Do patients understand wisdom teeth post-op care? A double-blind clinical trial

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https://doi.org/10.1590/SciELOPreprints.16706

Submitted on: 2026-06-26
Posted on: 2026-06-26 (version 1)
(YYYY-MM-DD)

e20260018

Original Article

Do patients understand wisdom teeth post-op care? A double-blind clinical trial

Pacientes entendem cuidados pós-operatórios de terceiros molares? Estudo clínico duplo cego

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How to cite:

Silva LP, Murai MK, De Lima Neto TJ, Da Silva WPP, Santos MAS, Sato FRL, Magro Filho O, Faverani LP. Do patients understand wisdom teeth post-op care? A double-blind clinical trial. Rev Odontol UNESP. 2026;55:e20260018. https://doi.org/

Resumo

Introdução: A comunicação eficaz de instruções pós-operatórias é um pilar fundamental para a recuperação cirúrgica favorável. No entanto, a retenção de informações e a compreensão dos cuidados por parte do paciente permanecem como desafios significativos na prática clínica odontológica, podendo impactar diretamente o desfecho do tratamento. **Objetivo:** Avaliar o entendimento de pacientes sobre os cuidados pós-operatórios após a exodontia de terceiros molares, comparando a eficácia de três diferentes métodos de entrega de instruções. **Material e método:** Estudo realizado com 40 pacientes (21 mulheres, 19 homens; média de 24,38 anos) submetidos a cirurgias de terceiros molares. Os participantes foram divididos em três grupos: Grupo A (instruções verbais para cuidados pós-operatórios e complementares), Grupo B (instruções verbais e escritas para o pós-operatório e apenas verbais para cuidados complementares) e Grupo C (instruções verbais e escritas para ambos). A compreensão foi avaliada por meio de um questionário estruturado

aplicado com auxílio de um entrevistador. **Resultado:** Embora a compreensão global tenha sido similar entre os grupos, o Grupo C demonstrou adesão significativamente superior à orientação de 'não cuspir' (p = 0,025). Erros críticos foram identificados na duração do tratamento (20% de incorreção), intervalos entre doses de antibióticos (35% de incorreção) e uso de anti-inflamatórios (62,5% de incorreção). Apenas 7,5% dos pacientes compreenderam corretamente as medidas de mitigação do trismo. **Conclusão:** Os achados evidenciam falhas severas na retenção de informações, particularmente quanto ao regime medicamentoso e manejo de sequelas comuns. Estratégias de instrução otimizadas, combinando suportes verbais e escritos, são fundamentais para aumentar a segurança do paciente e melhorar os resultados clínicos.

Descritores: Procedimentos cirúrgicos bucais; odontólogos; complicações pós-operatórias; cuidados pós-operatórios; extração dentária.

Abstract

Introduction: Effective communication of postoperative instructions is a fundamental pillar for successful surgical recovery. However, information retention and patient comprehension regarding care remain significant challenges in clinical dental practice, potentially impacting treatment outcomes directly. **Objective:** To assess patient comprehension of postoperative care following third molar extraction by comparing the effectiveness of three different instruction delivery methods. **Material and method:** A study was conducted with 40 patients (21 females, 19 males; mean age 24.38 years) undergoing third molar surgeries. Participants were assigned to three groups: Group A (verbal instructions for postoperative and complementary care), Group B (verbal and written postoperative instructions + verbal complementary care), and Group C (verbal and written instructions for both). Comprehension was evaluated using a structured questionnaire administered with interviewer assistance. **Result:** While overall understanding was similar across groups, Group C demonstrated significantly superior adherence to the ‘avoid spitting’ instruction (p = 0.025). Critical errors were identified regarding treatment duration (20% incorrect), antibiotic dosing

intervals (35% incorrect), and anti-inflammatory use (62.5% incorrect). Only 7.5% of patients correctly understood trismus mitigation strategies. **Conclusion:** These findings highlight severe gaps in information retention, particularly concerning medication regimens and the management of common sequelae. Optimized instructional strategies, combining verbal and written formats, are essential to enhance patient safety and improve clinical outcomes.

Descriptors: Oral surgical procedures; dentists; postoperative complications; postoperative care; tooth extraction.

INTRODUCTION

The extraction of third molars is one of the most common procedures in oral and maxillofacial surgery[1-4]. It is performed through intraoral access, mostly under local anesthesia, and is known to cause several complications and postoperative morbidities like pain, swelling and trismus. These may negatively impact the patient's quality of life[2,4,5].

There are different factors that affect postoperative recovery, such as the complexity of the surgery and the degree of tooth impaction, which requires more invasive surgical techniques[6]. As the third molars are the dental elements with the highest rate of inclusion/impactment, they are the last teeth to complete the formation and eruption process[6]. They often require incision, osteotomy and odontosection techniques, which result in tissue trauma and, subsequently, affect recovery.

In addition to surgical complexity, the immediate and later postoperative periods are also influenced by an adequate understanding of the instructions given to the patient, the degree of anxiety in the pre- and postoperative period, sociocultural class, physical and mental health[1]. These instructions are to be given by the dentist to minimize morbidity, complications and improve the postoperative quality of life[1]. There are different means to pass postoperative instructions to patients, which may be verbal, in written/printed form, or a combination of both[1,3].

A poorly informed patient is more likely to present postoperative complications, such as alveolitis, bleeding, sinus complications, injuries to the mandibular nerve and pain. The latter is the most important postoperative complication for the dental surgeon and the greatest concern for the patient, being the symptom that most causes discomfort[7,8]. However, pain can be alleviated with the correct use of analgesics immediately after the onset of the tingling sensation in the anesthetized region[7].

Alveolitis, on the other hand, has a low incidence (13.9%)[8] and brings about major complications, such as a severe pulsating pain that does not cease with the use of analgesics[7]. It is related to removal of a blood clot from the socket, generally by mechanical means like suction and mouthwash[7]. Local hematomas and edemas also present a low incidence (9%)[8] and are associated with factors in the inflammatory process initiated by the surgery[7]. They can be alleviated by the application of cold compresses at the surgery site[7].

As such, good communication is crucial to the patient's postoperative quality of life[5], and its success depends on the dentist being able to provide guidance in an individualized manner to each patient, so that they can put into practice all the recommendations.

The main objective of this study was to evaluate patients' understanding of postoperative guidelines after third molar surgeries, with the null hypothesis being no intergroup differences. The secondary objective was to assess understanding of the correct dosage of medications and required actions when postoperative complications occur.

MATERIAL AND METHOD

Experimental Desing

A prospective, double-blinded, randomized study was carried out, collecting quantitative and qualitative data. The population consisted of patients who needed third molar extraction surgery at the premises of the Dentistry School of Araçatuba (FOA – UNESP).

Inclusion criteria were age ≥ 18 years, no limitations in understanding the Portuguese language, and no mental disorders. Patients who did not meet the inclusion criteria, refused to participate in the research, provided incomplete data, or failed to return for a follow-up interview after seven days, were excluded.

The project was approved by the research ethics committee (case nr. 3.926.299). Prior to surgery, participants' basic data (name, sex, age, and education level) were recorded. They were informed about the research and all participants signed an informed consent form.

Randomization

After surgery, the patients spent 30 minutes in a waiting room. Subsequently, they were relocated to a separate room, where they were randomly assigned to groups A, B, and C, with their allocation concealed in sealed white envelopes.

Group A: Received verbal instructions for postoperative guidelines and additional postoperative information, which addressed care and actions to be performed in case of possible postoperative complications. This group's envelope contained only the group identification.

Group B: Verbally instructed on postoperative guidelines and additional postoperative information. Inside the group envelope, in addition to the group identification, a written post-operative guidance sheet was included (APPENDIX A).

Group C: Received verbal instructions on postoperative guidelines and complementary information. However, its envelope contained the group identification, written postoperative guidelines (APPENDIX A), as well as a sheet of complementary information and printed postoperative reports (APPENDIX B).

Surgical Procedure

The surgical procedures were performed by one trained surgeon. Surgery was performed according to the previously proposed planning, following the conventional protocol for extracting third molars under local anesthesia.

All three groups received standardized home medications: amoxicillin (Medley®, Campinas, São Paulo, Brazil) 500mg, one tablet orally every 8 hours for five days; oral ibuprofen 600 mg (Neo Química, Anápolis, Goiás, Brazil) every 8 hours for 3 days; complemented by paracetamol 500 mg (PanVel, Eldorado do Sul, Rio Grande do Sul, Brazil) every 6 hours for 3 days in case of pain. There was no need to prescribe any other antibiotic, as no patient was allergic to penicillin.

Outcomes

Data collection was performed in the immediate postoperative period and at the 7-day follow-up through interviews and questionnaires. All interviews were conducted by a single interviewer. Seven days postoperatively, all participants filled out a questionnaire (APPENDIX C) with the help of the interviewer, who was made aware of the group each patient belonged to only after the end of the interview. The collected data were tabulated in Microsoft Excel and submitted to the Chi-square test at a significance level of 5% ($\alpha = 0.05$), using SigmaPlot 12.0 software.

RESULT

A total of 45 patients were assessed, of whom 5 individuals were excluded due to absence at the post-surgery follow-up. Therefore, the sample consisted of 40 patients, 21 female and 19 male, aged between 18 years and 62 years (24.38 + 7.62). The education level varied between completed high school (13 patients), incomplete higher education (10 patients), ongoing higher education (5 patients) and completed higher education (11 patients).

There were 19 different professions in the group, the most common being student, totaling 12. One patient did not inform his age, education level or profession, and was therefor excluded from the analysis.

The average surgery time was 49.6 ± 32.37 minutes, with no intra-operative complications for any of the patients.

In the questionnaire all patients stated that antibiotics were prescribed, with 100% correct answers. Furthermore, in relation to the number of days of antibiotic prophylaxis, 80% of patients responded correctly, 32.5% of which in group A, 22.5% in group B and 25% in group C (Figure 1A). The 20% of patients who did not know or mistook the number of days of antibiotic use were distributed as follows: 5% in group A, 7.5% group B and 7.5% group C, with no statistically significant intergroup difference ($p = 0.659$) (Figure 1A).

Regarding the interval between antibiotic doses, 65% of patients (group A 27.5%; group B 17.5%; group C 20%) informed the correct answer of every 8 hours. The remaining 35% answered incorrectly or not at all (group A 10%; group B 12.5%; group C 12.5%). No statistical intergroup difference was noted ($p = 0.552$) (Figure1B).

With reference to the prescription of anti-inflammatory drugs, only 2 patients (5%) were unable to answer whether these had been prescribed; one patient from group A and another from group C ($p = 0.632$) (Figure1C). Half of the individuals (50% - with 22.5% in group A, 15% in group B, and 12.5% in group C) were able to correctly answer the duration in days of medication use, whereas the remaining 50% made mistakes or did not answer (group A 15%; group B 15%; group C 20%) (Figure 1D).

As for the time interval between doses of anti-inflammatory medications, 37.5% supplied the correct answer of 8 hours (group A 12.5%; group B 12.5%; group C 12.5%). 27.5% failed to answer (group A 15%; group B 5%; group C 7.5%), while 35% got the time interval wrong (group A 10%; group B 12.5%; group C 12.5%). There were no significant intergroup differences for the number of days and time interval of anti-inflammatory medications use ($p = 0.778$ and $p = 0.721$, respectively) (Figure1E).

Regarding analgesics, only one patient in group C responded that these had not been prescribed ($p = 0.345$). For the number of days and time interval of analgesic use, 62.5% (group A

27.5%; group B 17.5%; group C 17.5%) and 47.5% (group A 20 %; group B 17.5%; group C 10%), respectively, answered correctly. No statistically significant intergroup difference was noted (p = 0.668 and P = 0.4) (Figure 1F, 1G).

Considering the general comparison between groups A, B and C, no statistically significant difference was observed. However, there was a significant difference between correct and incorrect answers ($p < 0.001$), as well as between correct answers and "Do not know" replies ($p < 0.001$) (Figure 1H). **[FIGURE 1].**

The guidelines on post-operative care revealed similar responses between the groups, while the guidelines regarding diet, oral hygiene (brushing teeth and avoiding mouthwash), applying local ice, and refraining from smoking and alcoholic beverages, obtained positive responses in over 90% of the patients.

The placement of gauze for immediate homeostasis was performed in all patients at the end of surgery. Although responses as to how long this gauze remained in place varied, a majority of 67.5% (group A 22.5%; group B 17.5%; group C 27.5%) responded correctly (30 minutes) ($p = 0.468$) (Figure 2A).

To the guidance on avoiding spitting, 80% of the participants replied correctly (group A 20%; group B 27.5%; group C 32.5%), whereas 20% (group A 17.5%; group B 2. 5%) did not know or did not answer correctly. All patients in group C responded correctly, with a statistically significant intergroup difference ($p = 0.025$) (Figure 2B).

Preventive guidelines to address potential complications like bleeding (72.5%), edema (67.5%) and pain (87.5%) have shown good success rates with regard to general comprehension, showing no statistically significant difference ($p = 0.346$, $p = 0.273$ and $p = 0.634$, respectively). However, when analyzing incorrect responses, particularly in relation to bleeding, there is great clinical relevance, given that almost a third of the participants were unaware of what should be done. As for trismus, only 7.5% of the participants answered correctly (1 from each group), while 12.5%

answered incorrectly and the remaining 80% did not know (group A 32.5%; group B 20%; group C 27.5%).

There was no statistical significance in the comparison between the groups in relation to possible expected complications: bleeding ($p = 0.346$); edema ($p = 0.273$); trismus ($p = 0.634$) and pain (0.568) (Figure 2C). **[FIGURE 2].**

DISCUSSION

The results of this study have demonstrated that, for the most part, there is a balance between the groups of patients and different forms of post-operative instruction. This may indicate that the way to guide patients towards their post-surgical recovery depends exclusively on the dental surgeon's preference. However, some studies have pointed out a preference on the part of patients (62%) to receive their instructions verbally and in writing[9]. This potentially reduces the occurrence of errors in the use of medication, which is corroborated by the results of the present study. In addition to generating greater patient satisfaction[10], the group that had received verbal and written orientations showed the lowest rates of post-operative pain, whereas the group that had been given verbal guidance only suffered the highest rates[10].

The current study revealed no statistically significant intergroup difference. Nonetheless, there was a significant difference between correct and incorrect answers ($p < 0.001$). Approximately 52.5% of the patients did not correctly answer the interval between doses of the prescribed analgesic, while 35% also mistook or did not know the dosage of the prescribed antibiotic.

Insufficient use of prescribed medications negatively affects the surgical recovery period, resulting from a lack of analgesics, as well as increased pain due to not taking anti-inflammatories. These conditions can worsen between 24h and 48h post-operatively and compromise the patient's quality of life. Moreover, incorrect antibiotics use increases the risk of infections[11]. The incidence of infections during the surgical recovery period has been noted in the literature between 0.6% and 5.5%[12-15]. There are risk factors associated with these infections, the most common being advanced

age[14,15] and bone removal during surgery[14]. Studies have shown that antibiotics used prophylactically in the pre-surgical period reduce the chance of infection[16]. When prescribed as the only medication in the post-operative period[17], they reduce the risk of inflammatory complications resulting from the surgical procedure[17,18] and alveolitis[18].

It is important to note that not only insufficient medication causes harm, but also their excessive use. An overdose of analgesics, anti-inflammatories and antibiotics can cause liver, kidney, gastrointestinal and cardiovascular damage[19-22]. In relation to antibiotics, incorrect use can cause bacterial resistance and damage to the normal microbiota[23].

However, the above mentioned negative consequences can be avoided through the correct use of medications prescribed by the dentist and by better informing patients about what to do in the post-operative period[24]. The intergroup comparison did not reveal a statistically significant difference in questions regarding the prescribed medication class (antibiotics and anti-inflammatories) or in the dosage of these medications. Nevertheless, the incorrect answer rates in the order of 20% and 35% for antibiotics, and 50% and 27.5% for anti-inflammatories, are clinically relevant and should be considered in pre- and postoperative management.

The participants were kept in a separate waiting room for 30 minutes after the surgery prior to being instructed, which may have lowered their anxiety levels. Furthermore, education and the broader sociocultural level could have had an impact on the participants' understanding of post-surgical guidelines. These fact constitute a limitation of the present study.

Research has shown that anxiety levels in patients peak before surgery and are influenced by the information a patient receives prior to the procedure[25]. Additionally, patients who score higher on the anxiety scale tend to report greater pain than those who do not [26].

In a study carried out by Gonzalo-Martinez et al. (YEAR), patients were divided into 3 groups: healthy, those with psychological stress and those with psychopathological disorders. In the first two groups post-operative pain reduction was gradual, whereas in the last group there was no such reduction[27]. The results of another study have shown that 96% of patients were in favor of receiving

post-operative instructions before the start of surgery, and that 70% stated that they had been properly instructed[26].

The very low percentage of patients (7.5%) in this study who were able to answer what should be done if trismus occurred is notable. Some studies have pointed out that trismus is one of the most frequent postoperative complications[7,8,28], with incidence rates ranging from 34% to 56%[29]. Moreover, all patients undergoing third molar surgery present trismus in varying degrees[28]. To avoid this scenario, the correct option is to perform shorter and less traumatic surgeries, avoiding osteotomy and odontosection[29], while the patient may use a moist warm compress two days after the extraction[7]. The problem becomes even more evident among patients who answered incorrectly about the correct use of antibiotics and anti-inflammatory drugs. Although these medications do not prevent trismus completely, in combination with moist warm compresses they do reduce it[7,29].

CONCLUSION

Despite the limitations of the present study, its results have highlighted the importance of instruction about the post-operative period. Taking into account patients' level of understanding, personalized guidance in writing and verbally is extremely important to minimize complications and improve post-operative quality of life. Future studies should be carried out in order to evaluate different instruction approaches, such as instruction before surgery and to a patient's companion or responsible, as well as assessments at different post-operative times (baseline, 3 and 7 days post-operative).

It can also be concluded that even at a high sociocultural level (the lowest level of education among the participants of this study being high school completed), there were difficulties in understanding and following the post-operative guidelines. Since these problems are likely to be more accentuated in populations with a lower sociocultural level, future studies that take this dimension into account should be conducted.

ACKNOWLEDGMENTS

This study was financed in part by the Coordenação de Aperfeiçoamento de Pessoal de Nivel Superior - Brasil (CAPES) - Finance Code 001.

AUTHORS' CONTRIBUTIONS

L.P. Faverani – Conceptualization; Receipt of Funding; Methodology; Project Management; Supervision; Validation; Proofreading and Editing.

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F. R. L. Sato – Supervision; Proofreading and Editing.

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All authors have viewed and agreed to the submission of this article.

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CONFLICTS OF INTERESTS

Conflict of interest the authors declare that they have no conflict of interest.

DATA AVAILABILITY

The contents underlying the research text are included in the manuscript.

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Received: April 22, 2026
Accepted: June 16, 2026

Figures

Figure 1. Responses about postoperative prescription.

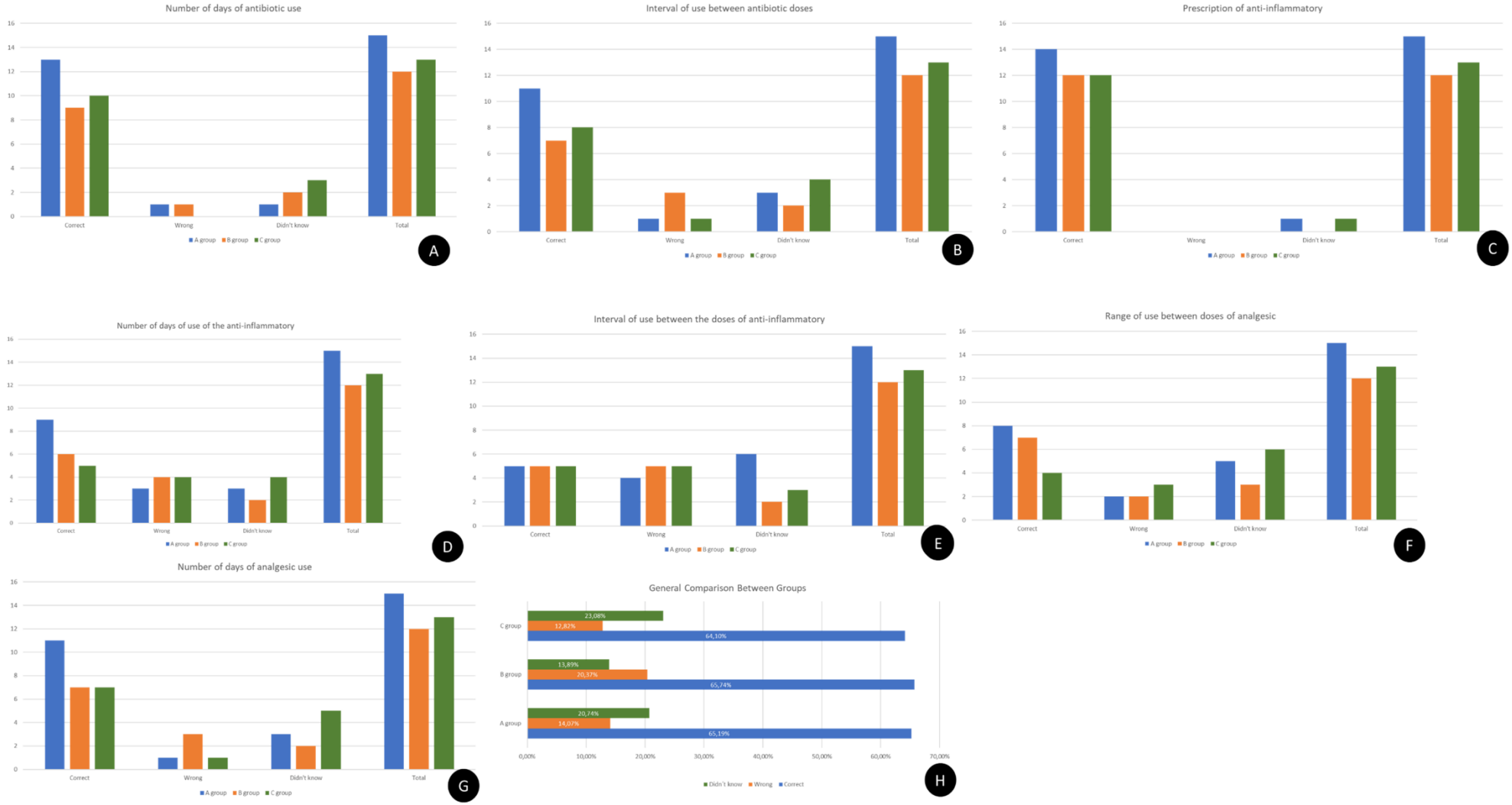
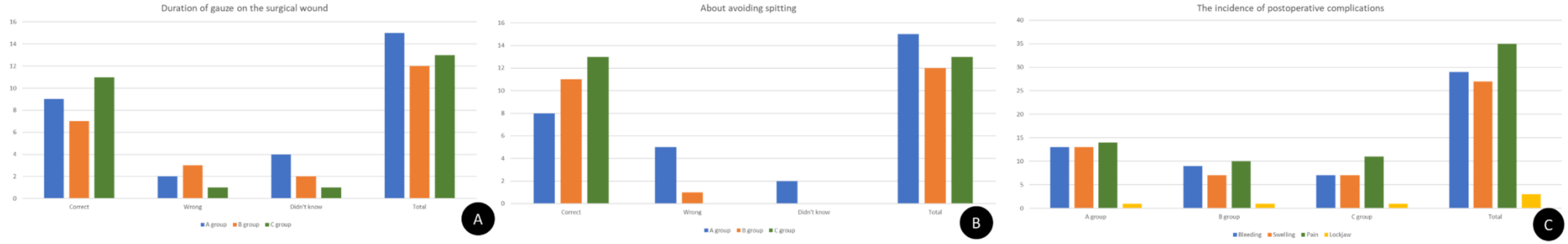


Figure 2. Responses about postoperative care.



Legends

FIGURE 1 – Responses about postoperative prescription

Figure 1A – Number of responses regarding the number of days of prescribed antibiotic use.

Figure 1B – Number of responses regarding the dosage regimen of the prescribed antibiotic.

Figure 1C – Number of responses regarding whether an anti-inflammatory was prescribed postoperatively.

Figure 1D – Number of responses regarding the number of days of prescribed anti-inflammatory use.

Figure 1E – Number of responses regarding the dosage regimen of the prescribed anti-inflammatory.

Figure 1F– Number of responses regarding the dosage regimen of the prescribed analgesic.

Figure 1G – Number of responses regarding the number of days of prescribed analgesic use.

Figure 1H – Overall percentage comparison between groups regarding understanding of postoperative medication prescriptions.

FIGURE 2 - Responses about postoperative care

Figure 2A – Number of responses regarding understanding of the guidelines on how long to place gauze on the wound.

Figure 2B – Number of responses regarding understanding of guidelines on how to avoid spitting.

Figure 2C – Number of respondents regarding the incidence of postoperative complications.

APPENDIX A – Postoperative Guidelines

POSTOPERATIVE GUIDELINES
1 – Continue applying gentle pressure with a folded gauze for 30 minutes after the extraction.
2- Avoid rinsing with any liquids during the first 24 hours.
3 – Do not spit.
4 – Follow a liquid or soft diet at a cool temperature (cold or chilled).
5- Apply ice wrapped in a cloth to the outer face area around the surgery site for a few minutes during the first 3 days.
6 – Brush your teeth normally, being extra careful around the surgery site.
7- Do not smoke or consume alcoholic beverages for the first 7 days after surgery.

APPENDIX B – Additional Postoperative Informations

ADDITIONAL POSTOPERATIVE INFORMATION
1. Bleeding: Saliva may be slightly bloody for several hours. Swallow it, do not spit. Avoid work or exercise that requires significant effort. If there is heavy bleeding, remove blood with gauze, place another gauze on the bleeding area (not cotton), and bite down on it with teeth for 30 minutes (repeat 2-3 times). If bleeding persists, contact your surgeon.
2.Swelling: Facial swelling typically occurs several hours after surgery, peaking during the first 2-3 postoperative days. Apply cold (ice pack) during the first 24 hours to help reduce inflammation and discomfort. Use two pillows when sleeping to keep your head slightly elevated. Avoid exertion in the first few days. Sometimes, it may be associated with bruising around the area, which usually resolves without treatment..
3. Trismus (difficulty opening mouth): This is a common complication after surgery, gradually resolving over time. It manifests as tightness in the back of the jaw. Do not force the opening and maintain a soft diet in the initial days. Drinking plenty of fluids is advisable. Avoid hot and hard foods. It is recommended to chew on the opposite side.
4. Medications: Take painkillers, anti-inflammatory, and antibiotics as per the surgeon's recommendations (pay attention to each medication's prescription and follow the specified times).
It is important not to rinse for the first 24 hours to prevent dislodging the clot. Beginning one day after surgery and for 15 days thereafter, rinse with the recommended mouthwash. Brush your teeth as usual three times a day, and gently clean the operated area with a toothbrush after each meal to avoid food buildup.
Postoperative pain may last several days (4-5 days), especially worsening at night and after meals. Take medication as directed to alleviate any discomfort. If pain is severe during this period, contact your surgeon promptly.

APPENDIX C – Questionnaire for Evaluation of Understanding Postoperative Recommendations

QUESTIONNAIRE FOR EVALUATING UNDERSTANDING OF POSTOPERATIVE RECOMMENDATIONS
Was antibiotic prescribed for you? ___Yes ___No ___Not sure How often? _____ For how many days? _____.
Was anti-inflammatory prescribed for you? ___Yes ___No ___Not sure How often? _____ For how many days?_____.
Was painkiller prescribed for you? ___Yes ___No ___Not sure How often? _____ For how many days? _____.
What recommendations were given to you? _____ Bite down on gauze Duration?_____ _____ Avoid rinsing Duration?_____ _____ Do not spit _____ Liquid/soft diet Cold/chilled_____ _____ Apply ice locally Duration?_____ _____ Brush your teeth **_____ No smoking _____ No alcohol Duration?_____**
What should you do in case of bleeding? Regarding Swelling? Regarding Trismus?

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