RESEARCH PAPER

Evaluation of dental students' knowledge concerning drug prescription

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ABSTRACT

Background: Interns are the future professionals who will be treating patients independently upon graduation, thus it is essential that they understand proper medication prescribing. The current study sought to evaluate the knowledge of dental interns concerning drug prescription.

Materials and Method: We made a structured, self-administered questionnaire and gave it to 70 interns. SPSS version 24 was used to collect and look at the data.

Results: A statistically significant proportion of interns were cognizant of the prescription of medications for dental patients. However, it is important for every intern to have a good understanding of pharmacodynamics, dosage, and how to prescribe drugs for dental infections in both healthy and sick patients.

Conclusion: Most of the interns had a fair amount of knowledge about how to write prescriptions for drugs, but they need extra help to learn more.

Keywords: Attitude, drug, knowledge, practice, prescription

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1. INTRODUCTION

Prescribing medication is an essential and mandatory aspect of dental practice, particularly for undergraduates, graduates, and postgraduates. This includes the medical and nonmedical use of prescription drugs, non-prescription drugs, and herbal products, which are integral to daily practice. [1]

The primary instrument available to physicians to affect their patients' health is medication therapy. These medications can be very beneficial to patients, but they can also be very harmful. The majority of doctors' main strategy for improving their patients' health is prescription. [2] The majority of junior physicians are not aware that a considerable increase in reported hospital adverse events may be caused by prescription errors. [3]

The terms "prescription" and "script," which stand for writing and before, respectively, indicate that a written order is necessary either prior to or during the production and delivery of a medication. A prescription is defined as a medical procedure administered by a physician in the form of instructions that specify the treatment plan for a particular patient.[4]

The clinical procedure of prescribing is unique and ever-changing. It is the process of designating one or more medications to be given to or consumed by the patient,

together with the dosage and length of therapy. Social, cultural, economic, and/or promotional variables may have an impact on prescription patterns. Prescription patterns can be affected by a number of factors, including social, cultural, economic, and promotional forces. 5 Improving patient safety, encouraging prudent pharmacotherapy, and lowering pharmaceutical errors all depend on raising the bar for dental prescriptions. Dentists must be knowledgeable about drugs and follow international prescribing criteria, even though dental prescriptions frequently concentrate on short-term or surgical treatments. There is a significant risk of harming the patient or making the treatment ineffective if the improper medicine or dosage is prescribed. [6]

Patients may benefit greatly from these medications, but it's also important to evaluate the negative side effects and interactions. The majority of medical graduates must continue to be "specialists" in prescribing medications, regardless of the career path they choose. Prescribing is the principal intervention that most doctors offer to influence their patients' health. The majority of student physicians are not aware that a notable increase in reported hospital adverse events and the ensuing medicolegal issues may be caused by prescription errors. Under, inappropriate, excess, illogical, and other prescribing errors are just a few examples of unwise prescribing. [7]

Common oral health problems include pain and infections. Antibiotics and nonsteroidal anti-inflammatory medicines (NSAIDs) are the most commonly recommended medications in dentistry. [6] Although consumers see the dentist mostly for pain, infections are the most common reason for prescriptions. Pain should always be treated because infections are frequently the cause of pain. In order to provide the right treatment, it is crucial to determine the nature and origin of the pain using the appropriate diagnostic techniques. [8,9]

Because of these medications' properties, it is essential to calculate precise dosages and be mindful of any harmful or hazardous side effects. [6] Therefore, the most crucial part of the undergraduate teaching curriculum is pharmacology, where students learn about various medication compositions and the craft of writing prescriptions. A dental graduate should possess solid theoretical knowledge, strong clinical and diagnostic abilities, and the capacity to prescribe safe and effective medications when necessary.

However, understanding dentistry students' medication knowledge and behaviors is essential to making effective interventions. To reduce prescribing errors, medical students and interns should have their prescribing knowledge and abilities evaluated on a regular basis during their training.

There is a dearth of research on dental undergraduate students, whereas numerous studies on medical students' prescription knowledge have been carried out. The current cross-sectional study's objective is to evaluate dental interns' understanding of medication prescribing. [1]

2. MATERIALS AND METHOD

After receiving approval from the Institutional Ethics Committee and participants' informed agreement, this observational study was carried out from August 2023 to June 2024. The study complied with the 1975 Helsinki Declaration, which was updated in 2013. The study included dental interns who were willing to participate, but omitted those who had already completed a comparable survey.

The following formula was used to compute the sample size: n = ([Z1]2 [P(1 - P)] / d2 Confidence interval 95% and likelihood of α error 5%; power of the study was set at 80% considering all the factors; sample size in this study is around 66. The sample size was expanded to 70 participants in order to prevent information bias, such as incomplete questionnaire completion. Twenty yes/no questions on a standardized, self-administered questionnaire were created, verified, and given to interns. This questionnaire was used to gauge knowledge about prescription medication. Data was gathered from each participant while maintaining their identity.

***Statistical analysis*:** Proportions (percentages) were used to express the descriptive data. The interns' perceptions and knowledge of prescription medicines were compared using a Chi-square test. SPSS software version 24 for Windows (SPSS Inc., Chicago, IL, USA) was used to analyze the data.

3. RESULT

Table 1: Assessment and comparison of knowledge regarding the prescription of drugs among BDS interns

Sl No	Question type	Yes	No	$\chi 2$ Chi square value	P value
1	Understanding how medicines work	42 (60%)	28 (40%)	126.106	<0.001
2	Certain medications may trigger allergies.	68 (97.1%)	2 (2.9%)	170.84	<0.001
3	Same medicines can be advised in both children and adults.	42 (60%)	28 (40%)	126.106	<0.001
4	Certain medications are inappropriate for children to use.	54 (77%)	16 (23%)	140.32	<0.001
5	Certain medications should not be used by children	18 (26%)	52 (74%)	54.60	<0.001
6	Some medications must be refrigerated.	10 (14%)	60 (86%)	6.176	0.0745
7	Different ailments can be treated with the same medication.	36 (51%)	34(49%)	94.26	0.0456
8	Medicines are harmed by heat and direct sunshine.	24(34%)	46(66%)	73.37	0.0658
9	Drug of choice is changed in pregnant women	66(94.2%)	4 (5.8%)	168.32	<0.001

Sl No	Question type	Yes	No	χ2 Chi square value	P value
10	The most prevalent medical ailment that dentists address is pain.	68 (97.1%)	2 (2.9%)	170.84	<0.001
11	The most often recommended medications for pain and inflammation are NSAIDs.	68 (97.1%)	2 (2.9%)	170.84	<0.001
12	During any surgical procedure, patients taking aspirin, heparin, or warfarin should be monitored.	60(86%)	10 (14%)	165.64	<0.001
13	Patients on beta-blockers should avoid using excessive amounts of adrenaline-containing local anesthetic.	34(48.5%)	36(51.5%)	90.11	0.0641
14	Patients with GERD should get medication with caution.	66(94.2%)	4 (5.8%)	168.32	<0.001
15	Amoxicillin is the most often recommended antibiotic for dental infections.	68 (97.1%)	2 (2.9%)	170.84	<0.001
16	Knowledge of dose of amoxycillin	68 (97.1%)	2 (2.9%)	170.84	<0.001
17	If the antibiotics are more expensive and newer, their efficacy is higher.	66(94.2%)	4 (5.8%)	168.32	<0.001
18	To prevent GI distress, antacids should be added to all medicines.	66(94.2%)	4 (5.8%)	168.32	<0.001
19	Prior to any surgical treatment, diabetic patients must have their blood sugar levels under control.	52(74.3%)	18(25.7%)	135.33	<0.001
20	The preferred medication for cardiac arrest is epinephrine.	58 (83%)	12 (17%)	143.26	<0.001

Table 1 indicates the knowledge of dental intern towards drug presecription. Knowledge on action of drugs among intern was good (83%).

Eighty-three percent of the participants understood how medications work. The majority (97.1%) are aware that some drugs can cause allergies. 60% of people are aware that the same medications might be recommended for both adults and children. 77% of people are aware that some drugs shouldn't be used by kids. 26% of interns are unaware that certain medications should not be taken by children and that heat and direct sunlight might damage pharmaceuticals. The majority of interns think that pregnant women's preferred drugs are altered. The majority of participants (97%) are aware that pain is the most common medical condition that dentists treat. Few participants are aware that patients taking beta-blockers should refrain from utilizing high doses of local anesthetics that contain adrenaline (48%). The majority of interns (94%) are aware that patients with GERD should take medicine cautiously.

Amoxicillin was the most often prescribed antibiotic for dental infections, according to the majority of interns (97.1%), and roughly 97.1% were aware of the dosage. 94.2% of respondents think that newer, more expensive antibiotics are more effective. 94% of people think that antacids should be administered to all medications in order to prevent GI upset. Nearly all participants (74.3%) said that before any surgical treatment, diabetes patients' blood sugar levels needed to be controlled. The majority of the participants (83%) said that the preferred medication for cardiac arrest is epinephrine.

4. DISCUSSION

Writing prescriptions is a difficult undertaking that calls for both clinical and theoretical knowledge as well as practical abilities. 10 Dental interns, who will eventually become practitioners, participated in the current questionnaire-based study. It is crucial that the practitioner understands the pharmacokinetics and pharmacodynamics of the medications as well as the proper dosage of antibiotics in the situations that are recommended. In the second year of the graduating course, the curriculum makes a concerted effort to include the fundamentals of dental pharmacology. However, it was noted in this study that not all of the interns knew the proper dosage of the medications.

Rathod et al. evaluated dental trainees' understanding of medication prescribing. They came to the conclusion that additional efforts are needed to educate the interns because the majority of them had just a moderate understanding of prescription drugs. [1] Jain et al. assessed third-year and final-year dentistry students' knowledge of prescription drugs. Professors provide the majority of students with the information needed to prescribe medications. The WHO Guide to Good Prescribing was unfamiliar to the greatest majority of pupils. [3] The most common prescription error made by students was incorrect medication posology (50%), which is completely consistent with earlier research.[11] In Kerala, India, Vijaykumar et al. assessed dentistry students' knowledge of these crucial elements. They came to the conclusion that Keralan dental students showed a fair level of drug prescription awareness. [6]

The knowledge and perceived confidence of dental students in administering antibiotics and analgesics were evaluated by Vijayalakshmi et al. They came to the conclusion that dentistry students had good levels of confidence and competence when it came to prescribing drugs. [12] Kula et al. discovered that students' average understanding of pharmacological indications and prescriptions is revealing. [13] Singh et al. found that dentistry students had a moderate understanding of medication prescribing patterns.4 Mercy et al.

discovered that Benin's dental students' curricula were deficient in the area of medication prescription.[14]

Mercy The majority of earlier research revealed that dentistry students have a moderate level of drug prescription understanding. According to the current study, almost 40% of the pupils lacked knowledge about how the medicine works. Many of the participants lacked knowledge regarding drug storage and prescription drugs for minors. Furthermore, not every intern was aware of the precautions to be followed while prescribing to patients with systemic disorders, pregnant women, nursing mothers, or those receiving anticoagulant medication. Based on our study's findings, it can be concluded that not all of the interns were qualified dentists and that their understanding of medication prescriptions was lacking. Every institution should make a special effort to teach prescription writing techniques in the classroom or arrange unique workshops, tutorials, problem-based learning, and online learning utilizing fictitious or actual clinical cases. Open-ended questions have the inherent drawback of allowing respondents to answer in whatever way they choose. This can be advantageous, too, as the answers may provide the researcher additional topics to look into. An further benefit is that the answers may offer fresh perspectives on connections and theories.

The drawback of the present study was smaller samples size. Further studies are needed on larger samples size to validate the result.

5. CONCLUSION

Given the study's limitations, it may be said that there was a reasonable level of awareness and knowledge regarding drug prescriptions. But not all interns were well-versed in the same. Expanding one's knowledge of pharmacological therapy and understanding appropriate therapeutic standards is crucial because the ability to prescribe medications is a critical component of excellent dental practice.

REFERENCES

Rathod S, Roy I, Bawankar PV, Deshmukh K, Gadbail VK. Assessment of knowledge regarding prescription of drugs among BDS interns. Saudi J Oral Sci 2020;7:107-10.

Rauniar GP, Roy RK, Das BP, Bhandari G, Bhattacharya SK. Prescription Writing Skills of Pre-Clinical Medical and Dental Undergraduate Students. J Nepal Med Assoc 2008;47:197-200.

Jain A, Gupta D, Singh D, Garg Y, Saxena A, Chaudhary H, *et al*. Knowledge regarding prescription of drugs among dental students: A descriptive study. J Basic Clin Pharma 2016;7:12-6.

Singh A, Shrivasatava R, Tiwari V, Tiwari T, Choudhary K, Pradhan P. Awareness and Prescription patterns of drugs among dental students of India. Neuroquantology. 2022;20(11): 849-854.DOI: 10.14704/NQ.2022.20.11.NQ66080

Guzmán-Álvarez R, Medeiros M, Reyes Lagunes LI, Campos-Sepúlveda AE. Knowledge of drug prescription in dentistry students. Drug, Healthcare and Patient Safety 2012;4:55-9.

Vijaykumar SK, Rajeev G, Masood A, Krishna A, Kamal AP, Raj AC. Drug prescription awareness among dental students in Kerala: a survey of current knowledge and awareness. Int J Community Med Public Health 2024;11:1889-93.

Maxwell S, Walley T; BPS Clinical Section Committee. Teaching safe and effective prescribing in UK medical schools: A core curriculum for tomorrow's doctors. Br J Clin Pharmacol 2003;55:496-503.

Guzmán Alvarez R, Campos Sepúlveda AE, Martínez González AA. Knowledge about local anesthetics in odontology students. Proc West Pharmacol Soc 2009;52:118-9

Hersh EV, Kane WT, O'Neil MG, Kenna GA, Katz NP, Golubic S, *et al*. Prescribing recommendations for the treatment of acute pain in dentistry. Compend Contin Educ Dent 2011;32:22, 24-30.

Baldwin MJ, Abouyannis M, Butt TF. Essential therapeutics skills required of junior doctors. Perspect Med Educ 2012;1:225-36.

Srinivasan K, Chitra S. Emerging Trends in Oral Health Profession: The Biomimetic - A Review. Arch of Dent and Med Res 2015;1:40-7.

Vijayalakshmi N, Shalma GH, Bano S. Knowledge and perceived confidence regarding the prescription of antibiotics and analgesics among dental students – An institutional-based study. J Academy Dent Educ. 2025;11:22-6. doi: 10.25259/JADE_60_2023

Kula J, de Oliveira Melo NSF de Lima AAS. Knowledge of Dentistry students about prescription and use of drugs. Rev ABENO. 2024;24(1):1856

Mercy O, Etinosa EG. Knowledge and Attitudes of Clinical Dental Students in University of Benin Teaching Hospital to Prescription of Drugs. International Journal Of Health & Medical Research. 2026;5(1):5-15