

NON-PRESCRIPTION OVERUSE OF NON-STEROIDAL DENTAL MEDICATIONS

Raja M. Aburwais¹, Emhemed M. Abukhattala^{2*}, Hanan M. Abushoufa³, and Hawa H. Abushoufa^{3'}

1: Msc, lecturer in Pharmaceutical Technology department- Medical Technology faculty- Misurata

2: PhD, Head of Health science school in Libyan Academic- Misurata

3,3': researcher and pharmacist in Misurata Pharmacies

Article information	Abstract
<p>Key words Dental analgesics - non-steroidal Anti-inflammatory Drugs – overuse</p> <p>Received 6 1 2023, Accepted 22 1 2023</p>	<p>Introduction: Dental clinics are seeing a lot of individuals who need treatments for severe diseases. Almost all of these individuals self-medicate with non-prescription analgesics (NPA), and others mistakenly overdose on these medications to get treatment. Further, individuals may not know the correct dose to use on their own and they may overdose inadvertently on other analgesics which can lead to nausea, vomiting, and respiratory problems. Objective: The study's objective is to provide information on how dental analgesics are administered to patients and any detrimental effects that may result from long-term overuse. Materials: The questionnaire was given to dental patients who use non-steroidal analgesics without a prescription. The study involved 102 patients, comprising 41 males and 61 females. The data came from individual patient interviews, and the majority of the questions received thorough, reliable answers. Results: Panadol is the most widely used analgesic type in the research sample, and its usage was 4% of the total (37.3%). Ibuprofen is one of the most problematic analgesics, with 30 cases in which users admitted that the drug was a problem. The majority of dental patients (76.5%) use the analgesic that was prescribed by the dentist in an organized manner, compared to 37.2% who do not. 6.9% use the balm for three to four days, and 14.7% use it for five days, while (14.7%) use it more. Conclusion: The most popular over-the-counter analgesics include Panadol, Ketofan, Ibuprofen, and Saridon.</p>

I. INTRODUCTION

Non-prescription overuse of non-steroidal dental medications is a common practice among dental professionals. Despite recommendations from dentists, hygienists, and other dental professionals that patients should not use painkillers beyond 3 days, the finding shows there is a significant population of people who routinely overuse prescription drugs. Although it may not lead to tooth loss, non-prescription overuse of non-steroidal dental medications leads to long term damage to bone and joint structure. The extent of long-term damage caused by non-steroidal dental medications is dependent on the age of the patient and other factors, but there may be complications as early as five years after use begins (1, 2). Thus, patients who overuse painkillers are at risk of potential bone or joint problems by the fifth year after use begins. The purpose of this article is to discuss the possible dangers associated with this practice, as well as the legal consequences for those who engage in it. For the first two years, with proper use, one should see the

benefits of dental treatment, including a decrease in the number of cavities and improved dental health.

In the United States, non-prescription overuse of non-steroidal dental drugs is becoming a significant challenge. Non-steroidal dental drugs are abused by about 4.4 million Americans annually, according to the U.S. Drug Enforcement Agency (DEA), and about 35% of these people have visited a hospital or emergency room at least once for treatment or an overdose. Although the number of individuals abusing over-the-counter nonsteroidal drugs (OTC NSAIDs) has not changed significantly, there has been a decrease in the OTC NSAID death rate (3,4).

Overusing non-steroidal dentistry drugs without a prescription might have major negative effects like heart attack and gastrointestinal disorders (5). Additionally, some individuals may grow dependent on these drugs, which can result in addiction and other mental health problems. Patients may seek out high doses or combine many drugs at once in an effort to experience a high or maintain focus during long working days. Today, an estimated \$3 billion is spent

on prescription drugs used to treat arthritis, headaches, chronic pain, and other conditions (6, 7).

According to an investigation by Ong et al. (2010), using NSAIDs and paracetamol together significantly reduces the intensity of acute pain. Research findings have demonstrated that combining analgesics from various groups can increase the drug's tolerance while administered as a single therapeutic capsule and increase the risk of side effects (8). According to a study by Steen law, s. and colleagues in (2000), 60% of patients were taking more than one analgesic and 66% were using three or more agents. Pain killers and their variants are used to manage tooth pain following extractions and dental fillings (9). The percent of patients taking three or more analgesics who have side effects increased from 21% to 49%. Although Polat and Karaman evaluated the effectiveness of NSAID painkillers (ibuprofen and aspirin), acetaminophen (Panadol), Placepo, and naproxen on patients, researchers reached the conclusion that all analgesics are more effective in alleviating pain than the Placepo group. The study also suggested avoiding the negative impacts of the drug solution and administering medicines in accordance with the patient's condition because the groups that administered Acetomenophon, Naproxen, and salt had the lowest levels of pain (10). In a reduction in pain compared to the two Placepo groups, Ibuprofen was found in a study by Polat et al. (2005) on three groups of 20 cases who decided to take a dose of Ibuprofen, Naproxen, or Placepo before dental implants to reduce pain on the day before the appointment. The study also recommended against using excessive amounts of these medications and the negative effects that could occur as doses were raised to try to control pain. (11) While starting the antibiotic treatment and before the intravenous administration of Ibuprofen, Opana ER and Acetomenophon caused a transient pain syndrome with skin tingling, feeling dizzy, and muscle spasms.

The purpose of this study is to provide additional information on how non-prescription dental analgesics are administered to patients as well as any negative effects that may arise with using them for a long period of time or in a manner other than that suggested in the drug's healthcare guide.

II. MATERIALS AND METHODS

All adult patients who presented to Sidi Embark and Misurata Medical Center within a two-week period were contacted to participate in the research project. This study was conducted from January to the end of March 2018.

The questionnaire was distributed to dental patients who use (non-steroidal) analgesics without a prescription, and the number of cases participating in the study was 102, including 41 males and 61

females. The data was collected by interviewing patients personally, and most of the questions were answered with complete credibility.

Data collection is the concept of gathering statistical data, which is a requirement for any statistical research. The statistical software SPSS Version 20 was used for the data analysis. The qualitative factors were described using frequency and straightforward percentages. An analysis of dental prescriptions and painkillers was conducted using the Chi-square test.

III. Results

From table 1, it is clear that panadol is the most widely used analgesic type in the research sample. There were 38 users of this analgesic, and its usage was 4% of the total (37.3%).

Tab.1: the percentage of people who use various analgesics

Type of NSAIDs	ketofan	Ibuprofen	Panadol	Saridon
Total	36	26	38	2

Ibuprofen is one of the most problematic analgesics, as evidenced by the table, which lists 30 cases in which users admitted that the drug was a problem, and a percentage of 30 cases (or 29.4%) of all cases.

Tab.2: side effects of NSAIDs used in sample participants

Type of NSAIDs	Ibuprofen	Aspirin	Ketofan	Panadol	Non
Total	30	9	3	3	57

Table 3 shows that (75.5%) of those who use painkillers without a prescription, while (24.5%) do not use painkillers without a prescription.

Tab.3: shows the percentage of non-prescription painkiller use

Results	Total	%
YES	77	75.5
NO	25	24.5

The table shows that 64.7% of the distributed sample take the painkiller by following the instructions in the attached leaflet, while (35.3%) take the painkiller without following the instructions in the attached leaflet.

Tab.4: shows if the person is taking painkillers and follows the instructions in the attached leaflet.

Results	Total	%
YES	66	64.7
NO	36	35.3

The table shows 6.9% representing the people who take the analgesic once and three times, while 15.7% represents the people who take the analgesic twice and (70.6%) for the people who take the analgesic when necessary.

Tab.5: shows the number of times the analgesic was taken

Results	Total	%
Once	7	6.9
Twice	16	15.7
Three times	7	6.9
SOS	72	70.6

The table shows (3.5%) use the balm one day before going to the clinic, (24.5%) use it twice, (20.5%) use it for three to four days, and (4.9%) use it for five days, while (14.7%) use it more.

Tab.6: the number of days the NSAIDs was taken before go to dental clinic

Results	Total	%
One day	36	35
Two days	25	24.5
Three or four days	21	20.5
Five days	5	4.9
More than five days	15	14.7

The table shows that 62.7% take the analgesic that was prescribed by the dentist, while 37.2% do not take the analgesic that was prescribed by the dentist.

Tab. 7: shows the use of the analgesic that was prescribed by the dentist.

Results	Total	%
Yes	64	62.7
No	38	37.2

The table shows that (76.5%) use the analgesic that was prescribed by the dentist in an organized manner, while (23.5%) do not use the analgesic in an organized manner.

Tab. 8: shows the use of the analgesic that was prescribed by the dentist in an organized manner

Results	Total	%
Yes	78	76.5
No	24	23.5

The table shows that (76.5%) have symptoms of pain after taking the analgesic that was taken without a prescription, while (23.5%) have no pain symptoms.

Tab. 9: shows the presence of pain symptoms for the analgesic that was taken without a prescription.

Results	Total	%
Yes	78	76.5
No	24	23.5

The table shows that (29.4%) have a history of disease when taking some analgesics, while (70.6%) do not have a history of disease.

Tab.10: Did patient has a Medical history with NSAIDs

Results	Total	%
Yes	30	29.4
No	72	70.6

The table shows that (36.27%) represents the rate of people taking the painkiller that was found out by a previous prescription, (31.3%) represents the rate of people who find out the painkiller by advice from a pharmacist, and (28.4%) represents the rate of people who find out the painkiller through advice Among relatives and friends, (2.9%) is the rate of people who take the painkiller that was found out by reading about it in a medical journal, while (1%) is the rate of people who take it through the funded advertisement.

Tab. 11: shows how to discover the used pain killer.

Results	Total	%
Through prescription	37	36.27
Pharmacist advice	32	31.3
Friends advice	29	28.4
Read about it in medical journal	3	2.9
By advertisement	1	1

IV. Discussion

Panadol has been cited as one of the safest drugs in terms of side effects by the British BNF, the American Drug Information, and Goodman and Gilman, which are trustworthy and enduring references for the majority of pharmacists worldwide. The side effects of which can include an increase in stomach acid or heartburn, a dry mouth, or headaches. These sources claim that Panadol side effects are extremely rare, with a global incidence of less than 1%. Paracetamol is the medication that is most frequently used to treat pain and lessen its side effects.

(12)

Ibuprofen has risks for both sexes, including harming young men who take it frequently and having an adverse effect on girls' and pregnant women's fertility. This was the conclusion of a recent French study that examined the drug's side effects. The National Institutes of Health study found that using this medication during the first three months of pregnancy may reduce the fetus's ability to reproduce, especially because this kind of medication reduces the reproductive cells in a developing girl's ovaries by half. Ibuprofen causes hypogonadism in males, which is a symptom of infertility that does not manifest itself except in older men. (13, 14) It shows the percentage

of people using the types of painkillers that cause disturbances.

These findings are consistent with the study (8), which found that 99 out of 127 cases involved non-prescription analgesic use, while 18 cases involved prescription analgesic use, 54 percent involved the use of multiple analgesics, 37 percent involved ibuprofen, 27 percent involved acetaminophen and aspirin, 8 percent involved naproxen, and 4 percent involved aspirin. The study (10) found that aspirin was the most commonly used analgesic in 1970. Side effects are caused by the misuse of painkillers without a prescription, by not adhering to the directions on the medication's leaflet, and by the duration of use, particularly when using the painkiller without first consulting the treating physician.

Conclusion

This study reached the conclusion that Panadol, Ketofan, Ibuprofen, and Saridon are the most popular analgesics available without a prescription. Both heavy use of acetaminophen and ibuprofen increase the risk of death due to gastrointestinal bleeding and heart attack, respectively. The emergence of analgesic drug side effects, the most significant of which is ibuprofen, because it was the most common analgesic to result in health issues in most cases. According to the study, all pain killers used in an average of three months should be stopped for at least three days.

Recommendations:

Based on the growth of manufacturing and the ongoing production of medicine, we advise taking another random sample from either the same community or one in another to determine the type of housing that is currently being used and the type that is causing issues.

References

ACKNOWLEDGMENT

The authors wish to thank Sidi Embark and Misurata Medical Center staff in dental clinic.

REFERENCES

- 1- Heard, K., Ries, N., Dart, C., Bogdan, G., Zallen, R., and Daly, F. (2008) Overuse of non-prescription analgesics by dental clinic patients. *BUPMED Oral Health*. 8(33). PP:1- 5.
- 2- KATZUNG, B. (2002) BASIC & CLINICAL PHARMACOLOGY.9TH EDITION.
- 3- THORNHILL, M., SUDA, K., DURKIN, M., LOCKHART, P. (2019) IS IT TIME US DENTISTRY ENDED ITS OPIOID DEPENDENCE?. *J. AM. DENT. ASSOC.* 150(10). PP: 883-889.
- 4- DAVIS, A., ROBSON, J., PRACT, B. (2016) THE DANGERS OF NSAIDS: LOOK BOTH WAYS. *BR J GEN PRACT.* 66(645). PP: 172- 173
- 5- FDA. CDER STATEMENT: FDA APPROVES LABELING SUPPLEMENT FOR CELEBREX (CELECOXIB)- 2018. AVAILABLE FROM: [HTTPS://WWW.FDA.GOV/DRUGS/DRUG-SAFETY-AND-AVAILABILITY/CDER-STATEMENT-FDA-APPROVES-LABELING-SUPPLEMENT-CELEBREX-CELECOXIB](https://www.fda.gov/drugs/drug-safety-and-availability/cder-statement-fda-approves-labeling-supplement-celebrex-celecoxib)
- 6- NATIONAL INSTITUTE ON DRUG ABUSE- RESEARCH REPORT. (2020). COMMON COMORBIDITIES WITH SUBSTANCE USE DISORDERS RESEARCH REPORT. AVAILABLE FROM: [HTTPS://NIDA.NIH.GOV/PUBLICATIONS/RESEARCH-REPORTS/COMMON-COMORBIDITIES-SUBSTANCE-USE-DISORDERS/WHY-THERE-COMORBIDITY-BETWEEN-SUBSTANCE-USE-DISORDERS-MENTAL-ILLNESSES.](https://nida.nih.gov/publications/research-reports/common-comorbidities-substance-use-disorders/why-there-comorbidity-between-substance-use-disorders-mental-illnesses)
- 7- RAIKUMAR, S., (2020) THE HIGH COST OF PRESCRIPTION DRUGS: CAUSES AND SOLUTIONS. *PMC BLOOD CANCER J.*10(6). PP: 71.
- 8- ONG, C., SEYMOUR, R., LIRK, P., MERRY, A. (2010) COMBINING PARACETAMOL (ACETAMINOPHEN) WITH NONSTEROIDAL ANTI-INFLAMMATORY DRUGS: A QUALITATIVE SYSTEMATIC REVIEW OF ANALGESIC EFFICACY FOR ACUTE POSTOPERATIVE PAIN. *INTERNATIONAL ANESTHESIA RESEARCH SOCIETY.* 110(4). PP:1170-79.
- 9- STEEN LAW, S., SOUTHWARD, K., LAW, A., LOGAM, H., JAKOBSEN, J. (2000) AN EVALUATION OF PREOPERATIVE IBUPROFEN FOR TREATMENT OF PAIN ASSOCIATED WITH ORTHODONTIC SEPARATOR PLACEMENT. *AMERICAN JOURNAL OF ORTHODONTICS AND DENTOFACIAL ORTHOPEDICS.*118(6). PP:629-635.
- 10- POLAT, O., KARAMAN, A., DURMUS, E. (2005) EFFECTS OF PREOPERATIVE IBUPROFEN AND NAPROXEN SODIUM ON ORTHODONTIC PAIN. *ANGLE ORTHODONTIST.* 75(5). PP:791.
- 11- POLAT , O. KARAMAN, A.,(2005) PAIN CONTROL DURING FIXED ORTHODONTIC APPLIANCE THERAPY. *ANGLE ORTHODONTIST.* 75 (2). PP:214.

- 12- FREO, U., RUOCCO, C., VALERIO, A., SCAGNOL, I., AND NISOLI, E. (2021) PARACETAMOL: A REVIEW OF GUIDELINE RECOMMENDATIONS. *JOURNAL OF CLINICAL MEDICINE*. 10(3420). PP: 1- 22.
- 13- MAAMAR, M., LESNÉ, L., HENNIG, K., , *ET AL.* (2017). IBUPROFEN RESULTS IN ALTERATIONS OF HUMAN FETAL TESTIS DEVELOPMENT. *SCI REP*. 7(2017). PP: 1-15.
- 14- KRISTENSEN, D., *ET AL.* (2018) IBUPROFEN ALTERS HUMAN TESTICULAR PHYSIOLOGY TO PRODUCE A STATE OF COMPENSATED HYPOGONADISM. *PNAS*. 115(4). PP: 715- 724.