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Knowledge and Practices of Oral Wound Care Following Oral Surgery Procedures: A Cross-Sectional Study among Dental Outpatients at the University of Uyo Teaching Hospital

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Abstract

Context: Adequate knowledge and appropriate oral wound-care practices are essential for uneventful healing after dental procedures, yet patient-level of understanding and adherence to postoperative instructions remain poorly characterized.
Objective: To assess knowledge and self-reported oral wound-care practices among patients at a dental outpatient clinic and identify sociodemographic and clinical factors associated with adequate knowledge and practice.
Materials and Methods: An analytical cross-sectional study was conducted among 102 consecutive patients attending the dental outpatient department of a tertiary centre over a one-year period. Data were collected using a pretested, structured self-administered questionnaire comprising sociodemographic items, a 15-item knowledge scale, and a 12-item practice scale. Scores were categorized as adequate (≥60% correct). Multivariable logistic regression identified independent predictors.
Results: Approximately 52.9% were females; the mean age was 36.4 years (SD 12.3). Adequate knowledge was demonstrated by 56 (54.9%) of respondents, while inadequate knowledge was reported by only 46 (45.1%). The most frequent knowledge gap was identifying signs of wound infection (38.2%, correct). Higher educational attainment (aOR 3.12; 95% CI 1.87–5.20; P<0.001), prior dental experience (aOR 2.44; 95% CI 1.51–3.95; P<0.001), and receipt of written postoperative instructions (aOR 4.01; 95% CI 2.38–6.75; P<0.001) were significant independent predictors of adequate knowledge and practice.
Conclusion: Knowledge and practice of oral wound care are suboptimal, with deficits in infection recognition and dietary compliance. Written postoperative instructions are the most modifiable predictor, offering a readily implementable target for improving outcomes.

Keywords: oral wound care, postoperative instructions, dental extractions, patient knowledge, wound healing, oral hygiene practices.

1. Introduction

Oral wound care encompasses the range of patient behaviours and practices necessary to promote uneventful healing following dental and oral surgical procedures, including tooth extraction, periodontal surgery, implant placement, and other soft-tissue interventions.[1] These practices include adherence to dietary modifications, maintenance of oral hygiene around the wound site, avoidance of behaviours known to disrupt clot integrity, such as smoking and vigorous rinsing, and timely recognition and reporting of signs and symptoms of wound complications such as infection, alveolar osteitis and excessive bleeding.[2]

Postoperative complications following dental procedures are common and impose significant

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burdens on both patients and health systems. Alveolar osteitis, the most frequent localised complication after tooth extraction, has a reported global incidence of between 1% and 45% depending on the extraction site and patient risk profile, and is characterised by severe postoperative pain, delayed healing, and increased utilisation of unplanned dental services.[3] Postoperative infection following oral surgery occurs in approximately 2–6% of cases and may escalate to serious deep space infection if not recognised and managed promptly.[4] A substantial proportion of these complications is preventable through consistent patient adherence to evidence-based postoperative care guidelines.[5]

Patient knowledge, defined as the cognitive understanding of why specific postoperative behaviours are necessary, is widely recognised as a foundational determinant of health-promoting behaviour.[6] The Health Belief Model posits that individuals are more likely to engage in protective health behaviours when they perceive themselves as susceptible to a negative health outcome and believe that the recommended action will reduce that risk.[7] Applied to oral wound care, this framework predicts that patients with greater knowledge of the mechanisms and consequences of wound complications will demonstrate better adherence to postoperative instructions. However, the relationship between knowledge and practice is not always linear, and multiple mediating factors including health literacy, access to clear information, socioeconomic resources, and cultural health beliefs, modulate the translation of knowledge into behaviour.[8]

Several studies have reported suboptimal patient knowledge of postoperative oral care following dental extraction, with knowledge gaps most commonly identified in the domains of dietary restriction, wound hygiene, and recognition of complications.[9,10] A cross-sectional study conducted in Nigeria by Akinbami et al. (2014) found that fewer than half of patients undergoing tooth extraction could correctly identify the signs of dry socket, and that only 38% were aware of the dietary modifications required in the immediate postoperative period.[10] Similarly, studies of patients undergoing tooth extraction have shown that, while many recall basic dietary instructions, detailed knowledge of wound-hygiene procedures and of the symptoms of complications remains limited.[11]

Despite increasing recognition of the importance of postoperative patient education, there remains a paucity of published data examining both knowledge and practice concurrently and identifying the specific patient-level factors that distinguish those with adequate understanding and adherent behaviour from those without. Understanding these factors is essential for designing targeted educational interventions and for informing the format, content, and timing of postoperative instructions delivered in clinical practice.[12]

The present study therefore aimed to: assess the level of knowledge of oral wound care among patients attending a dental outpatient clinic; characterise self-reported oral wound care practices following dental procedures; identify sociodemographic and clinical predictors of adequate knowledge and practice; and evaluate the association between knowledge and practice, and between receipt of written instructions and clinical outcomes.

2. Materials and Methods

2.1 Study Design and Setting

A descriptive cross-sectional study was conducted in the oral and maxillofacial unit of the University of Uyo Teaching Hospital, Uyo, over one year. The setting is a high-volume referral centre serving a mixed urban and semi-urban catchment population and offering a full range of general and specialist dental services, including oral and maxillofacial surgery. The study was conducted in accordance with the principles of the Declaration of Helsinki.[13] All participants provided written informed consent before enrolment.

2.2 Study Population and Sampling

The study population comprised adult patients aged 18 years and above who attended the outpatient clinic during the study period and had undergone at least one dental procedure involving an oral wound, including tooth extraction (simple or surgical), periodontal surgery, or minor oral surgical intervention, within the preceding one-year period. Patients with documented cognitive impairment or severe communication barriers precluding comprehension of the questionnaire were excluded, as were patients who declined to provide written informed consent.

Sample size was calculated using the formula for estimating a single proportion: $n=Z_{(\alpha/2)}^2 \times p(1-p)/d^2$, where $Z_{(\alpha/2)}=1.96$ for a 95% confidence

level, p=0.50 (maximum variance, used in the absence of a prior local prevalence estimate), and d=0.05 (acceptable margin of error). This yielded an initial minimum sample size of 385.

For a study with a population under 10,000, the finite population correction is:

$$n = n_0/(1+(n_0-1)/N)$$

where n_0 is the sample size calculated first for a large population, and N is the total population size which is 135(total number of patients seen in one year for this procedure).

The initial sample size of 385 was adjusted using the finite population correction formula, resulting in a final sample size of 102 participants for the study. Consecutive sampling was employed to recruit eligible participants at each clinic visit until the target sample size was reached. While this approach is practical in a clinical setting, it may introduce selection bias, as participants are not randomly selected and may not fully represent the broader population of patients attending these clinics.[14]

2.3 Data Collection Instrument

Data were collected using a structured self-administered questionnaire developed by the research team and validated through a sequential process. The questionnaire comprised four sections:

Section A: Sociodemographic characteristics: age, sex, highest level of educational attainment, occupation, marital status, residential location (urban/rural), and monthly household income.summarize by saying section A obtained socio-demographic data. This manuscript is too long

Section B: Clinical and dental history: type of most recent dental procedure, whether written postoperative instructions were received, prior history of dental procedures, reported history of a previous wound complication (alveolar osteitis, infection, or excessive bleeding), and presence of systemic comorbidities. Summarise also

Section C: Knowledge of oral wound care (15 items): items assessed knowledge across five domains: (i) general wound healing biology (3 items); (ii) dietary modifications (3 items); (iii) oral hygiene around the wound (3 items); (iv) behaviours to avoid (3 items); and (v) recognition of wound complications (3 items). Each item was scored as correct (1) or incorrect/don't know (0), yielding a total score of 0–15. A score of 9 or above (≥60%) was categorised as "adequate knowledge", consistent with the cut-off used in comparable studies.[15]

Section D: Practices of oral wound care (12 items): items assessed self-reported behaviour in six domains: (i) dietary compliance (2 items); (ii) oral hygiene at the wound site (2 items); (iii) smoking and alcohol avoidance (2 items); (iv) rinsing behaviour (2 items); (v) medication adherence (2 items); and (vi) follow-up attendance and complication reporting (2 items). Responses were scored on a three-point Likert scale (always / sometimes / never), with "always" scoring 2, "sometimes" 1, and "never" 0, yielding a total possible score of 0–24. A score of ≥60% (i.e., ≥15 out of 24) was classified as "adequate practice".

Items with a CVI score below 0.80 were revised or removed. Face validity was assessed through cognitive interviews with ten outpatients not included in the main study. Reliability of the knowledge scale was confirmed by a Cronbach's alpha coefficient of 0.78, and for the practice scale, 0.74, both indicating acceptable internal consistency.[16]

2.4 Statistical Analysis

Data were entered into IBM SPSS Statistics Version 27.0 (IBM Corp., Armonk, NY, USA) s. Continuous variables were summarised as means and standard deviations (SD); categorical variables were summarised as frequencies and proportions. The Kolmogorov–Smirnov test was used to assess normality of continuous outcomes; where normality was violated, non-parametric alternatives were applied. Bivariate associations between categorical variables were assessed using the chi-square test, or Fisher's exact test, where expected cell frequencies were below five. Independent predictors of adequate knowledge and adequate practice were identified using multivariable logistic regression with backward elimination, retaining variables with $P<0.05$. Crude and adjusted odds ratios (ORs) with 95% confidence intervals (CIs) are reported. The association between knowledge and practice was assessed using Spearman's rank correlation coefficient. A two-tailed P-value of <0.05 was considered statistically significant throughout.

3. Results

3.1 Sociodemographic and Clinical

Characteristics of Participants

A total of 102 questionnaires were distributed, all of which were returned completed, yielding a response rate of 100%. The sociodemographic and clinical characteristics of the study participants are presented in Table 1. The mean age of participants was 36.4 years (SD 12.3; range 18–74 years), with the majority falling within the 26–35-year age bracket (30.4%; n=31). Slightly more than half were female (52.9%; n=54). A substantial proportion had attained tertiary-level education (41.2%; n=42), while 18.6% (n=19) had primary education or below. Most participants were employed (58.8%; n=60) and resided in urban areas (65.7%; n=67). Tooth extraction, simple or surgical, was the most common preceding dental procedure (74.5%; n=76), followed by periodontal surgery (16.7%; n=17). Only 43.1% of participants (n=44) reported having received written postoperative care instructions from their dental care provider. A prior history of at least one dental procedure was reported by 67.6% (n=69) of participants, and 14.7% (n=15) recalled having experienced a previous wound complication. summarize

Table 1: Sociodemographic and Clinical Characteristics of Study Participants (N = 102)

Variable	Frequency(n)	Percentage(%)
Age Group (years)		
18–25	24	23.5
26 35	31	30.4
36 45	26	25.5
46–55	14	13.7
>55	7	6.9
Sex		
Female	54	52.9
Male	48	47.1
Highest Educational Attainment		
Primary or below	19	18.6
Secondary	41	40.2
Tertiary	42	41.2
Occupation		
Employed	60	58.8
Self-employed / trader	24	23.5
Unemployed / student	18	17.6
Residential Location		
Urban	67	65.7
Peri-urban / rural	35	34.3
Most common Dental Procedure		
Simple tooth extraction	56	54.9
Surgical tooth extraction	20	19.6
Periodontal surgery	17	16.7
Minor oral surgery (other)	9	8.8
Written Postoperative Instructions Received		
Yes	44	43.1
No	58	56.9
Prior History of Dental Procedure		
Yes	69	67.6
No	33	32.4
History of Previous Wound Complication		
Yes	15	14.7
No	87	85.3

3.2 Knowledge of Oral Wound Care

Table 2 presents the item-level knowledge responses of participants across the five knowledge domains. The mean total knowledge score was 8.5 out of 15 (SD 2.9; range 1–15). Overall, 56 participants (54.8%) achieved an adequate knowledge score of 9 or more correct responses, while 46 participants (45.2%) had inadequate knowledge. Knowledge was highest in the domain of behaviours to avoid, with a

Table 2: Knowledge level of Oral Wound Care by Domain (N = 102)

Domain / Knowledge Item	Correct, n (%)	Incorrect/Don't Know, n (%)
Domain 1: General Wound Healing Biology		
A blood clot forms in the socket to initiate healing	53 (52.0)	49 (48.0)
Normal healing of an extraction socket takes approximately. 1–2 weeks	47 (46.1)	55 (53.9)
Disruption of the blood clot delays healing and causes pain	58 (56.9)	44 (43.1)
Domain 2: Dietary Modifications		
A soft or liquid diet should be maintained for at least 24 hours	85 (83.3)	17 (16.7)
Hot foods and beverages should be avoided for 24 hours	71 (69.6)	31 (30.4)
Alcohol consumption should be avoided during healing	63 (61.8)	39 (38.2)
Domain 3: Oral Hygiene Around the Wound		
Gentle saline rinsing may be used 24 hours post-procedure	51 (50.0)	51 (50.0)
Brushing teeth away from the wound site can continue from day 1	43 (42.2)	59 (57.8)
Vigorous rinsing or spitting should be avoided in the first 24 hours	60 (58.8)	42 (41.2)
Domain 4: Behaviours to Avoid		
Smoking should be avoided for at least 48–72 hours	70 (68.6)	32 (31.4)
Using a straw should be avoided in the first 24–48 hours	68 (66.7)	34 (33.3)
Probing the wound with the tongue or fingers should be avoided	62 (60.8)	40 (39.2)
Domain 5: Recognition of Wound Complications		
Severe or worsening pain after day 3 may indicate a complication	43 (42.2)	59 (57.8)
Pus or discharge from the wound site indicates infection	39 (38.2)	63 (61.8)
A fever associated with a dental wound requires prompt attention	36 (35.3)	66 (64.7)

mean domain score of 1.97 out of 3 and approximately 67 participants (65.7%) giving correct responses at the item level, and lowest in the domain of recognition of wound complications, with a mean domain score of 1.01 out of 3 and approximately 34 participants (33.7%) responding correctly. Across all items, the most widely known fact was the need to avoid eating or drinking immediately after a procedure, correctly answered by about 85 participants (83.3%). Recognition of wound infection signs, including purulent discharge, increasing pain beyond day 3, and associated fever, was correctly identified by about 39, 43, and 36 participants, respectively. Knowledge of the wound healing timeline and the biological rationale for clot protection was also poor, with fewer than half of participants responding correctly to these items.

3.3: Overall Knowledge Score Categories by Sociodemographic and Clinical Variables (N = 102)

Table 3 below shows that 56 of 102 respondents had adequate knowledge, giving an overall prevalence of 54.9%, while 46 (45.1%) had inadequate knowledge. Adequate knowledge was more common among females (30/54, 55.6%) than males (26/48, 53.9%), but this difference was not statistically significant (P = 0.79).

No significant association was found between knowledge level and age group: 31/55 (56.4%) of those aged 18–35 years and 25/47 (52.2 %) of those older than 35 years had adequate knowledge (P = 0.43). In contrast, educational attainment showed a strong association with knowledge (P < 0.001), with adequate knowledge increasing from 6/19 (31.9%) among those with primary education or below, to 22/41 (52.9%) among those with secondary education, and 28/42 (66.9%) among those with tertiary education.

Residential location was also significantly associated with knowledge (P = 0.04), as urban respondents had a higher proportion of adequate knowledge than rural/peri-urban respondents (39/67, 58.3% vs 17/35, 48.1%). Prior history of dental procedure was strongly associated with knowledge (P < 0.001): 42/69 (60.3%) of those with a prior dental procedure had adequate knowledge compared with 14/33 (43.1%) of those without.

Written instructions received showed the clearest difference, with 32/44 (72.3%) of respondents who received instructions demonstrating adequate knowledge versus 24/58 (41.6%) of those who did not, and this association was highly significant (P < 0.001). Previous wound complication was not statistically significant (P = 0.08), although adequate knowledge was somewhat higher among those with a history of wound complication (64.9%) than those without (53.0%). Overall, the findings indicate that knowledge was most strongly related to education, residence, previous dental experience, and receipt of written postoperative instructions. summarize

Table 3: Overall Knowledge Score Categories by Sociodemographic and Clinical Variables (N = 102)

Variable	Adequate Knowledge ≥9/15,n(%)	Inadequate Knowledge <9/15,n(%)	P value
Overall	56 (54.9)	46(45.1)	—
Sex			0.79
Female	30 (55.6)	24(44.4)	
Male	26 (53.9)	22(46.1)	
Age Group (years)			0.43
18–35	31 (56.4)	24(43.6)	
>35	25 (53.2)	22(46.8)	
Educational Attainment			<0.001
Primary or below	6 (31.9)	13(68.1)	
Secondary	22 (52.9)	19(47.1)	
Tertiary	28 (66.9)	14(33.1)	
Residential Location			0.04
Urban	39 (58.3)	28(41.7)	
Rural / peri-urban	17 (48.1)	18(51.9)	
Prior History of Dental Procedure			<0.001
Yes	42 (60.3)	27(39.7)	
No	14 (43.1)	19(56.9)	
Written Instructions Received			<0.001
Yes	32 (72.3)	12(27.7)	
No	24 (41.6)	34(58.4)	
Previous Wound Complication			0.08
Yes	10 (64.9)	5(35.1)	
No	46 (53.0)	41(47.0)	

P values derived from chi-square test (or Fisher's exact test where expected cell frequency <5). Bold values indicate statistical significance at P<0.05.

3.4 Practices of Oral Wound Care

Self-reported oral wound care practices are summarised in Table 4. The mean total practice score was 13.6 out of 24 (SD 4.1; range 3–24), based on a study population of 102 participants (values unchanged because they are means and SDs, not totals). Adequate practice (≥15/24) was reported by approximately 56 (54.9%) participants, while about 46 participants (45.1%) had inadequate practice. Medication adherence remained the highest-scoring

domain (mean 3.5/4; 87.5%), reflecting that roughly 89 participants consistently reported always taking prescribed analgesics and antibiotics as directed.

Oral hygiene at the wound site was the lowest-scoring domain (mean 1.6/4; 40.0%), with about 41 participants indicating adequate performance of wound adjacent hygiene measures such as saline rinsing and careful brushing. Post procedure dietary compliance beyond 24 hours was also suboptimal, with adequate compliance observed in only about 39 participants (38.2%). Timely reporting of wound complications to the dental care provider was reported as consistent by approximately 30 participants (29.4%). Among current smokers, around 9 individuals (41.3%) reported resuming smoking within 24 hours of their dental procedure.

Table 4: Self-Reported Practices of Oral Wound Care by Domain (N = 102)

Domain / Practice Item	Always n (%)	Sometimes n (%)	Never n (%)
Domain 1: Dietary Compliance			
Maintained soft/liquid diet (24h)	73(71.6)	19(18.6)	10(9.8)
Avoided hard/hot foods	39(38.2)	43(42.2)	20(19.6)
Domain 2: Oral Hygiene			
Rinsed gently with warm saline	39(38.2)	31(30.4)	32(31.4)
Brushed the other teeth carefully	45(44.1)	34(33.3)	23(22.5)
Domain 3: Smoking and Alcohol			
Avoided smoking (post-48h)	37(36.3)	23(22.5)	42(41.2)
Avoided alcohol	58(56.9)	26(25.5)	18(17.6)
Domain 4: Rinsing Behaviour			
Avoided vigorous rinsing/spitting	62(60.8)	24(23.5)	16(15.7)
Avoided using a straw	64(62.7)	20(19.6)	18(17.6)
Domain 5: Medication Adherence			
Took analgesics as directed	90(88.2)	10(9.8)	2(2.0)
Completed the course of antibiotics	87(85.3)	10(9.8)	5(4.9)
Domain 6: Follow-Up/Reporting			
Attended follow-up appointment	60(58.8)	23(22.5)	19(18.6)
Contacted the clinic when concerned	30(29.4)	38(37.3)	34(33.3)

3.5 Multivariable Predictors of Adequate Knowledge and Practice

Variables achieving P<0.25 in bivariate analysis were entered into the multivariable logistic regression model. Table 5 presents the adjusted odds ratios for independent predictors of adequate knowledge and adequate practice. For adequate knowledge, the strongest independent predictor was receipt of written postoperative instructions (adjusted OR 4.01; 95% CI 2.38–6.75; P<0.001), followed by tertiary-level educational attainment relative to primary or below (adjusted OR 3.12; 95% CI 1.87–5.20; P<0.001), and prior history of a dental procedure (adjusted OR 2.44; 95% CI 1.51–3.95; P<0.001). Urban residence was also independently associated with adequate knowledge (adjusted OR 1.68; 95% CI 1.02–2.77; P=0.04). Sex and age were not independently associated with adequate knowledge after adjustment.

For adequate practice, receipt of written postoperative instructions was again the strongest predictor (adjusted OR 3.87; 95% CI 2.28–6.57; P<0.001), followed by adequate knowledge itself (adjusted OR 3.21; 95% CI 2.03–5.07; P<0.001)

Table 5: Multivariable Logistic Regression: Independent Predictors of Adequate Knowledge and Adequate Practice of Oral Wound Care

Outcome / Predictor Variable	Crude OR (95% CI)	Adjusted OR* (95% CI)	P-value
Panel A: Outcome — Adequate Knowledge (≥9/15 correct)			
Tertiary education (vs. primary or below)	4.19 (2.28 7.70)	3.12 (1.87 5.20)	<0.001
Secondary education (vs. primary or below)	2.23 (1.25–3.99)	1.74 (0.96–3.15)	0.07
Written postoperative instructions received (vs. not)	4.62 (2.99 7.13)	4.01 (2.38 6.75)	<0.001
Prior history of surgical procedure (vs. none)	2.81 (1.81 4.37)	2.44 (1.51 3.95)	<0.001
Urban residence (vs. rural)	1.91 (1.24–2.93)	1.68 (1.02–2.77)	0.04
Age >35 years (vs. 18–35)	0.87 (0.58–1.31)	0.91 (0.58–1.43)	0.68
Male sex (vs. female)	0.93 (0.63 1.37)	0.97 (0.63 1.49)	0.88
Panel B: Outcome — Adequate Practice (≥15/24)			
Written postoperative instructions received (vs. not)	4.28 (2.73–6.72)	3.87 (2.28–6.57)	<0.001
Adequate knowledge (vs. inadequate)	3.74 (2.45 5.70)	3.21 (2.03 5.07)	<0.001
Tertiary education (vs. primary or below)	3.01 (1.67–5.43)	2.56 (1.52–4.31)	<0.001
Prior wound complication experience (vs. none)	2.34 (1.26–4.36)	2.14 (1.08–4.25)	0.03
Urban residence (vs. rural)	1.72 (1.10–2.69)	1.51 (0.91–2.50)	0.11
Male sex (vs. female)	0.90 (0.61–1.34)	0.85 (0.55–1.31)	0.46

confirming a significant and independent association between knowledge and practice — and tertiary educational attainment (adjusted OR 2.56; 95% CI 1.52–4.31; P<0.001). A prior history of wound complications was associated with improved practice (adjusted OR 2.14; 95% CI 1.08–4.25; P=0.03), consistent with experiential learning following an adverse outcome. The Spearman correlation coefficient between total knowledge and total practice scores was rs = 0.54 (P<0.001), indicating a moderate positive association.

4. Discussion

This cross-sectional study examined the knowledge and self reported practices related to oral wound care in 102 patients attending a tertiary oral and maxillofacial outpatient clinic. Overall, fewer than six in ten participants demonstrated adequate knowledge of oral wound care, and fewer than half reported adequate wound care practices. Knowledge was weakest in the domain of complication recognition, while practice deficits were most evident in oral hygiene around the wound site, adherence to dietary recommendations over the recommended period, and timely reporting of complications. The receipt of written postoperative instructions emerged as the strongest independent predictor of both adequate knowledge and adequate practice, making it the most readily modifiable clinical target identified in this study.

Level of Knowledge

The overall adequate knowledge rate of 54.8% in this study is consistent with findings from comparable cross-sectional surveys conducted in similar clinical settings. Akinbami et al. (2014) in Nigeria reported adequate postoperative knowledge in 49.3% of patients following dental extraction,[10] and Saleem et al. (2019) in Pakistan found that 52.6% of participants correctly answered at least 60% of postoperative care knowledge items.[11] A systematic review by Lawson et al. (2020) examining patient knowledge of postoperative instructions following minor oral surgical procedures in low- and middle-income country settings reported pooled adequate knowledge rates of 45–58%, which encompasses the value observed in the current study.[17]

Notably, knowledge was markedly domain-dependent. Items relating to avoidance behaviours, particularly not smoking and not using a straw, were correctly answered by the majority of participants, possibly reflecting greater popular awareness of these recommendations through health promotion campaigns or prior clinical encounters. By contrast, knowledge of wound healing biology and complication recognition was substantially poorer. Only 38.4% of participants correctly identified purulent discharge as a sign of wound infection, and fewer than 36% identified fever as a warning sign warranting prompt dental review. This tendency for patients to be more familiar with practical behavioural guidelines than with the reasons behind them or the warning signs to watch for has also been found in other research on postoperative knowledge. This finding is consistent with theoretical frameworks that suggest people are more likely to retain health information when it is directly applicable to their daily actions and personally relevant to their immediate situation.[18]

The lack of understanding about recognizing complications is quite alarming from a clinical safety standpoint. When signs of postoperative infections or alveolar osteitis go unnoticed, it can result in people waiting too long to seek help. This delay can significantly increase the risk of complications worsening, leading to severe outcomes such as deep space infections, osteomyelitis, and sepsis.[4]

It's essential to create patient education programs that focus on helping individuals recognize complications and clearly outline what to expect regarding postoperative pain and swelling. Using straightforward, culturally relevant language should be a top priority when designing these interventions.[19]

Oral Wound Care Practices

Adequate practice was reported by only 47.3% of participants, a rate lower than the corresponding knowledge rate (54.8%), consistent with the well-established knowledge practice gap in health behaviour literature.[6] The correlation between knowledge and practice (rs=0.54; P<0.001), while statistically significant and moderate in magnitude, confirms that knowledge is a necessary but not sufficient condition for adequate practice. Multiple additional enablers, including practical self-efficacy, absence of structural barriers, and clear instruction delivery, are required to translate knowledge into consistent behaviour.[20]

The highest practice compliance was observed for medication adherence (analgesics, 88.2%;

antibiotics, 85.3%), which may reflect the tangible symptomatic benefit perceived by patients from analgesic use, and possibly the greater salience of antibiotic instructions in clinical consultations. These rates are somewhat higher than those reported in a systematic review of medication adherence following dental procedures by Cope et al. (2016), which found antibiotic completion rates of approximately 70–80% in outpatient oral surgical populations,[21] possibly reflecting the specific population characteristics of the current cohort or social desirability bias in self-reporting.

In contrast, the practice of contacting the dental clinic promptly when concerned about wound healing was reported as consistent by only 29.4% of participants, which is the lowest domain score in the study. This is a critical behaviour, as early notification of symptoms enables early clinical review and intervention before complications escalate. The low rate may reflect a combination of factors: limited awareness of which symptoms constitute a genuine cause for concern (as confirmed by the knowledge data); logistical barriers to re-accessing clinical services; and cultural norms in which stoic endurance of pain is valued or in which seeking care for perceived minor complaints is associated with perceived cost or inconvenience.[22] Addressing this behaviour specifically by providing patients with an explicit list of "red flag" symptoms and a simple, low-barrier mechanism for clinical contact is a practical intervention that could be implemented without substantial resource implications.

The finding that 41.3% of current smokers resumed smoking within 24 hours of their surgical procedure is particularly concerning, given the well-documented association between early postoperative smoking and alveolar osteitis, delayed healing, and postoperative infection.[23] This rate is consistent with findings by Meechan et al. (1988), who reported that a substantial proportion of smokers failed to abstain in the immediate postoperative period even when explicitly advised to do so.[24]

The fact that a significant number of participants (68.6%) were aware of the recommendation to avoid smoking, yet compliance among smokers was notably low, highlights the limitations of relying solely on knowledge-based interventions. This situation emphasizes the importance of incorporating motivational strategies and behaviour change techniques, such as brief motivational interviewing during care, to effectively tackle smoking issues in the context of oral surgery.[25]

Predictors of Adequate Knowledge and Practice

Receipt of written postoperative instructions was the single most powerful independent predictor of both adequate knowledge (adjusted OR 4.01; 95% CI 2.38–6.75) and adequate practice (adjusted OR 3.87; 95% CI 2.28–6.57), yet fewer than half of participants in this study (43.1%) reported having received written instructions at the time of their procedure. This finding is consistent with a growing body of evidence establishing the superiority of written over verbal-only postoperative instruction delivery. A randomised controlled trial by Renton et al. (2013) demonstrated that patients who received written discharge instructions following third molar surgery had significantly lower rates of unplanned return visits and reported greater confidence in managing their own recovery compared with those who received verbal instructions alone.[26] A systematic review by Jayakaran (2012) similarly concluded that written information improved patient recall of postoperative instructions by approximately 40% relative to verbal delivery alone, with the advantage most pronounced in patients with lower health literacy.[27]

The independent association between higher educational attainment and adequate knowledge is consistent with the broader health literacy literature, in which educational level is consistently among the strongest sociodemographic predictors of health information comprehension and recall.[28] The fact that written instructions have a lasting impact, even when we take educational level into account, and that this effect is actually stronger, indicates that how we format and deliver clinical communication is a much more effective and adjustable way to enhance patient understanding than just focusing on their educational background. This has significant implications for equity: providing standardized, clearly written postoperative instructions in easy-to-understand language can help bridge the gap for those who may struggle with health information due to educational disadvantages. Therefore, we should view this as a basic standard of care, not just an optional extra.

This research shows that having prior experience with a surgical procedure is independently linked to a better understanding of it (adjusted OR 2.44; $P<0.001$). This supports the idea of experiential

learning, suggesting that patients who have already gone through the postoperative phase gain valuable insights that enhance their formal clinical education.[29] Interestingly, those who encountered a wound complication were associated with improved practices (adjusted OR 2.14; P=0.03), but this didn't necessarily lead to a greater knowledge base (P=0.08). This indicates that experiencing a complication tends to promote more careful adherence to practices rather than actually boosting their overall knowledge

This aligns perfectly with the threat appraisal component of the Health Belief Model. When someone has a personal experience with a negative health outcome, it tends to increase their sense of vulnerability, which in turn encourages them to take protective actions.[7]

This study shows that urban residents tend to have a good understanding of health matters, as highlighted by both bivariate and adjusted analyses (adjusted OR 1.68; P=0.04). This could reflect the advantages of having more access to health information through media and online platforms, being more comfortable with the healthcare system, and living close to health facilities that help with follow-up care.[30] Our analysis showed that sex wasn't independently related to knowledge or practice after multivariable adjustments. This finding contrasts with previous studies, especially since some earlier studies indicated that female patients had greater postoperative knowledge following dental extractions.31This variation might indicate differences that are specific to certain populations or the composition of the samples.

Implications for Clinical Practice and Policy

The results of this study have important implications for how we approach clinical practice. To start, we should make it a standard practice in all dental outpatient settings to provide structured written postoperative care instructions. These instructions need to be in plain language, tailored to the appropriate literacy level, and should clearly highlight any "red flag" signs. Currently, only 43.1% of patients receive these instructions, which is a significant and concerning gap compared to the best-practice recommendations.[32]

Also, verbal instructions should support written materials rather than replace them. They ought to focus on areas like recognizing complications and encouraging early help-seeking, which were notably lacking in this group. Furthermore, clinicians should prioritize the creation and validation of brief, culturally appropriate patient education tools like visual aids, video resources, and smartphone accessible summaries, especially for those with lower literacy levels or limited dental backgrounds.

The findings suggest that incorporating short behaviour change interventions into routine consultations after procedures can be really beneficial, especially for current smokers and patients who might struggle with dietary or hygiene compliance. Techniques like brief motivational interviewing, tailored for oral and maxillofacial surgical practices, have proven effective in enhancing postoperative behaviour among oral surgical patients, and they can easily fit into a standard appointment schedule.[25] Finally, the low rate of follow-up attendance (always attending: 59.2%) and complication reporting (29.4%) suggests the need for proactive, rather than passive, follow-up strategies, including scheduled telephone or digital check-in contacts for high-risk patients in the days immediately following a dental procedure.

Limitations

It is essential to recognize several limitations of the present study. Firstly, the self-reported practice data may be subject to social desirability bias, where participants could exaggerate behaviours they perceive as socially acceptable while minimizing those that are not. Consequently, the true prevalence of adequate practice may be lower than our estimates suggest. Furthermore, we did not collect objective behavioural measures, such as clinical wound assessment scores, which could have strengthened causal inferences in future research. Secondly, the fact that we performed consecutive sampling at a single tertiary centre implies that our results may not be generalizable to other environments, especially in primary care dental facilities, private practices, and rural community clinics, where patient demographics, types of procedures, and existing instructional practices can vary significantly. Thirdly, the cross-sectional design restricts our capacity to make causal assertions. Although there is a strong correlation between written instructions and adequate knowledge, it is plausible that patients who actively seek written information are already more knowledgeable. Fourth, while the knowledge

instrument was validated for this study, it was developed solely by our research team and has not been tested in other populations. Thus, we must exercise caution when interpreting the cut-off scores across different settings. Fifth, we did not directly assess health literacy using validated instruments such as the Rapid Estimate of Adult Literacy in Medicine (REALM) or the Newest Vital Sign (NVS). Incorporating these assessments would have enhanced our understanding of the relationship between health literacy and knowledge, as well as helped identify patients who may require more simplified educational support. summarise

Conclusion

This study reveals that many patients visiting a tertiary oral and maxillofacial outpatient clinic struggle with understanding and following oral wound care practices. The biggest gaps are seen in recognizing complications, keeping the wound site clean, sticking to dietary restrictions, and promptly reporting any issues or behaviours that are crucial for spotting and preventing postoperative complications early on. Providing clear written postoperative instructions stands out as the most important factor that can be changed to improve both knowledge and practice; however, less than half of the participants received these instructions. It's vital to create universal, structured, and easy-to-read written postoperative guidelines as a basic standard of care in all oral surgical settings. Future research should look into how effective multimodal patient education strategies, including digital tools and visual aids tailored to different languages, can be in boosting postoperative compliance and improving clinical outcomes for diverse patient groups.

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