

Original Article

DENTAL PATIENTS' COMPLIANCE WITH POST-EXTRACTION INSTRUCTIONS AT A SECONDARY HEALTH CARE FACILITY IN NIGERIA.

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Abstract

Background: Compliance with post-extraction instructions and adequate patient education after oral surgical procedures can improve patient satisfaction and decrease post-operative morbidity.

Objective: To determine the compliance with post-extraction instructions among dental patients presenting at a secondary healthcare facility in Nigeria.

Materials and Methods: A prospective study of dental patients, who presented at the Dental department, Central Hospital Benin, Edo State, Nigeria, was done between September 2019 and June 2020. An interviewer-administered questionnaire was used to collect data on compliance with post-extraction instructions, and to clinically assess the extraction socket. Categorical data were expressed as frequencies and percentages. Mean percentage compliance was expressed as poor: < 50%, fair: 50% – 69.99%, good: ≥ 70%.

Results: A total of 218 participants were recruited for this study; however, 88 patients presented at the review appointment date giving a response rate of 40.4%. Participants comprised 37 males and 51 females, all receiving instructions via the verbal route. The overall mean percentage compliance of the respondents was 90.7%, and the incidence of alveolar osteitis was 1.1%. Satisfaction with the treatment given was excellent.

Conclusion: This study showed excellent compliance with post-extraction instructions; the mean percentage compliance among respondents was good. A low incidence of localised alveolar osteitis was recorded with a predilection for the maxillary jaw and the female sex.

Keywords: Compliance, Dental patients, Post-extraction instructions.

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INTRODUCTION

Extraction is the most typical procedure in oral surgery and dentistry.¹ Compliance with post-extraction instructions and adequate patient education given after oral surgical procedures can improve patient satisfaction and decrease post-operative morbidity. In dentistry, written post-surgical instructions are presented at an intellectual level too high for the average patient to understand or comply.² To elicit compliance, post-extraction instructions must be comprehensible for the patient, including those not functionally literate in the English language; this is important since giving patients

adequate instructions after oral surgical procedures have been demonstrated to improve patient satisfaction and decrease post-operative morbidity.³ Such instructions include a forecast of post-operative events, medication instructions, and advice on home care of surgical wounds. Post-operative instructions can be given in verbal and/or written forms.³ Localised alveolar osteitis (also called 'dry socket') is considered one of the most common complications after extraction. Common symptoms include severe pain at the extraction site within three days, missing blood clot/bone visible at the extraction site, foul

smell coming from the mouth, and a bad taste in the mouth.⁴

A randomised clinical trial by Gheisari et al.⁵ to ascertain if different modes of delivering post-operative instructions to patients help in reducing the side effects of tooth extraction found out that patients who received verbal instructions reported the most intense pain and least satisfaction, while patients who received verbal and written instructions were the most satisfied. Akpata et al⁶ disclosed that there was better compliance among patients placed on verbal instructions than those placed on written instructions on the use of warm saline mouthwash after oral surgical procedures verbal and written post-surgical instruction was reported to enhance compliance.

The understanding and subsequent execution of post-operative guidelines are factors that affect the recovery from any surgical procedure⁷. Hence, the need for proper post-extraction instructions for adequate patients' compliance and reduced post-operative complications cannot be over-emphasised. This study aims to determine the compliance of dental patients presenting at a secondary healthcare facility in Nigeria with post-extraction instructions.

MATERIALS AND METHODS

This was a prospective study of adult dental patients presenting at the Dental centre, Central Hospital Benin, Edo State, Nigeria. The study was conducted between September 2019 and June 2020. Patients who presented to the Dental centre for dental extraction were included in the study and patients who had bleeding conditions were excluded.

The sample size for the study was calculated using the formula;⁸

$$n = \frac{Z^2 pq}{d^2}$$

Where n = minimum sample size

Z = Standard normal deviation = 1.96 (at 95% confidence value)

p = proportion of the factor under study = 82.9%⁶

q = $1.0 - p = 1 - 0.829 = 0.171$

d = degree of accuracy = 0.05

$$n = \frac{Z^2 pq}{d^2}$$

$$n = \frac{(1.96)^2 \times 0.829 \times 0.171}{(0.050)^2}$$

$n = 217.83$

Approximately = 218 (to the nearest whole number).

Using the convenience sampling (non-probability) technique, 218 participants who presented at the Dental centre, Central Hospital Benin, Edo State, Nigeria, whose treatment plan warranted a dental extraction, were healthy or had a mild systemic disease without functional limitations, and consented to participate in the study, were selected for the study. Respondents for this study were offered a particular type of post-extraction instructions (verbal instructions only).

Data collection

The data collection instrument was an interviewer-administered questionnaire that consisted of three sections. The first section sought information on socio-demographics of the participants, the second section assessed questions concerning post-extraction instructions and compliance, and the third clinically assessed the extraction socket with the aid of a dental mirror, blunt-tipped dental explorer and a bright light source by the principal investigator (Omorodion GI). The principal investigator administered the questionnaire, with the first section being issued at the point of a respondent's selection into the study, and the second and third sections during the respondent's recall visit, two weeks later. Respondents were discharged about one hour after the extraction procedure (after haemostasis have been achieved and relevant post-extraction instructions given) and were required to make only one recall visit two weeks later if there were no complications or flare-ups during the said period. In the situation whereby there were complaints earlier than two weeks, patients were advised to report to the Dental surgeon/hospital immediately. Respondents were enlightened on the importance of adherence to post-extraction instructions to prevent post-extraction complications resulting from non-compliance.

Scores were given for the first nine questions in the second section of the questionnaire; a score of 1 was given for non-compliance and 3 for compliance. A scoring scale of 1 – 5 was used for the following two questions, one being for the worst compliance and 5 for the best compliance. Percentage compliance was estimated by adding the respondent's scores for each question, dividing it by the total score possible, gotten by adding the maximum possible scores for each question and

multiplying by a hundred (100). The questionnaire was not pretested.

Informed consent

Written informed consent and verbal assent were sought and gotten from the participants.

Statistical analysis

Data generated from this study were analysed using the IBM® SPSS® Statistics version 25 software. Categorical data were expressed as frequencies and percentages. Mean percentage compliance was expressed as poor: < 50%, fair: 50% – 69.99%, good: ≥ 70%.

RESULTS

A total of *n* = 88 patients out of *n* = 218 presented at the review appointment date giving a response rate of 40.4%. The ages of patients ranged from 18 years to 76 years. A majority of respondents were in the > 48 age group category, females, married, from the Bini ethnic group, and were affiliated with the Christian religious institution. About 66 (75%) of respondents were employed; meanwhile, 42 (47.7%) had a tertiary level of education [Table 1].

Table 1: Socio-demographic characteristics of respondents.

Variable	Frequency <i>n</i> (%)
Age group (in years)	
18 – 28	25 (28.8)
29 – 38	21 (23.9)
39 – 48	11 (12.5)
> 48	31 (35.2)
Total	88 (100.0)
Sex	
Male	37 (42.0)
Female	51 (58.0)
Total	88 (100.0)
Marital status	
Single	24 (27.3)
Separated	3 (3.4)
Married	56 (63.6)
Widowed	5 (5.7)
Total	88 (100.0)

Ethnicity	
Isoko	1 (1.1)
Esan	12 (13.6)
Etsako	6 (6.8)
Owan	4 (4.5)
Kwale	2 (2.3)
Non-applicable*	1 (1.1)
Urhobo	1 (1.1)
Igbo	14 (15.9)
Yoruba	2 (2.3)
Bini	44 (50.0)
Total	88 (100.0)
Religion	
Christianity	86 (97.7)
Islam	1 (1.1)
African traditional religion	1 (1.1)
Total	88 (100.0)
Employment status	
Unemployed	18 (20.5)
Employed	66 (75.0)
Retired	4 (4.5)
Total	88 (100.0)
Level of education	
Nil	6 (6.8)
Primary	12 (13.6)
Secondary	28 (31.8)
Tertiary	42 (47.7)
Total	88 (100.0)

*Non-Nigerian

Almost all respondents *n* = 87 (98.9%) complied with the recommendations of biting on surgical gauze for the next thirty minutes after the operation, this was to make sure haemostasis was achieved, and the respondent was in the best condition to return home. Meanwhile, most respondents *n* = 84 (95.5%) complied with the recommendations of not drinking or eating anything for the next 2 hours after the operation, and maintaining a soft-temperate diet for the first 24 hours after the procedure. Furthermore, more than 90% of respondents complied with the antibiotic and analgesic medication prescriptions, and less than 50% of respondents complied with warm water and salt (warm saline mouth bath) instructions [Table 2].

Table 2: Respondents' compliance with post-extraction instructions

Variable	Frequency <i>n</i> (%)
Did you strictly follow the analgesic medication prescribed?	
Yes	83 (94.3)
No, I only took it for a day.	1 (1.1)
No, I only took it for two days.	1 (1.1)
No, I only took it for three days.	2 (2.3)
No, I only took it for four days.	1 (1.1)
Total	88 (100.0)
Did you strictly follow the antibiotic medication prescribed?	
Yes	85 (96.6)
No, I only took it for a day.	2 (2.3)
No, I only took it for four days.	1 (1.1)
Total	88 (100.0)
Did you strictly follow the recommendation to bite on gauze for 30 mins, until bleeding stops and swallow your saliva even if it is stained with blood?	
Yes	87 (98.9)
No	1 (1.1)
Total	88 (100.0)
Did you strictly follow the recommendation of not drinking or eating anything for the next 2 hours after the operation?	
Yes	84 (95.5)
No	4 (4.5)
Total	88 (100.0)
Did you strictly follow the recommendation of not sucking on the operation site with your tongue or making contact with it using your finger or any object?	
Yes	85 (96.6)
No	3 (3.4)
Total	88 (100.0)
Did you strictly follow the recommendation of maintaining a soft-temperate diet for the first 24 hours after the operation?	
Yes	84 (95.5)
No	4 (4.5)
Total	88 (100.0)
Did you strictly follow the recommendation of not rinsing, spitting, and brushing the operated area for the first 24 hours after surgery?	
Yes	85 (96.6)
No	3 (3.4)
Total	88 (100.0)
Did you strictly follow the recommendation of not taking alcohol or carbonated drinks for the first 24 hours after surgery?	
Yes	82 (93.2)
No	6 (6.8)
Total	88 (100.0)

If applicable; Did you strictly follow the recommendation of not smoking for the first 24 hours after the operation?	
Non-applicable	85 (96.6)
Yes	2 (2.3)
No	1 (1.1)
Total	88 (100.0)
When did you commence warm water and salt (warm saline mouth-bath)?	
On the day of the procedure	22 (25.0)
24 hours after the procedure	66 (75.0)
Total	88 (100.0)
How many times did you perform warm water and salt (warm saline mouth-bath) per day?	
Once	1 (1.1)
Twice	7 (8.0)
Three times	8 (9.1)
Four times	6 (6.8)
Five times	8 (9.1)
Six times	14 (15.9)
Seven times	5 (5.7)
Eight times	39 (44.3)
Total	88 (100.0)
For how many days did you perform warm water and salt (warm saline mouth-bath)?	
Two days	2 (2.3)
Four days	4 (4.5)
Five days	3 (3.4)
Six days	3 (3.4)
Seven days	19 (21.6)
Eight days	4 (4.5)
Ten days	4 (4.5)
Eleven days	2 (2.3)
Twelve days	7 (8.0)
Thirteen days	6 (6.8)
Fourteen days	34 (38.6)
Total	88 (100.0)

The mean percentage compliance of the respondents was 90.7%, most respondents had good compliance $n = 87$ (98.9%) and $n = 1$ (1.1%) and $n = 0$ (0.0%) had fair and poor compliance respectively [Table 3].

According to complications, $n = 45$ females and $n = 32$ males had satisfactory healing in their extraction socket, two weeks post-extraction; $n = 4$ female, and $n = 5$ males had poor socket healing post-extraction, while $n = 1$

female each had socket infection and dry socket; giving an overall alveolar osteitis incidence of 1.1% [Table 3] [Figure 1]. A majority of respondents, $n = 82$ (93.2%), were satisfied with the treatment received [Table 3]. The principal reason given for non-compliance to post-operative instructions was the failure to remember instructions correctly (48.9%); other notable reasons were; I was busy (26.1%), and instructions were too many (12.5%).

Table 3: Percentage distribution among respondents on compliance, satisfaction, complications and post-operative expectations.

Mean percentage compliance with post-extraction instructions	
Overall	90.7%
Categories of compliance among respondents	
Good	87 (98.9%)
Fair	1 (1.1%)
Poor	0 (0.0%)
Total	88 (100.0%)
Satisfaction to treatment received among respondents	
Satisfied	82 (93.2%)
Not satisfied	6 (6.8%)
Total	88 (100.0%)
Complications to treatment received among respondents	
Nil complication	77 (87.5)
Poor healing of extraction socket	9 (10.2%)
Alveolar osteitis or dry socket	1 (1.1%)
Extraction socket infection	1 (1.1%)
Total	88 (100.0%)
Post-operative expectations among respondents	
Pain	51 (58.0%)
Nil expectations	27 (30.7%)
Jaw swelling	6 (6.8%)
Bleeding	4 (4.5%)
Total	88 (100.0%)

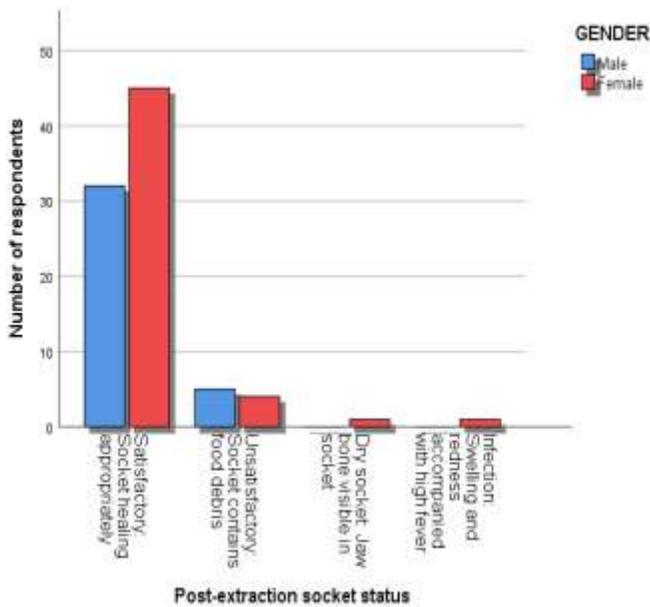


Figure 1: Distribution of post-extraction socket status among the respondents.

Poor socket healing was restricted to respondents in the 18 – 28, 28 – 38 and > 48 age groups. Localised alveolar osteitis and extraction socket infection cases were restricted to the permanent maxillary and mandibular molars, respectively. These respondents had good compliance with post-extraction instructions. According to respondents' post-operative expectations, $n = 51$ (58.0%) of respondents expected pain, $n = 27$ (30.7%) had nil expectations, $n = 6$ (6.8%) expected jaw swelling, while $n = 4$ (4.5%) expected bleeding.

Furthermore, mandibular and maxillary molars were extracted among $n = 40$ (45.5%) and $n = 21$ (23.9%) of respondents; meanwhile, mandibular and maxillary premolars were extracted among $n = 5$ (5.7%) and $n = 7$ (8.0%) of respondents respectively [Table 4].

Table 4: Distribution of extracted teeth across jaw type among respondents.

Variable	Frequency n (%)
Jaw type	
Maxilla	
Non-applicable	48 (54.5)
Incisors	6 (6.8)
Canines	6 (6.8)
Premolars	7 (8.0)
Molars	21 (23.9)
Total	88 (100.0)
Mandible	
Non-applicable	39 (44.3)
Incisors	3 (3.4)
Canines	1 (1.1)
Premolars	5 (5.7)
Molars	40 (45.5)
Total	88 (100.0)

DISCUSSION

The understanding and the subsequent implementation of post-operative instructions influence the recovery from any surgical procedure.⁹ Some authors state that instructing patients about post-operative care reduces post-operative morbidity and improves the quality of life during the recovery period.⁹ Poor compliance of the patients is considered the main problem which causes post-operative complications.⁶ Several variables may interfere with the extent and quality of instructions; how the instructions are presented has a role in compliance among respondents. Compliance has been reported to increase with age. This study showed good compliance with post-extraction instructions, which agrees with findings from some previous studies^{3,4,6} but disagrees with the finding of Osunde et al.¹⁰

Percentage compliance to post-extraction instructions was excellent even though instructions were delivered only through the verbal route, a finding that concurred with that from another previous study.⁴ Failure to remember instructions properly was the primary reason adduced by respondents for non-compliance; this finding may be attributed to either the route of information delivery or the respondents' level of education. Post-operative pain was the predominant post-operative

expectation of respondents. This may be due to anxiety developed due to interactions with family, friends, and the public who may not be dentally aware. Overall satisfaction with the treatment given among respondents was excellent and may be attributed to the Standard of Care of the dental healthcare team in the study setting. There was a higher tendency for poor socket healing among males than females and among respondents within the 18 – 28 years and 29 – 38 years age groups in this study. This finding may be due to males in these age groups having an increased tendency/urge to pick up smoking habits. Nicotine, the active constituent in most tobacco products such as cigarettes, snuffs, kreteks, bidis etc., is absorbed through the oral mucosa. This drug increases platelet aggregation, thereby increasing the risk of microvascular thrombosis and peripheral ischemia.¹¹

Furthermore, a relatively low incidence of localised alveolar osteitis was observed in this study, with a high predilection of the lesion for the maxillary jaw and the female sex. The former finding contrasts with that from two previous studies.^{6,12} Meanwhile, the latter was in agreement with finding from some other studies.^{1,6,7} This may be accorded to differences between the populations these studies were carried on.

CONCLUSION

This study showed excellent compliance with post-extraction instructions; the mean percentage compliance among respondents was good. A low incidence of localised alveolar osteitis was recorded with a predilection for the maxillary jaw and the female sex. Meanwhile, the satisfaction of respondents to the treatment received was outstanding.

LIMITATIONS

Some significant limitations of this study were that a non-probability sampling technique was employed, the instrument for data collection was not pretested and data was not collected on patients who did not present for review. Thus, data from 40.4% of the calculated sample size were analysed which will affect the generalisability of the findings from this study.

AUTHORS' CONTRIBUTIONS

Omorodion GI: Conceptualization, Data collection, Resources, Supervision, Validation, Writing – original draft, Writing – review & editing.

Osadolor AJ: Conceptualization, Review of literature, Methodology, questionnaire development and preparation, Data entry, Formal analysis, Writing – original draft, Writing – review & editing.

CONFLICTS OF INTEREST

There are no conflicts of interest.

ETHICAL APPROVAL

The protocol for this study was reviewed and approved by the ethical committee, Ministry of Health, Edo State.

REFERENCES

1. Akinbami BO, Godspower T. Dry socket: incidence, clinical features, and predisposing factors. *Int J Dent.* 2014;2014:796102. doi:10.1155/2014/796102.
2. Alexander RE. Patients' understanding of post-surgical instruction forms. *Oral Surg Oral Med Oral Pathol Oral Radiol.* 1999;89:153-158.
3. Adebayo ET, Dairo M. Patients' compliance with instructions after oral surgery in Nigeria. *J Community Med Pri Health Care.* 2005;17(1):38-44.
4. Alsaleh MK, Alajlan SS, Alateeq NF, Alamer NS, Alshammary F, Alhobeira HA, et al. Alveolar Osteitis: Patient's Compliance with Post-extraction Instructions Following Permanent Teeth Extraction. *J Contemp Dent Pract.* 2018;19(12):1518-1525.
5. Gheisari R, Resalati F, Mahmoudi S, Golkari A, Mosaddad SA. Do Different Modes of Delivering Post-operative Instructions to Patients Help Reduce the Side Effects of Tooth Extraction? A Randomised Clinical Trial. *J Oral Maxillofac Surg.* 2018;78(8):1652.e1-e7.
6. Akpata O, Omoregie O F, Owotade F. Alveolar Osteitis: Patients' compliance to post-extraction instructions following extraction of molar teeth. *Niger Med J.* 2013;54(5):335-338.
7. Faheem S. Patients Compliance and Follow-Up Rate after Tooth Extraction. *IOSR J Dent Med Sci.* 2017;16(5):115-120.
8. Araoye O. Research methodology with statistics for health and social sciences. 2nd ed. Ilorin, Nigeria: Nathadex publishers; 2004.
9. 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-e230.
10. Osunde OD, Bassey GO, Anyanechi CE. Warm saline mouth rinse instructions after dental extractions: How well do patients comply? *J Med Trop.* 2016;18:337.
11. Alam MA, Uddin MW, Ali MN, Anwar HB, Bhuiyan MAA, Rahman QB. Relationship of tobacco smoking with Alveolar osteitis after tooth extraction. *Bangladesh Dent J.* 2016; 32(2): 88-95.
12. Khan AH. Prevalence and Association of Dry Socket in Oral Health and Dental Management. *Oral Health Dent Manag.* 2017;16(4):1-6.