8
11. The painkiller should be taken with no need to wait until feeling the pain.	34	42.5	71	57.3
12. After surgery, a liquid or soft diet with optimal temperature should be fine.	76	95.0	117	94.4
13. Gentle rinsing the mouth with salt water is appropriate for cleaning the wound.	65	81.3	112	90.3
14. I should refrain from brushing my teeth on the surgery day.	24	30.0	32	25.8
15. I should refrain from biting the lip if the numbness does not go away.	70	87.5	99	79.8
16. I should see the operator if the bleeding persists.	72	90.0	116	93.5

However, only 30 % and 25.8 % of the patients in the PG and UG groups, respectively, gave the correct answer to the statement "I should refrain from brushing my teeth on the surgery day". Moreover, only 42.5 % and 57.3 % of the patients in the PG and UG groups, respectively, responded correctly to the statement "The painkiller should be taken with no need to wait until feeling pain". In addition, 68.8 % and 57.3 % of the patients in the PG and UG groups, respectively, correctly answered the statement "Immediately after surgery, I can talk (if necessary) but keep biting the gauze securely over the wound".

Postoperative self-care instructions acquisition

The patients who had received the postoperative self-care instruction before participating in this study were 67.7 % and 61.2 % in the PG and UG group, respectively. The most common source of postoperative self-care instruction was dentists (62.1 % and 51.2 % in PG and UG group, respectively), followed by radio (11.3 %) and television (10.5 %) in the PG group, and from study class (21.3 %) and magazine/brochure (20.0 %) in the UG group.

Over 90 % of the patients in each group suggested that the appropriate source of postoperative self-care instructions should be verbal advice from dentists (Table 3).

Table 3 *Suggestion of the appropriate source of postoperative self-care instructions*

Items	Postoperative self-care instructions by			
	PG students		UG students	
	N (80)	%	N (124)	%
Dentists' verbal advice	75	93.8	119	96.0
Written Brochure	40	50.0	62	50.0
Video in the waiting room	13	16.3	20	16.1
Board in the waiting room	16	20.0	13	10.5
Others	6	7.5	5	4.0
- Internet	5		1	
- Nurse	1		4	

Half of the patients also suggested a written brochure as a good source for obtaining postoperative self-care instructions.

Discussion

This was a routine to research based study, where the research questions were based on problems encountered in routine treatment.[13] Although the patients received postoperative self-care instructions from the operators, it was found that most patients frequently spit out their saliva, did not bite the gauze firmly, talked while not biting the gauze, and refrained from tooth brushing. These findings raised the question of how well the patients understood the postoperative self-care instructions. The results from this study revealed that most of the patients understood them well. A previous study reported that 80–90 % of patients complied with postoperative self-care instructions following impacted mandibular third molar removal, except for quitting smoking.[14] However, it was beyond the scope of our study to investigate patients' adherence to postoperative self-care instructions.

The dentists' knowledge and experience may influence their communication skills, which impacts patients' understanding. Students who had received communication training had better communication skills compared with untrained students.[15] However, no difference was found in the level of understanding between patients who received postoperative self-care instruction from UG or PG dental students. Two possible explanations might be 1) both student groups learned to give the patient instructions based on the same principle from clinic supervisors since the beginning of their training; moreover, every patient received the same written postoperative self-care instructions or 2) there was an inadequate sample size to detect the difference. The power analysis was done by G*Power program and resulted in 75.18 %. Since there was a limited time frame for this study which was only one semester (three months), only 204 patients met the inclusion criteria. In addition, there are less PG students than UG students which resulted in fewer patients in the PG group compared to the UG group.

Although the majority of the patients understood most of the questions, some of them still misunderstood the instructions about taking analgesics, proper gauze biting, and oral hygiene care. The stress from surgery may interfere with a patient's ability to concentrate on the instructions. Language difficulty or low health literacy may also impede appropriate communication. Blinder *et al.*[16], reported that 60 % of patients remembered the instructions given in both written and verbal forms, 36 % remembered written-only instructions, and 4 % remembered verbal-only instructions. In contrast, Alvira-González and Gay-Escoda[14] found that the style of instruction presentation (verbal, written, or giving additional information)

had no impact on patients' adherence to postoperative self-care instructions. Gheisari *et al.*[17] reported that patients who received verbal instructions reported more intense pain and less satisfaction than those who received both verbal and written instructions.

More than 90 % of the participants suggested that the dentist's verbal advice was the best source of postoperative instruction and half also suggested written instructions. Verbal face-to-face communication provided the patients with an opportunity to clarify any information that they did not understand and to ask additional questions. Importantly, the written instructions should be provided in simple, non-technical language. Pictographs can help patients remember and recall the instructions. Patients had a mean correct recall of 85 % with pictographs and 14 % without.[18] Interestingly, a study found that audiovisual information generated higher levels of anxiety and fear compared with conventional face-to-face verbal information in patients undergoing dental implant treatment.[19]

The findings from this study suggest that after receiving postoperative instructions, the patients' understanding should be verified and corrected before discharge. A checklist of important information should be developed. Alternative information sources, including pictographs, cartoons, and audiovisual materials should be provided and be easily accessible by electronic media, automatic telephone response, or mobile application.

The limitation of this study was that the communication skills of the dental students and the stress and anxiety of the patients were not able to be assessed. Moreover, the limited time frame of this study resulted in a small sample size to detect the different understanding level between the patients receiving postoperative self-care instruction from UG and PG.

Conclusion

Most of the patients receiving instructions from dental students understood the postoperative self-care well. There was no difference in the understanding score between patients receiving the instruction from undergraduate or postgraduate dental students. However, there were some misunderstandings that required correction.

Acknowledgement

We thank Dr.Kevin Tompkins for language editing, Miss Jintana Siriboonpipattana for validating the questionnaire, and Assoc. Prof. Pagaporn Pantuwadee Pisarnturakit for statistical advice.

Funding: This work is supported by the Faculty of Dentistry, Chulalongkorn University

References

1. Bui CH, Seldin EB, Dodson TB. Types, frequencies, and risk factors for complications after third molar extraction. ***J Oral Maxillofac Surg*** 2003;61(12):1379-89.

2. Conrad SM, Blakey GH, Shugars DA, Marciani RD, Phillips C, White RP Jr. Patients' perception of recovery after third molar surgery. ***J Oral Maxillofac Surg*** 1999;57(11):1288-94.

3. White RP Jr, Shugars DA, Shafer DM, Laskin DM, Buckley MJ, Phillips C. Recovery after third molar surgery: clinical and health-related quality of life outcomes. ***J Oral Maxillofac Surg*** 2003; 61(5):535-44.

4. Sisk AL, Hammer WB, Shelton DW, Joy ED Jr. Complications following removal of impacted third molars: the role of the experience of the surgeon. ***J Oral Maxillofac Surg*** 1986;44(11):855-9.

5. Kitrueangphatchara K, Songwattana S. Factors associated with complications following impacted mandibular third molar removal. ***Thai J Oral Maxillofac Surg*** 2015;29:20-33.

6. Udompaiboonsuk S. Pain control following impacted third molar surgery by socket irrigation with 4% articaine compared to normal saline: a randomized controlled trial. ***Thai J Oral Maxillofac Surg*** 2019;33:13-9.

7. Kangwannarongkul T, Malungpaishrope R, Kangwannarongkul T, Choosri N, Praisonta S, Saicharoen T, *et al.* Comparison of postoperative pain reduction with preoperative ibuprofen administration before mandibular third molar surgery. ***Thai J Oral Maxillofac Surg*** 2017; 31:107-16.

8. Greenstein G. Therapeutic efficacy of cold therapy after intraoral surgical procedures: a literature review. ***J Periodontol*** 2007;78(5): 790-800.

9. Laureano F Jr, de Oliveira SED, Batista CI, Michener FM. The influence of cryotherapy on reduction of swelling, pain and trismus after third-molar extraction: a preliminary study. ***J Am Dent Assoc*** 2005;136(6):774-8.

10. Memarpour M, Bazrafkan L, Zarel Z. Assessment of dental students' communication skills with patients. ***J Adv Med Educ Prof*** 2016;4(1):33-8.

11. Pisarnturakit PP, Poorisat K, Sunthornrangsan J, Jhunthasiriyakorn A, Bhuridej P. Compliance to Dentist's Suggestion and Dental Services Received in School Dental Clinics: A Retrospective Study. ***J Dent Assoc Thai*** 2011;61(4):244-54.

12. Bloom BS. The 2 Sigma Problem: The Search for Methods of Group Instruction as Effective as One-to-One Tutoring. ***Educ Res*** 1984;13(6):4-16.

13. Seetalanuchit M. R2R: Routine to Research in Educational quality development. ***EAU Heritage Journal Social Science and Humanity*** 2015;5(1):223-8.

14. Alvira-González J, Gay-Escoda C. Compliance of postoperative instructions following the surgical extraction of impacted lower third molars: A randomized clinical trial. ***Med Oral Patol Oral Cir Bucal*** 2015;20(2):e224-30.

15. Mathew T, Shetty A, Shetty C, Narasimhan D, Shetty S, Hegde MN. Comparison of communication skills between undergraduate dental students with and without prior training in effective communication. ***NUJHS*** 2015;5:8-11.

16. Blinder D, Rotenberg L, Peleg M, Taicher S. Patient compliance to instructions after oral surgical procedures. ***Int J Oral Maxillofac Surg*** 2001;30(3):216-9.

17. Gheisari R, Resalati F, Mahmoudi S, Golkari A, Mosaddad SA. Do Different Modes of Delivering Postoperative Instructions to Patients Help Reduce the Side Effects of Tooth Extraction? A Randomized Clinical Trial. ***J Oral Maxillofac Surg*** 2018;76(8):1652.e1-7.

18. Houts PS, Bachrach R, Witmera JT, Tringali CA, Bucher JA, Localio RA. Using pictographs to enhance recall of spoken medical instructions. ***Patient Educ Couns*** 1998;35(2):83-8.

19. Camacho-Alonso F, Vilaplana-Vivo J, Caballero-Guerrero PM, Pato-Mourelo J, Sánchez-Siles M. Impact of audiovisual information on anxiety and fear in patients undergoing dental implant treatment. ***Clin Implant Dent Relat Res*** 2019;21(6):1189-98.