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RESEARCH ARTICLE

Patients' Knowledge, Attitude, and Practice Concerning Post-Extraction Care: A Cross-sectional Study.

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Abstract: ***Background***: Tooth extraction ranks among the minor oral surgical procedures most frequently carried out in dental practice; however, how well a socket heals is governed less by the surgical technique itself than by what the patient does once they leave the clinic — adherence to postoperative instructions matters more than the extraction technique used.***Aim:*** To evaluate patients' knowledge, attitude, and practice (KAP) regarding postoperative care following tooth extraction.***Materials and Methods:*** A descriptive, questionnaire-based, cross-sectional study was carried out among 100 patients who had undergone tooth extraction. A structured, pre-validated questionnaire covering demographic information along with the knowledge, attitude, and practice domains related to postoperative care was administered, and the responses obtained were summarised using descriptive statistics.***Results***: Knowledge of postoperative instructions was largely satisfactory, with correct responses ranging from 66% to 88% across items, and attitudes toward postoperative care were consistently favourable, with agreement of 80–85% across items. However, practice trailed behind knowledge on several items: while every participant kept the pressure pack in place as instructed, only 69% carried out saline rinsing and just 62% completed the prescribed course of medication, revealing a clear gap between knowledge and practice.***Conclusion:*** Patients in this Central Maharashtra cohort showed satisfactory knowledge and a favourable attitude toward postoperative care, yet actual compliance — particularly completion of medication and saline rinsing — did not match what they knew. Structured verbal counselling, supported by plain-language written material and follow-up contact, may help close this gap and reduce avoidable complications.

Keywords: Tooth extraction; Postoperative care; Knowledge, attitude and practice; Patient compliance; Oral surgery; Patient education

INTRODUCTION

Tooth extraction, also known as exodontia, is one of the most frequently performed procedures in general dental practice and oral and maxillofacial surgery, undertaken for reasons ranging from non-restorable caries and periodontal disease to impacted teeth and orthodontic requirements. In experienced hands, the surgical procedure itself is seldom the limiting factor; rather, whether a socket heals without complications such as prolonged bleeding, dry socket, infection, or delayed healing depends largely on what happens after the patient leaves the dental chair — particularly on how well postoperative instructions are followed.

Such instructions generally address how long the pressure pack should be kept in place, avoidance of vigorous rinsing and straw use, the appropriate timing for warm saline rinses, avoidance of hot or hard foods, cessation of smoking, completion of the prescribed medication, and recognition of warning signs such as persistent bleeding, worsening swelling, or fever. Since these instructions are usually given verbally, often while the patient is still anxious or under the residual effect of local anaesthesia, both retention of the information and subsequent adherence to it tend to fall short.

This gap between knowledge and practice has been documented across different populations. General-population surveys conducted in Riyadh, Saudi Arabia, and Kerala, India, reported mean knowledge scores of 5.12 and 5.4 out of 10, respectively, for post-extraction instructions, with better scores associated with older age and higher educational attainment.1,2 Research focused specifically on third molar surgery has shown that a considerable proportion of patients misunderstand important aspects of their perioperative instructions, including the medication prescribed,3 and that publicly accessible written postoperative materials differ considerably in their content, accuracy, and readability.4

In India, where tooth extraction continues to be among the most common reasons for a dental visit, and where distance or cost may delay follow-up, how well patients understand and adhere to postoperative advice has a direct bearing on rates of complications and repeat visits. Data specific to India quantifying this knowledge-to-practice gap remain limited, and the existing literature largely reports knowledge on its own, without corresponding attitude and practice data drawn from the same cohort. This study was therefore undertaken to assess knowledge, attitude, and practice regarding postoperative care after tooth extraction among patients in Central Maharashtra, with particular focus on the

points at which knowledge fails to translate into practice, so that patient-education efforts can be more effectively targeted.

Aim

To assess the knowledge, attitude, and practice regarding postoperative care after tooth extraction among patients in Central Maharashtra.

MATERIALS AND METHODS

Study Design and Setting

A descriptive, cross-sectional, questionnaire-based study was undertaken to assess knowledge, attitude, and practice regarding postoperative care after tooth extraction among patients in Central Maharashtra, India.

Study Population and Sampling

As this descriptive cross-sectional study was conducted within a defined study period, a consecutive/convenience sampling approach was adopted. All eligible patients presenting to the Department following tooth extraction during the study period, and who met the inclusion criteria, were invited to take part until the target sample of 100 participants was reached.

Inclusion and Exclusion Criteria

Inclusion criteria

- Patients aged 18 years or older.
- Had undergone tooth extraction within the period specified for the study.
- Willing to take part and provide informed consent.
- Able to read and/or understand Marathi, Hindi, or English.
- Exclusion criteria:
- Cognitive or communication impairment preventing completion of the questionnaire.
- Extraction carried out under general anaesthesia, with a substantially different postoperative course.
- Medically compromised status independently affecting healing (e.g., uncontrolled diabetes, patients on bisphosphonate therapy).
- Refusal of consent.

Study Instrument

A structured, close-ended questionnaire was used to collect data. It was developed following a review of relevant literature, drawing on standard sample-size methodology for descriptive studies,5 established references in oral and maxillofacial surgery,6 and comparable studies of post-extraction knowledge and behaviour.7 Available in both English and Marathi, the questionnaire was organised into five sections: (A) demographic characteristics; (B) clinical details of the extraction (tooth extracted, indication, type of extraction, and whether local anaesthesia and sutures were used); (C) knowledge of postoperative instructions; (D) attitude toward postoperative care; and (E) postoperative practices actually followed.

Data Collection Procedure

Following written informed consent, the questionnaire was administered to eligible patients by a trained investigator under standardised conditions, so as to minimise interviewer bias and ensure consistent interpretation of items. Participants were assured that their responses would remain confidential and anonymous. Completing the questionnaire took approximately 10–15 minutes.

Statistical Analysis

Data were entered into Microsoft Excel and analysed descriptively. Frequencies and percentages were calculated for demographic and clinical variables, as well as for each item under the knowledge, attitude, and practice domains. Results for individual items are presented as proportions (n, %), and the knowledge–practice gap was determined as the percentage-point difference between the proportion of participants who answered a knowledge item correctly and the proportion who reported the corresponding compliant practice. This cross-sectional study was reported in line with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines.8.

RESULTS

A total of 100 patients who had undergone tooth extraction completed the questionnaire. Among the clinical and behavioural variables tabulated, 30% of participants reported current tobacco use, while 70% reported no tobacco use — a proportion broadly in line with national tobacco-use estimates for Maharashtra.9 Section B of the questionnaire captured the tooth extracted, the indication for extraction (caries, periodontal disease, or impaction), and procedural details (simple versus surgical extraction, use of local anaesthesia, and suture placement).

Knowledge

Overall, knowledge of postoperative care was satisfactory across the items assessed (Table 1). Awareness was greatest for the correct course of action in the event of heavy postoperative bleeding, with 88% of participants indicating they would approach a dentist immediately, while 6% would wait 2–3 days and 6% would not seek care at all. Most participants (85%) were aware that hot food and beverages should be avoided during the first 24 hours, and 81% correctly recognised that saline mouth rinsing should be delayed until 24 hours after extraction. Awareness that using a straw is unsafe during the first two days after extraction was noted in 79% of participants, and 77% were aware that forceful spitting should be avoided. For the duration of pressure-pack placement, responses were more spread out: 44% believed the pack should remain in place for one hour, 40% for 2–3 hours, and 16% for only 30 minutes, pointing to some inconsistency on this

particular item. Awareness of the need to complete the prescribed medication was reported by 72% of participants, and 66% were aware that rest or reduced physical activity is advised during the first 24 hours.

Table 1. Knowledge regarding postoperative care after tooth extraction (N = 100)

Knowledge item	Response	n (%)
Duration of pressure-pack placement after extraction	30 minutes / 1 hour / 2–3 hours	16 (16%) / 44 (44%) / 40 (40%)
Timing of saline mouth rinsing	After 24 hours / Immediately / Never	81 (81%) / 11 (11%) / 8 (8%)
Safety of straw use in the first 2 days	Yes (considered safe) / No (considered unsafe)	21 (21%) / 79 (79%)
Timing to seek dental consultation for heavy bleeding	Immediately / After 2–3 days / Not at all	88 (88%) / 6 (6%) / 6 (6%)
Avoidance of hot food/drink in first 24 hours	Yes (would avoid) / No (would not avoid)	85 (85%) / 15 (15%)
Awareness that forceful spitting should be avoided	Yes (avoids) / No (does not avoid)	77 (77%) / 23 (23%)
Awareness of need to complete prescribed medication	Yes / No	72 (72%) / 28 (28%)
Awareness that rest/reduced activity is recommended (first 24 h)	Yes / No	66 (66%) / 34 (34%)

Postoperative Experience / Complications

In addition to their knowledge of instructions, participants were asked about complications they had personally experienced. Severe pain unrelieved by analgesics was reported by 27% of participants, whereas 73% reported no such pain. A markedly higher proportion, 69% of participants, reported swelling or infection requiring additional dental care, with only 31% reporting no such complication (Table 2); comparable complications have also been linked in community-based cohorts to modifiable risk factors such as smoking and post-extraction wound care.[10,11]

Table 2. Postoperative complications experienced by participants (N = 100)

Item	Yes, n (%)	No, n (%)
Severe pain not relieved by analgesics	27 (27%)	73 (73%)
Swelling/infection requiring additional dental care	69 (69%)	31 (31%)

Attitude

Participants showed a consistently favourable attitude toward postoperative care (Table 3). A large majority agreed that postoperative care helps prevent complications (80%) and that a dentist should be contacted if pain worsens (85%). Agreement was similarly high that taking medication as prescribed helps prevent postoperative complications (84%) and that applying a cold pack reduces swelling (83%). Disagreement with these statements was uncommon, ranging from 3% to 11% across items, with the remaining participants taking a neutral stance.

Table 3. Attitude toward postoperative care after tooth extraction (N = 100)

Attitude statement	Agree, n (%)	Neutral, n (%)	Disagree, n (%)
Postoperative care prevents complications	80 (80%)	9 (9%)	11 (11%)
A dentist should be contacted if pain worsens	85 (85%)	5 (5%)	10 (10%)
Taking medications as prescribed prevents postoperative complications	84 (84%)	7 (7%)	9 (9%)
Application of a cold pack reduces swelling	83 (83%)	14 (14%)	3 (3%)

Practice

For several items, practice scores fell below the corresponding knowledge scores (Table 4). All participants (100%) reported having kept the pressure pack/gauze in place, and the vast majority (97%) did not smoke within two days of extraction. However, only 69% of participants reported actually carrying out saline mouth rinsing as recommended, and only 62% reported completing the full course of prescribed medication — a shortfall that mirrors low reported adherence to prescribed antibiotic regimens among dental patients in other settings.[12] Regarding straw use, 82% reported not using a straw during the first two days, a figure that slightly exceeded the 79% who had correctly identified straw use as unsafe, suggesting that avoidance in practice may also stem from discomfort rather than knowledge alone. Concerning diet during the first 24 hours, 42% of participants consumed soft or liquid foods as generally recommended, while 38% resumed a normal diet and 20% consumed solid food.

Table 4. Practice of postoperative care after tooth extraction (N = 100)

Practice item	Response	n (%)
Kept gauze/pressure pack in place for the recommended time	Yes / No	100 (100%) / 0 (0%)
Rinsed mouth with saline water after 24 hours	Yes / No	69 (69%) / 31 (31%)
Used a straw in the first 2 days	Yes / No	18 (18%) / 82 (82%)
Smoked within 2 days of extraction	Yes / No	3 (3%) / 97 (97%)
Took medicines as prescribed	Yes / No	62 (62%) / 38 (38%)
Diet followed in the first 24 hours	Soft/liquid / Solid / Normal	42 (42%) / 20 (20%) / 38 (38%)

Knowledge–Practice Gap

A consistent gap between awareness and actual practice emerged on several items (Table 5). Although 72% of participants recognised the importance of completing the prescribed medication course, only 62% reported actually doing so — a gap of 10 percentage points. Likewise, while 81% were aware that saline rinsing should be delayed by 24 hours, only 69% reported following the recommended rinsing regimen, a gap of 12 percentage points. In contrast, the proportion who avoided straw use in practice (82%) exceeded the proportion who identified straw use as unsafe on knowledge testing (79%), suggesting that for this item, practice was not constrained by a lack of knowledge. Taken together, these findings show that awareness of correct postoperative behaviour did not consistently translate into full adherence, and that the size of this gap varied from item to item.

Table 5. Comparison of knowledge and corresponding practice

Item	Knowledge, %	Practice, %	Gap, percentage points
Saline mouth rinsing after 24 hours	81%	69%	12
Completion of prescribed medication	72%	62%	10
Avoidance of straw use (first 2 days)	79%	82%	−3 (practice exceeded knowledge)

DISCUSSION

Overall, patients undergoing tooth extraction in this Central Maharashtra cohort had a reasonably good grasp of their postoperative instructions, with awareness ranging from 66% to 88% depending on the item, and held favourable views about following them. The shortfall emerged in actually carrying out certain behaviours. This finding aligns with previous reports. Among the general public in the Riyadh region of Saudi Arabia, the overall mean knowledge score was 5.12 out of 10, and awareness of individual items — such as the correct duration for gauze placement and the role of cold packs in preventing swelling — varied considerably, with fewer than half of participants aware of the role of cold packs. A comparable general-population survey from Kerala similarly reported an overall mean knowledge score of 5.4 out of 10, with only about a third of participants aware of the correct duration for avoiding mouth rinsing. Compared with these general-population figures, the present cohort — patients who had actually undergone an extraction and received chairside instruction — scored numerically higher on comparable items, such as the timing of saline rinsing and the correct response to heavy bleeding. This is in line with expectations: recent, direct counselling from the treating clinician tends to be retained better than awareness measured among a general population that has not just undergone the procedure.

Why did compliance fall short of knowledge for medication completion (62%) and saline rinsing (69%)? Studies of perioperative counselling before third molar removal offer one possible explanation: a substantial proportion of patients misunderstand aspects of what they are prescribed even after preoperative counselling. Readability may also play a part; written instruction sheets are often pitched above the level that a meaningful proportion of patients can actually follow, limiting their usefulness once the patient has left the clinic.13 Low oral health literacy has similarly been documented among adult dental patients in India, reinforcing the case for plain-language, locally appropriate written material.14 Patients may also come across postoperative information independently, outside the dental office: an appraisal of publicly available instructions following minor oral surgery found considerable variation in content and quality, which could readily dilute the message given by the treating clinician.

One item went in the opposite direction: 82% of participants avoided straws in practice, exceeding the 79% who had identified this as necessary when asked. This offers a useful insight: for behaviours linked to immediate discomfort or visible bleeding, patients appear to act correctly even without being able to explain why, whereas behaviours without an immediate downside — such as finishing a medication course once the pain has subsided — are more likely to be abandoned even when the patient knows better. The broader literature on perioperative education has noted this same pattern, in which behaviour tends to follow symptoms rather than instructions once acute pain resolves. A similar mismatch between what patients know and what they actually do after extraction has also been reported

among patients attending a dental college clinic in Madinah, Saudi Arabia.

Swelling or infection requiring additional dental care was reported by a notably large proportion of this cohort (69%), far exceeding the proportion reporting severe unrelieved pain (27%). This may be partly attributable to the same shortfalls in saline rinsing and medication completion, both of which have a direct bearing on infection control and swelling, and is consistent with evidence elsewhere that smoking and inadequate postoperative self-care independently increase the risk of swelling and delayed healing after extraction. That said, as this is a cross-sectional study, it cannot establish that any particular non-adherent behaviour actually caused the complications reported.

Taken together, these findings do not point to a single, readily fixable cause underlying the knowledge–practice gap observed here. Rather, several factors appear to be at play: instructions delivered verbally under time pressure or while the patient is still anxious, written material (where used at all) pitched above the patient's level of comprehension, and, once home, competing priorities alongside a tendency to follow symptoms rather than instructions once acute pain subsides. Standard teaching in oral and maxillofacial surgery emphasises that postoperative patient management forms an integral, rather than incidental, part of the extraction procedure, and that how instructions are delivered materially affects both compliance and healing outcomes. These findings support combining verbal counselling with plain-language written instructions, ideally in the patient's own language, together with a structured follow-up — in person or by phone, where practical — to reinforce the key points at a time when the patient is more likely to retain them. A randomised trial has demonstrated that this type of follow-up improves compliance compared with written or verbal instruction alone.15

Limitations

- The sample size (n = 100) was modest and drawn from a single centre/region; the findings may not be generalisable to the broader population of Central Maharashtra or to other parts of India.
- The cross-sectional design does not permit assessment of causal relationships between knowledge, attitude, and practice, nor does it capture how these parameters might change over the course of healing.
- Practice data were based on patient self-report and were not independently verified, raising the possibility of recall bias and social desirability bias (over-reporting of compliant behaviour).
- A formally validated, standardised KAP instrument specific to post-extraction care was not used; the questionnaire employed was developed and pilot-tested for this study, which may limit direct comparability with other published KAP surveys.
- Potential confounding variables — such as age, gender, education, type of extraction (simple versus surgical), operator, and mode of instruction delivery — were recorded on the proforma but were not statistically analysed in relation to KAP scores in the present dataset; sub-group analysis is recommended for future work.

CONCLUSION

Patients in this Central Maharashtra cohort entered the extraction procedure with a good understanding of what they should do and a favourable attitude toward doing it, but their actual compliance — particularly with medication completion and saline rinsing — fell short of what they knew. Clearer verbal counselling, reinforced by simply worded written instructions in the patient's own language along with structured follow-up, could help close this gap and reduce preventable complications such as infection and swelling.

Clinical Significance

Clear communication and standardised postoperative instructions, reinforced by written material and follow-up contact where feasible, can meaningfully improve compliance and healing after extraction. However, clinicians should not assume that satisfactory knowledge automatically translates into adherent behaviour; this assumption tends to fail precisely for instructions such as completing a full medication course, which lack the immediate symptomatic feedback that reinforces behaviours like keeping the gauze in place or avoiding straws. Postoperative counselling and review should be planned with this distinction in mind.

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