

# *Trends In The Prescription Of Analgesics In Dentistry In Primary Care In Prishtina*

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## Abstract

**Introduction** – Analgesics are among the most commonly prescribed medications in dental practice, playing a crucial role in pain management following dental procedures. However, their use is also associated with potential risks, including side effects and the possibility of dependence in cases of prolonged use. This requires a careful and evidence-based approach to their prescription and administration.

**Objective** – The aim of this study is to evaluate the prevalence and trends in the prescription of analgesics in primary dental care in the city of Prishtina during the period of January-December 2024. Special attention is given to the classification of the analgesics used and the identification of the most common prescribing practices by healthcare professionals.

**Methodology** – This study is based on a combined research approach: an applied method for analyzing real data and a theoretical method for describing basic concepts related to analgesics. Primary data was collected from the Primary Health Care Center (QKMF) in Prishtina, specifically from the dentistry sector, while secondary data was obtained from scientific literature and reliable online sources.

**Results** – The results indicate a moderate level of analgesic prescriptions in primary dental care. Specific trends in the selection of types of analgesics were identified, along with a high level of awareness among professionals about the risks associated with long-term use. The use of natural analgesics remains limited, although it has shown promising potential in certain cases.

**Conclusions** – The study highlights the need for clear clinical guidelines and continuous education for healthcare professionals in dentistry, with the aim of optimizing analgesic prescriptions and reducing unnecessary risks for patients.

**Keywords:** analgesics, dentistry, drug prescription, primary care, Prishtina

## I. INTRODUCTION

Analgesics are among the most important groups of medications used in both medical and dental practices, with their primary function being pain relief without causing a loss of sensation or consciousness. These drugs work in different ways—by interrupting pain signals or modifying the way the brain perceives them (Rang, Dale, Ritter, Flower, & Henderson, 2015).

The use of analgesics is widespread in the management of pain following surgical procedures, physical injuries, or as part of the treatment for chronic and acute pain, including those related to dental interventions (Smith & Taylor, 2019). In dentistry, analgesics are essential for providing the necessary comfort during and after dental procedures, enhancing the patient's experience, and reducing discomfort related to oral or jaw interventions.

The mechanism of action of analgesics is complex but typically involves interference with the transmission of pain signals in the central nervous system or reducing inflammation, which is often the primary cause of pain (Alorfi, 2023). Moreover, these

medications help improve the quality of life for patients by aiding them in coping more effectively with the consequences of injuries, diseases, or medical procedures.

On the international stage, the misuse of analgesics, especially opioids, has reached alarming levels, prompting new research to better understand the biological mechanisms of pain sensitivity and recovery (Zafeiri, Mitchell, Hay, & Fowler, 2021). Recent developments in supportive therapies and alternative drug delivery methods have shown potential in improving pain management. However, significant challenges remain, particularly in terms of treatment personalization and enhancing the quality of life for individuals suffering from chronic pain.

Despite their effectiveness, the use of analgesics is not without risks. Inadequate or unstable responses to these drugs, combined with prolonged and unmonitored use, can lead to various health problems, including mood disorders, addiction, and other side effects that further exacerbate the patient's condition (Bouhassira, Minet, Attal, Laurent, & Touboul, 2008).

In this context, analyzing the use of analgesics in primary dental care becomes imperative to understand current prescription trends, evaluate professional awareness, and identify areas where interventions are needed to improve clinical practices.

## II. LITERATURE REVIEW

Analgesics are drugs used to relieve pain without causing a loss of consciousness. Their use dates back to antiquity, when derivatives of opium were utilized for therapeutic purposes. Later, with the development of modern anesthesia, opioids were integrated into perioperative care for the management of pain before, during, and after surgical procedures (Katzung et al., 2021; Trescot et al., 2008). The growing dependence on opioids has led to the development of synthetic alternatives with safer pharmacological profiles (Chou et al., 2016). According to the World Health Organization (WHO), the use of analgesics is effective when administered in accordance with professional guidelines and tailored to the individual needs of the patient (WHO, n.d.).

### 2.2 Use of Analgesics

Analgesics are widely used in the treatment of post-surgical pain, traumatic injuries, menstrual pain, migraines, and chronic diseases such as arthritis or cancer. Their use encompasses different classes of medications: paracetamol, NSAIDs, antiepileptics, local anesthetics, and opioids (WebMD, n.d.; Mayo Clinic, 2023).

The World Health Organization's three-step pain management model recommends: (1) for mild pain – paracetamol or NSAIDs; (2) for moderate pain – the addition of a mild opioid like codeine; (3) for severe pain – the use of strong opioids such as morphine, often in combination with non-opioid medications (CDC, 2022; American Pain Society, 2019).

### 2.3 Types of Analgesics

Analgesics are classified into the following categories:

- **Non-opioid analgesics:** Such as paracetamol and NSAIDs (ibuprofen, aspirin), which have analgesic, antipyretic, and anti-inflammatory effects.
- **Opioids:** Include morphine, codeine, fentanyl, tramadol, which act on opioid receptors in the central nervous system.
- **Combination analgesics:** These combine an opioid with a non-opioid, such as co-codamol (paracetamol + codeine), aiming for a stronger effect with a lower dose of each component.

Effective pain management requires careful selection of the type of analgesic, based on the type, intensity, and duration of pain, as well as the overall condition of the patient.

## III. DECLARATION OF THE PROBLEM

In the dental service of the Municipality of Pristina, the use of analgesics for pain management during dental treatments is a common and essential practice. However, the lack of structured and detailed data on the prescription of these medications during the period of January–December 2024 represents a significant gap in evaluating clinical practices and ensuring evidence-based care.

This lack of information creates a risk for the excessive or inappropriate use of analgesics, which could lead to negative consequences such as the development of dependence, drug tolerance, side effects, and the compromise of long-term patient care. The uncontrolled use of analgesic medications undermines the quality of healthcare services and may negatively affect the overall well-being of patients.

Effective pain management is particularly important in dental treatments that involve acute conditions such as oral infections, where the use of analgesics is necessary to alleviate symptoms and improve the clinical condition of the patient. However, the rational use of these medications should be based on clear guidelines, clinical criteria, and regular monitoring.

In this context, there is a need for a detailed study that will examine the current practices of analgesic prescriptions in the dental service of Pristina during the year 2024. Such an analysis will contribute to identifying existing deficiencies and will enable the formulation of recommendations to improve pain management, promoting safer, more effective, and clinically justified use of analgesics in dentistry.

#### IV. METHODOLOGY

This research is of a scientific typology and has a descriptive character, with the aim of analyzing the prevalence of analgesic prescriptions in public dental services in the city of Pristina during the period from January to December 2024. The main goal of this study is to identify and analyze the quantity and frequency of analgesic drug prescriptions by dental professionals in public health institutions, examining the trends of usage and the factors influencing this clinical practice.

##### 3.1 Type of Research

The study is quantitative and descriptive in nature, with elements of comparative analysis. It aims to collect and interpret numerical data from the medical documentation of dental services at the Primary Health Care Centers (QKMF) and its relevant units in Pristina.

##### 3.2 Data Sources

The data was collected from medical protocols, prescription registers, and relevant documentation from the dental departments at the QKMF in Pristina. Data from the period January to December 2024 were analyzed, with a particular focus on the prescription of analgesic medications.

##### 3.3 Methods Used in the Research

The following methods were employed for the realization of this research:

- **Applied Research Method:** This method was used to compare changes in the quantity and frequency of analgesic prescriptions throughout 2024, by analyzing trends and differences between months or clinical units. This method has helped to draw conclusions regarding the rational or excessive use of analgesic drugs.
- **Scientific Theoretical Research (Fundamental):** This method was used for building the theoretical framework of the paper. Secondary sources (scientific literature, articles published in medical journals, international clinical guidelines, and academic texts in dentistry and pharmacology) were used. These materials were selected, analyzed, and synthesized in the form of citations, paraphrases, and summaries to create a theoretical foundation supporting the interpretation of empirical data.

##### 3.4 Data Analysis

The collected data was processed and analyzed using simple statistical techniques to describe frequencies, percentages, and monthly comparisons. The results are presented in tabular and graphical formats to facilitate interpretation and draw clear conclusions about the prevalence and patterns of analgesic prescriptions in dental services.

## V. RESULTS

During the one-year research period (January–December 2024), a total of 95 cases of analgesic use were recorded in the dental service of the Municipality of Pristina, which were documented in the relevant protocols and registers of the department. These cases represent patients who sought treatment for dental pain, oral inflammations, or other conditions that required pharmacological intervention to manage pain symptoms.

The analysis of these cases reveals that the use of analgesics was not uniform throughout the year, but showed moderate fluctuations that may be linked to various seasonal and clinical factors. In the colder periods (winter), a slight increase in prescriptions was observed, which could be explained by the heightened sensitivity to dental pain influenced by exposure to low temperatures, exacerbation of upper respiratory tract infections (such as the flu), which are often accompanied by headaches or muscle pain, requiring symptomatic treatment with analgesics.

On the other hand, during the warmer months (summer), cases were recorded where the use of analgesics was linked to factors such as increased physical activity, consumption of cold foods, or dental sensitivity to sudden temperature changes. These factors may contribute to the exacerbation of existing oral pathologies or trigger new symptoms that require analgesic intervention.

The use of analgesics in this context highlights their significant role in improving patients' quality of life and providing more efficient dental care. However, the limited number of reported cases also raises questions about the possibility of underreporting or the lack of regular documentation of prescriptions, which would necessitate improvements in the clinical data management system and medication prescription protocols.

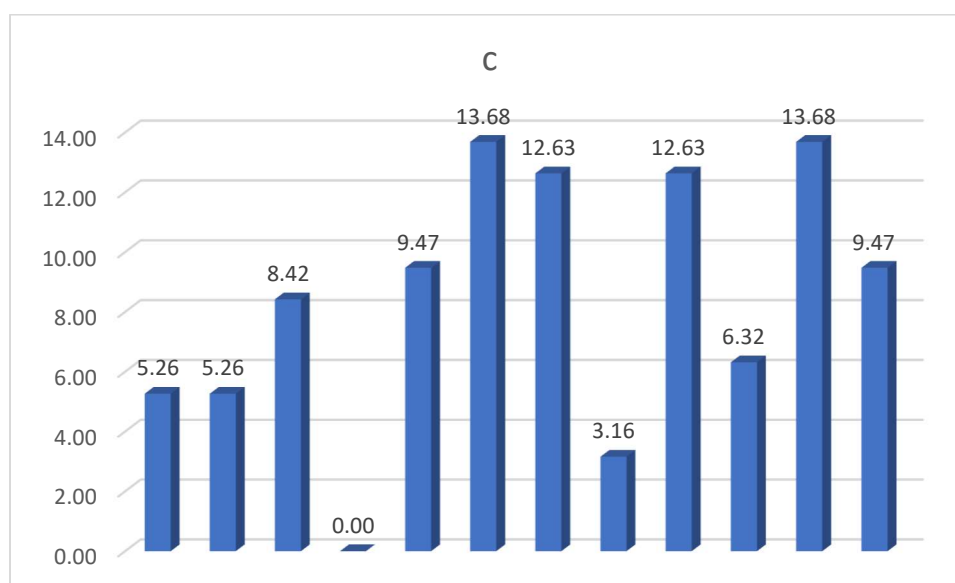


Figure 1. Prevalence of Analgesic Prescriptions January-December 2024 (%) in the Stomatology Department in Prishtina

Figure 1 presents the data from Table 1 in percentages, providing a visual overview of the analgesic prescriptions in the Stomatology Department of Ferizaj during the period January–December 2024.

Out of a total of 95 patients, the highest use of analgesics was recorded in June and November, at 13.68%, while the lowest value was observed in August, at 3.16%. No cases of analgesic use were recorded in April.

These variations suggest that the use of analgesics fluctuates significantly across different months, which may be linked to various seasonal and clinical factors.

In Table 2, the prevalence of analgesic prescriptions in the Oral Diseases Department will be presented for the same period (January–December 2024), offering additional insights into trends and patterns of analgesic use for patients with oral conditions.

Table 2. Prevalence of Analgesic Prescriptions January-December 2024 in the Oral Diseases Department

Muajt e vitit	Prevalence of Analgesic Prescriptions January-December 2024	
<b>January</b>	15	Paracetamol
February	13	Ketoprofen
<b>March</b>	22	Brufen
Aprill	44	Paracetamol
May	16	Diklofenak
<b>June</b>	13	Ibuprofen
<b>July</b>	5	Naproxen
August	12	Paracetamol
<b>September</b>	14	Alfoxan
<b>October</b>	6	Diclo dou
November	11	Paracetamol
December	26	Ketoprofen

Table 2 shows the prevalence of analgesic prescriptions in the Department of Oral Diseases during the period January–December 2023. During this period, Paracetamol was the most commonly prescribed analgesic, with 19 documented cases, showing relatively consistent use across different months of the year. Meanwhile, Ibuprofen was used only in June, whereas other analgesics such as Ketoprofen and Diclofenac were prescribed less frequently. This variation may reflect a clinical preference for fast-acting and well-known analgesics, such as Paracetamol, for managing common oral pain. It also indicates that the use of analgesic medications is primarily focused on pain symptom management, with drug selection tailored to the specific clinical needs of the patients.

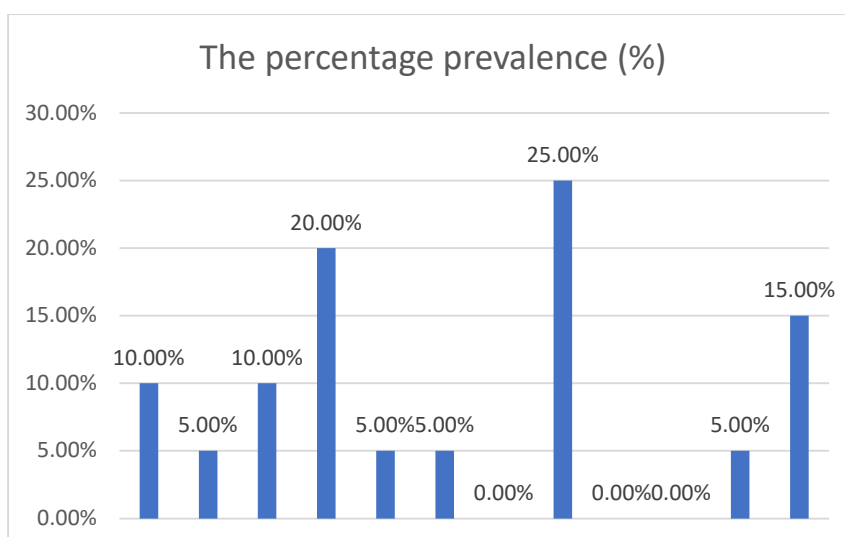
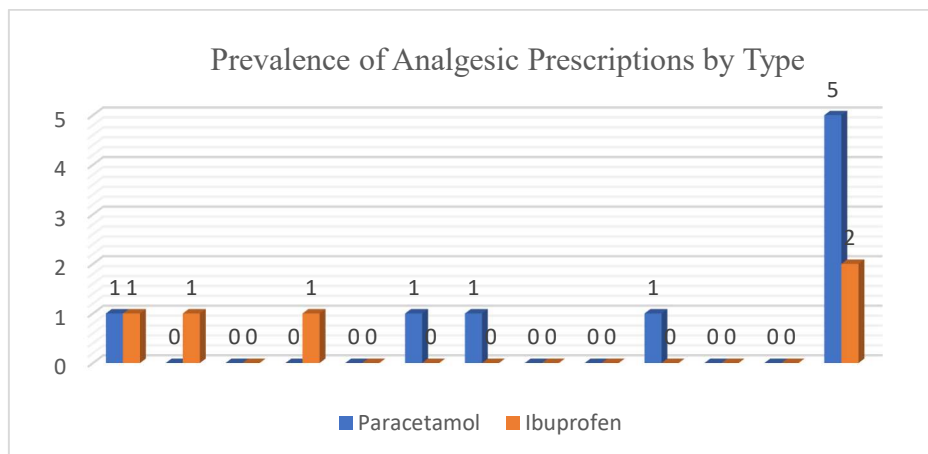
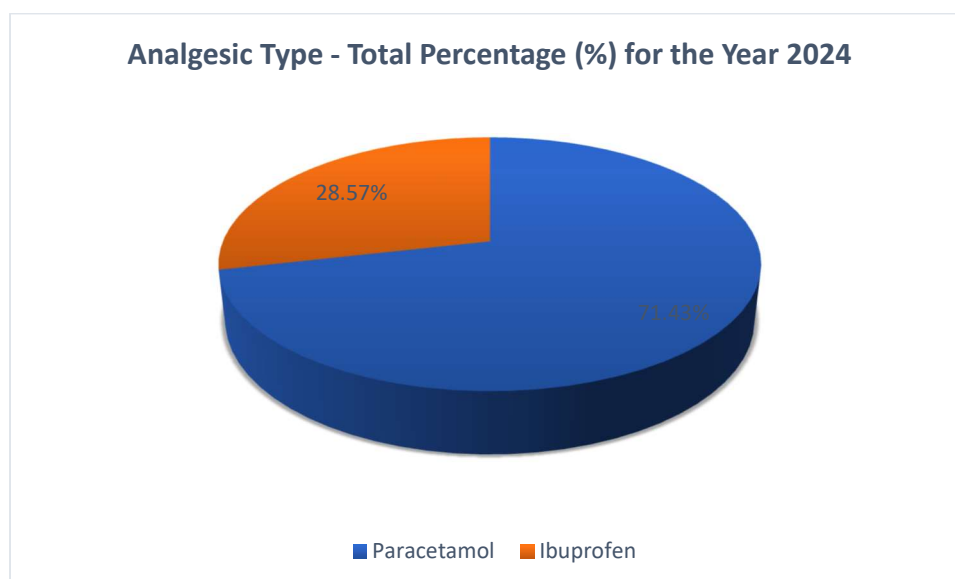


Figure 2. Prevalence in Percentage (%)

In **Figure 2**, the prevalence of analgesic prescriptions from January to December 2023 is visualized in percentage terms. Considering that there were a total of 20 cases during this period, **August** accounted for **25%** of the cases. An average of **5%** was recorded in the months of **February, May, June, and November**. Additionally, in the months of **July, September, and November**, **no cases** were documented.



This figure illustrates the distribution of the use of the two main prescribed analgesics, **Paracetamol** and **Ibuprofen**, during the study period. According to the data, it is evident that Paracetamol was the preferred analgesic for the majority of patients, being prescribed more frequently than Ibuprofen. This may reflect that Paracetamol is favored for treating milder, common types of pain, as it is a well-known and widely regarded safe medication. On the other hand, the lower use of Ibuprofen may indicate a preference for its use in managing pain that requires an anti-inflammatory approach, but such cases appear to be more limited in this particular clinical setting.



**Table 4** presents the distribution of the types of analgesics used during the study period. As shown, **Paracetamol** was the preferred and most frequently prescribed analgesic, accounting for **71.43%** of the total cases, with **5 recorded cases**. Meanwhile, **Ibuprofen** was used in a smaller number of cases, making up **28.57%** of the total, with **2 cases**. This overview indicates that Paracetamol is

often the primary choice for managing common types of pain, whereas Ibuprofen was used less frequently, possibly for pain requiring anti-inflammatory action. These findings reflect a tendency toward the use of well-known and safe medications for symptom management and suggest that Paracetamol remains the most favored option for treating routine pain in this clinical setting.

## VI. CONCLUSION

From the analysis of the prevalence of analgesic prescriptions in the dental service in Pristina during the period January–December 2023, it is observed that the number of patients who received analgesics after treatments was relatively low. This result may reflect different pain management practices among dentists, who may have adopted a more conservative approach to the use of medications. In addition, the use of local anesthetics and post-treatment care advice may have been more frequently employed as alternatives for managing pain.

Another important aspect is that the use of low-dose analgesics is safer and helps prevent side effects, while also ensuring treatment effectiveness. For this reason, it is essential to start with the minimum effective dose, which can be increased as needed. Furthermore, avoiding the excessive use of analgesics is crucial to prevent risks such as dependency or organ damage, particularly to the kidneys.

This outcome offers several possible interpretations and implications for clinical practice and healthcare. Firstly, the low number of patients receiving analgesics may be related to a more conservative approach by dentists in Pristina, who might prefer alternative methods for pain management, such as local anesthetics and non-pharmacological treatments. Secondly, it may reflect a lack of patient awareness regarding analgesic use, possibly due to concerns about side effects or a lack of proper information on the safety and benefits of these medications.

Moreover, the low number of prescriptions may also reflect the pain intensity experienced by patients after dental procedures. If most procedures are less invasive, it is possible that patients do not require further analgesic treatment. However, this aspect requires deeper analysis to understand whether there are patients who do need pain relief but are not receiving appropriate treatment.

Therefore, a more detailed assessment is recommended to determine the reasons behind the low prevalence of analgesic prescriptions and to develop strategies aimed at increasing awareness among patients and healthcare professionals regarding the safe and effective use of these medications. Additionally, improving prescribing protocols and educating patients about pain management options could contribute to better and more personalized care for each patient.

## RECOMMENDATIONS

1. It is important to increase awareness among patients and healthcare professionals about the safe and effective use of analgesics. Educating patients about possible side effects, correct dosages, and the risks of overuse can help prevent negative outcomes.
2. Dentists in Pristina should adopt and follow standardized protocols for pain management after treatments, including the use of analgesics at minimal and controlled doses. This will help avoid excessive and inappropriate use of these medications.
3. It is recommended that dentists carefully assess each patient's needs and determine whether analgesics are necessary, as well as identify which medications are most suitable for each patient, to ensure proper pain management and protection from unwanted effects.
4. Continuous training and education for healthcare professionals are essential to improve knowledge about pain management and analgesic use. Dentists should stay informed about the latest methods and safest practices for pain treatment, including medication and alternative approaches.
5. Dentists should encourage the use of safe alternatives for pain management, such as local anesthetics and other non-pharmacological techniques, to reduce the need for analgesics and minimize the risk of side effects.



6. It is important that patients are informed about pain management options, including the potential benefits and risks of analgesics. Counseling patients before and after treatments will help them have a full understanding of the use of these medications and the possibilities for pain reduction.

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