Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v31i4.5980

COMPARATIVE ANALYSIS OF INCIDENCE OF NON-OPIOID ANALGESIC SELF-MEDICATION PRACTICE AMONG HEALTH ASSOCIATES (MEDICAL & DENTAL) WITH HECTIC DUTIES

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Abstract

The current study aims to compare the incidence of self-medication practices of non-opioid analgesics among health associates (medical and dental) with hectic duties in Pakistan. The current study involved 216 health (medical & dental) associates from tertiary care teaching institutes across Pakistan and was cross-sectional, observational, and multi-setting. The pertinent data concerning the study parameters was acquired using a predesigned, self-developed, semi-structured questionnaire with closed-ended as well as open-ended inquiries about non-opioid analgesic self-medication practices. To determine statistical significance, the Chi-square test was employed. A value of $P < 0.05$ was deemed statistically significant. For the statistical analysis, SPSS Version 23 was performed. A study of 216 participants found that medical professionals (51.9%) and dental professionals (48.1%) were more likely to use self-medications for pain relief, with muscular pain being the most common symptom. Dental professionals (55.7%) used non-opioid analgesics once a month, and information about drugs was primarily based on previous prescriptions. Self-medication was found to be time-saving for both groups. It is concluded that more medical professionals indulged in self-medication non-opioid analgesics with hectic routines due to the easy availability

of drugs as compared to dental professionals. Dental health professionals need to be educated regarding the safe use of analgesics.

Keywords: incidence, non-opioid analgesic, self-medication, practices, medical professionals, dental professionals, hectic duties

INTRODUCTION

Self-medication (SM), which is defined as employing any substance not advised by an authorised professional to self-alter the recommended dosages, is an international challenge impacting healthcare for patients.[1] Self-medication is "the choice and implementation of medications by individuals to treat self-recognized illnesses or symptoms," according to the World Health Organisation (WHO).[2] A component of self-care is self-medication, in which individuals take charge of using medications to stay healthy and eliminate infections. Drug-free self-care, social support during illness, and health-related decisions and acts made by those who provide first aid regularly are all considered forms of self-care (SM).[3] Purchasing over-the-counter (OTC) medications, using remaining prescribed medications, and exchanging medicines with others constitute a few examples of SM.[4] They additionally involve relatives and close acquaintances in repurposing old prescriptions and modifying the dosage of prescribed drugs. Medication with established reliability and effectiveness for authorised conditions with recommended dosages is necessary for responsible SM.[5, 6] The most popular class of drugs administered over-the-counter to treat any type of pain are analgesics.[7] An unpleasant emotional and sensory experience linked to prospective or existing tissue injury is pain. Pain serves a protective purpose by serving as an alert system for bodily abnormalities. Nevertheless, there are times when pain appears meaningless and just makes the person more uncomfortable. As a manifestation, pain requires immediate relief, and in actuality, a layperson is greatly impressed by the dramatic relief. The medications known as analgesics are those that reduce pain without knocking a person unconscious. The two types of analgesics are nonopioids, which include non-steroidal anti-inflammatory drugs like aspirin, ibuprofen, and diclofenac, and opioids, such as morphine and pethidine.[8]

Pain management using non-opioid analgesics (NOA) is common for a variety of pain conditions. In comparison to opioid analgesics, non-glycerin (NOA) offers several advantages. It also exhibits fewer adverse effects, including constipation, nausea, vomiting, urine retention, respiratory depression, and sedation, which leads to better results and less reliance.[9, 10] The most widely used non-steroidal anti-inflammatory drugs (NSAIDs) include acetaminophen (Paracetamol), anticonvulsants (gabapentin and pregabalin), antidepressants (amitriptyline and duloxetine), aspirin (acetylsalicylic acid), and topical medications (lidocaine and capsaicin).[11] In many impoverished nations, NOA is the most often used over-the-counter medication with the highest frequency of SM. High school pupils in Kuwait have SM at a rate of 92%, whereas 60% of Yemeni students have SM combined with antibiotics.[12] There has been very little research on self-medication in Pakistan that also included a specific population and validated the high incidence rates of about 51%. In a similar vein, long-term usage of high doses of medicine has been linked to an elevated risk of cardiovascular disease. Even though the prevalence of SM may range across individuals from diverse socio-demographic situations, health professionals are more likely to have it due to its affordability, ease of usage, and lack of time for medical consultations.[8] The fact that prevalence rates are rising despite initiatives to curb this issue is equally concerning.[10–13] On the other hand, abusing NOA might result in overdosing and drug interactions with other prescribed drugs. Few research[14–15] have documented the frequency of non-opioid analgesic self-medication, particularly among Pakistan's youth, who are heavily impacted by media and internet marketing that encourage self-medication. In particular, there are surprisingly few studies that compare medical and paramedical students. Self-medication with inappropriate non-opioid analgesics, particularly by health associates, may pose a risk to their professionalism as they may prescribe medication to patients. Thus, it's essential to assess people's knowledge and habits about self-medication with non-

opioid analgesics. According to a review of the literature, Pakistani health associates—both medical and dental—have not had this issue fully studied. This study aimed to compare the incidence of self-medication practices of non-opioid analgesics among health associates (medical and dental) with hectic duties.

METHODOLOGY

The present cross-sectional, observational multi-setting study was carried out among 216 health (medical & dental) associates of tertiary care teaching institutes in Pakistan. The study was conducted after approval from the Institutional Review Board (No. F2-32/Pharma/AMC/2022/73 dated May 1st, 2023). A simple random sampling was performed (N = 216); medical (N = 112) and dental associates (N = 104). The pertinent data concerning the study characteristics were gathered using a predesigned, self-developed, semi-structured questionnaire with open-ended as well as closed-ended queries about non-opioid analgesic self-medication behaviours. Measures on demographics, incidence, practice, and understanding of self-medication were included in the questionnaire. It contains inquiries on using analgesics for self-medication, as well as queries about the kind, dosage, and frequency of analgesic administration. Additionally, the questionnaire asked health associates (medical and dental) about their knowledge of potential hazardous adverse effects of drugs, the benefits and drawbacks of self-medication, and necessary safeguards. The house officers and postgraduate residents from the MBBS and BDS programs received the questionnaire. After describing the nature and goals of the study to the individuals, written informed consent was sought from them. The individuals who participated received assurances of the confidentiality of the data obtained and the voluntariness of their participation in the study. Following a preliminary phase of the study involving five participants, a revised version of the questionnaire was given to the study groups. Sufficient guidelines for completing the survey were provided. Based on a comparison of several criteria related to medical and dental health colleagues' self-medication incidences with non-opioid analgesics, the collected data were examined. The frequency and percentage were used to express the data. To determine statistical significance, the Chi-square test was employed. A value of $P < 0.05$ was deemed statistically significant. For the statistical analysis, SPSS Version 23 was utilized.

RESULTS

In Table 1, the demographic characteristics of the study population are described. A total of 216 participants were enrolled in the study with approximately equal distribution of both genders (39.3% males; 60.7% females) with significant statistical correlation, *p*-value <0.000. Most of the medical professionals (51.9%) were practising self-medication than dental professionals (48.1%). Of 216, 54 (51.9%) were house officers from medical professionals 48 (46.1%) were house officers from dental professionals following 56 (53.8%) were postgraduate residents from dental professionals and 58 (55.7%) were from medical professionals. The mean and standard deviation of age in the overall study population were 23.33 ± 1.50 showing significant statistical correlations in variables (p-value, 0.001). More details are given below in Table 1).

Table 1: Demographic characteristics of study population (N= 216)

Characteristics	Dental Professionals, *n* = 104 (%)	Medical Professionals, *n* = 112 (%)	Total, N = 216 (%)	*P*-value
Gender				
Male	42 (40.3)	43 (38.3)	85 (39.3)	0.000
Female	62 (59.6)	69 (61.7)	131 (60.7)	
Age, Mean ± SD	23.25± 0.97	23.58 ± 1.09	23.33± 1.50	0.001
Residential Status				
Hostel	66 (63.4)	78 (69.6)	144 (66.6)	0.023
Day Scholar	38 (36.5)	34 (30.3)	72 (33.4)	
Practicing self-medication with Professional Status				
House Officer	48 (46.1)	54 (51.9)	102 (47.2)	0.003

Post-graduate resident	56 (53.8)	58 (55.7)	114 (52.8)	
Duty Hours				
Long (24-48 hours)	23 (22.1)	102 (91.0)	125 (57.8)	0.024
Casual (8 hours)	81 (77.8)	10 (9.0)	91 (42.2)	

In Figure 1, the comparison of the Incidence of Induction of non-opioid analgesic self-medication practices in both dental and medical associates with hectic duties was discussed. The most dominant symptom compelling self-medication was found to be muscular pain in dental professionals (22.1%) while tiredness in medical professionals (22.3%), followed by headache in dental professionals (21.1%) and anxiety in medical professionals (19.6%).

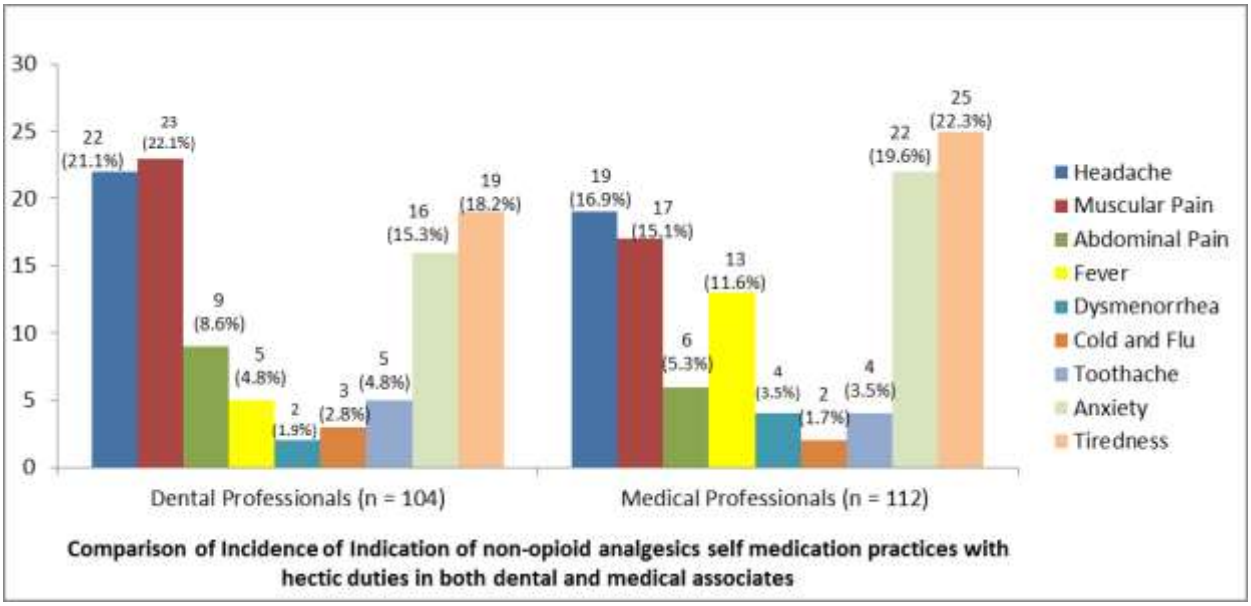

Figure 1: Graphical explanation of comparison of Incidence of Indication of non-opioid analgesic self-medication practices in both dental and medical associates with hectic duties

The frequency of comparison of self-medication practices with non-opioid analgesics as per various parameters in both medical and dental health associated with hectic duties was discussed (Table 2). In Table 2, the majority of the dental professionals practising self-medication with non-opioid analgesics (55.7%) at a frequency of once a month while medical professionals practising self-medication with non-opioid analgesics (30.3%) at a frequency of once a month with significant p-value; 0.001 (shown a correlation in variables). Medical professionals have a significantly better idea about adverse drug reactions of analgesics as compared to dental professionals (P = 0.022). Evaluation of the questionnaire also revealed that the most common source of information about drugs for these medical professionals was previous prescription (47.2%), followed by advertisement (22.1%) with a significant p-value of 0.000. When we compared the reasons for opting for self-mediation, easy availability of analgesics was the reason to use by medical professionals (32.1%) and dental professionals (30.7%) and had a significant correlation p = 0.030, 28.5% of medical professionals revealed that self-mediation provided quick relief from pain but 29 27.8% dental professionals revealed that use of self-medication is time-saving. 64.2% of medical professionals revealed that they have used tablets as self-medication as compared to dental professionals. The most commonly used analgesic was Paracetamol by both medical and dental health professionals with a significant p-value of 0.000 (Table 2).

Table 2: Frequency of study variables in comparison of self-medication practices with non-opioid analgesics as per various parameters in both medical and dental health associated with hectic duties (N = 216)

Parameters	Dental Professionals, *n* = 104 (%)	Medical Professionals, *n* = 112 (%)	Total, N (%)	*P*-value
Frequency of self-medication with non-opioid analgesics				
Yearly	2 (1.9)	17 (15.1)	19 (8.7)	0.001
6-7 times/year	6 (5.7)	12 (10.7)	18 (8.3)	
Monthly	58 (55.7)	34 (30.3)	92 (42.5)	
Weekly	27 (25.9)	28 (25.0)	55 (25.4)	
Daily/alternate day	11 (10.5)	21 (18.7)	32 (14.8)	
Source of information				
Previous prescription	14 (13.4)	16 (14.2)	30 (13.9)	0.000
Advertisement	23 (22.1)	26 (23.2)	49 (22.6)	
Textbook	49 (47.2)	42 (37.5)	91 (42.1)	
Other persons	18 (17.3)	28 (25.0)	46 (21.2)	
Awareness of adverse reactions				
Yes	70 (67.3)	81 (72.3)	151 (70)	0.022
No	34 (32.7)	31 (27.7)	65 (30)	
Reasons for self-medication non-opioid analgesic				
Quick Relief	26 (25)	32 (28.5)	58 (27)	0.030
Time saving	29 (27.8)	28 (25.0)	57 (26.3)	
Cost-effective	17 (16.3)	16 (14.2)	33 (15.2)	
Easy Availability	32 (30.7)	36 (32.1)	68 (31.4)	
Dosage form preferred for self-medication				
Tablet	58 (55.7)	72 (64.2)	130 (60.1)	0.042
Capsule	34 (32.6)	25 (22.3)	59 (27.3)	
Syrup	12 (11.5)	15 (13.3)	27 (12.5)	
Non-opioid Analgesics preferred to be taken as a self-medication				
Antibiotics	29 (27.8)	28 (25.0)	57 (26.3)	0.000
Paracetamol	34 (32.6)	32 (28.5)	66 (30.5)	
Antidepressants	10 (9.6)	18 (16.0)	28 (12.9)	
Ibuprofen	15 (14.4)	10 (8.9)	25 (11.5)	
Diclofenac	12 (11.5)	9 (8.0)	21 (9.7)	
Aspirin	04 (3.8)	15 (13.3)	19 (8.7)	

*Chi-square, Significant *p*-value = <0.05

DISCUSSION

To compare the prevalence and patterns of non-opioid analgesic self-medication among dentistry and medical professionals, the current study was designed. As a result, this study evaluated different facets of self-medication among medical and dental practitioners. Compared to dental professionals (48.1%), the majority of medical professionals (51.9%) self-medicated in the current study. According to James et al., 44.8% of medical students self-medicated.[3] A thorough investigation of health science, pharmacy, and medical students at one Ethiopian medical college found that 38.5% of them engaged in this practice.[7] Comparable research conducted in Pakistan revealed that between 23% and 90% of people use analgesics regularly.[10–12] The findings of this study indicate that self-medication is more common in India. The incidence of self-medication varies since it may be easily obtained from pharmacies, health services are poor, social and cultural disparities exist, and various approaches are employed to measure it. Gender does not influence self-medication practices, which is consistent with findings from another study.[13] Conversely, a small number of research found that female students had a higher prevalence rate.[9] The results of this study showed that, compared to dental health colleagues, a far higher percentage of medical health associates engaged in analgesic self-medication. Compared to dental health associates, medical students may have more exposure to drug-related information and clinical subjects.[14] The majority of medical and dental professionals take analgesics once a month on average. But according to Kasulkar and Gupta, the majority of

students used analgesics for self-medication once a day, or as needed.[9] However, this study differs from ours. Our research is in line with other studies' findings that textbooks are the most important source of information, followed by the Internet, outdated medical advice, and the media.[15, 14] Consistent with a previous study by Kandavalli et al., the current study found that the most common symptom driving self-medication among dental professionals was muscular pain, while fatigue was the most common symptom among medical professionals. Headache and anxiety were the next most common symptoms among dental professionals.[16] The participants knew a fair amount about using self-medication. The majority of them accurately believed that self-medication was a rapid, pain-relieving method that didn't require visiting a doctor and was also an efficient and economical approach for alleviating discomfort. Quick relief was the most prevalent justification for self-medication, as reported by 40% of the research population in a Pakistani study by Mahmood et al.[17] However since taking an analgesic simply relieves symptoms, the biggest barriers to self-medication were fear of negative drug reactions and the possibility of misdiagnosing oneself. These results are consistent with previous research.[3] According to this survey, which is consistent with earlier research, medical and dental health professionals are the ones who employ Paracetamol as an analgesic the most frequently.[2, 3] One of the most widely used analgesic-antipyretic drugs with very little anti-inflammatory effect is Paracetamol. Tablets were the most commonly utilized dosage form in this study, followed by capsules and topical forms, which is consistent with other research of a similar kind.[18-25] The people of Pakistan, like those in other impoverished nations, can easily get drugs without a prescription. Because Paracetamol is so widely accessible, it is also one of the OTC medications that is most likely to be abused.[26-34] We acknowledged some of the current study's shortcomings. While filling out the questionnaire, there is a chance that recall bias and mutual impact between the medical and dental health associations will occur. The attitude of medical staff members regarding self-medication was not examined in the same way. Although it was a multicenter trial, there was a small study population. There were few studies on self-medication among health professionals, including dentists and doctors, because it was believed that they already had medical training and did not require one. The majority of research, however, focused on the general populace. However, research on health associations (medical and dental) is necessary to provide better therapy.

CONCLUSION

In conclusion, we have compared the two study groups (medical and dental professionals. As per the study comparison, more medical professionals indulged in self-medication non-opioid analgesics with hectic routines due to the easy availability of drugs as compared to dental professionals. But meanwhile, they have better knowledge about certain aspects of non-opioid analgesic self-medication which reflects the influence of medical training. In comparative group (dental professionals), should refine their knowledge about non-opioid analgesics. In the case of dental health professionals, their knowledge about analgesic use needs to be refined. Besides this, streamlining drug-dispensing guidelines to control the dispensing of medicines without prescription across the pharmacies in the country can reduce self-medication practices substantially.

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