

KNOWLEDGE ABOUT DRUG PRESCRIPTION AMONG DENTAL STUDENTS

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Abstract

Background:

Drug prescription is a process of drug indication for patients which requires practical skills and enough knowledge about the different drugs. Antibiotics and analgesics are the most common medication used in dental field. There are wide uses for analgesics and the antibiotics used are of wide spectrum, so it is very important to have enough knowledge about the drug, its toxicity, drug interaction, benefits and adverse outcomes to ensure the safety of the patients.

Aim:

To assess the prescription knowledge of drugs and common mistakes of prescription in the clinical students at Riyadh colleges of dentistry and pharmacy, Riyadh, Saudi Arabia.

Methods:

This study is cross sectional study which was performed on final year students of dentistry and pharmacy colleges, Riyadh, Saudi Arabia. A survey was used to collect the required information from participants.

Results:

The present study included 90 students. The most common condition treated in dental clinic was pain (91.1%). The most common used NSAIDs was Ibuprofen (78.9%), while the most commonly used antibiotic was amoxicillin (88.9%). The most common error during prescribing was not knowing what to prescribe (27.8%), there were 58.9% of students were comfortable while prescribing and

48.9% followed WHO guide. The main source of information for students was the clinical professor (44.4%).

Conclusion:

Moderate level of knowledge was found, educational programs are recommended.

Keywords: Drug prescription, Prescription errors, prescription knowledge.

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Introduction:

Drug prescription is the indication for patients to administrate one or more type of drugs by definite dosage and duration [1]. There are several factors that affect prescription such as social, promotional, cultural and economic factors [2]. The World Health Organization (WHO) recommended identifying the patient's diagnosis, specifying the therapeutic objective, then considering the different alternatives and finally choosing the effective and safe [3]. Drug prescription is

done by qualified doctors and dentists as well as professionals [4], as it is a complex task that requires practical skills and theoretical knowledge which depends on the knowledge of pharmacodynamics of drugs as well as their benefits and adverse effects [5,6]. Undergraduate students aren't allowed to prescribe drugs, however they are trained under the supervision of their clinical professors [4]. It is very important for students to get enough information about latest drugs, action of drugs and their adverse effects to give quality health in the future developments [7]. Regarding dental practice, antibiotics and analgesics are medications essential for the infection and pain management of patients [8]. Broad spectrum antibiotics are commonly used in dentistry field [9]. The pain management is performed by the use of non-opioid analgesics such as Ibuprofen, Paracetamol and Diclofenac sodium. Non-steroidal anti-inflammatory drugs (NSAIDs) provide excellent analgesia for mild to moderate pain, so they are very effective in the initial pain with inflammation [10]. There is concern about toxicity induced by analgesics as they are used widespread, this toxicity can be significant

health hazard [11]. It is very important for health science students including dental students to have enough knowledge about the drugs and their prescription to maintain the safety of the patient [12]. Prescription of drugs by dental practitioners is important as the combination of pharmacologic therapy with dental procedures is required in several situations [13]. It was stated that there was inadequate prescribing practices among dentists as the number of factors ranging from inadequate knowledge to social factors [14]. The lack of confidence in antibiotics and analgesics prescribing is common among dental students [9,15]. The present study aimed to assess the knowledge about drug prescription and the common mistakes in the clinical students at Riyadh colleges of dentistry and pharmacy, Riyadh, Saudi Arabia.

Materials and methods

Study design and data collection:

This cross-sectional study was conducted on the final year students of Riyadh Colleges of Dentistry & Pharmacy. A data collection form was provided to each student explaining the purpose of the study, the study was completely confidential, and participation was voluntary. This study was approved by the Research Review Board at Riyadh Colleges of Dentistry & Pharmacy. All students who agreed to participate signed an informed consent form. The data collection was relevant to the knowledge regarding drug prescription and the common errors what are usually made.

Questionnaire:

A survey was conducted among final-year students at Riyadh colleges of dentistry and pharmacy, Riyadh, Saudi Arabia, applying a previously validated questionnaire consisting of seven open-ended questions. The following factors were assessed: the most frequent illness requiring dental prescription; the most prescribed nonsteroidal anti-inflammatory drugs (NSAID's) and antibiotics; the most frequent errors; sources of information used for prescribing drugs; and whether the students

knew and followed the World Health Organization Guide to Good Prescribing along with the confidence level of the students in prescribing the drugs. The most frequent response is considered in all the questions.

Statistical analysis:

Data were analyzed using SPSS software version 16. Qualitative data were described using numbers and percent distribution.

Results:

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The present study included 90 students of the final year, 58 (64.4%) were in level 12, while 32(35.4%) were in level 11. There were 82(90.1%) of students reported that the most common reason for perception in dental clinic was pain, while 7(7.8%) and 1(1.1%) reported infections and other reasons respectively, figure1. Regarding NSAIDs, Ibuprofen was the most commonly prescribed 71(78.9%) followed by aspirin 12(13.3%) and finally paracetamol 7(7.8%). Regarding the

antibiotics, the most commonly prescribed antibiotic was amoxicillin 80 (88.9%), followed by penicillin 5(5.6%) then clindamycin and others 2(2.2%) and ampicillin 1(1.1%). Errors made by students were didn't know what to prescribe and it was reported by 25 (27.8%) of students, 21(23.3%) didn't ask the patient about allergies, 16(17.8%) didn't know the brand names and not being sure of the proper drug to prescribe, 12(13.3%) didn't give a prescription, 6(6.7%) reported prescription wrongly filled and wrong posology and 4(4.4%) reported wrong treatment duration, figure2. There are several sources used by students to get information and to help them in drug prescription, 40 (44.4%) obtained their information from their clinical professors, 21 (23.3%) from their pharmacology course, 15(16.7%), 8(8.9%) and 3(3.3%) reported getting information from prescription books, medical representatives of pharmaceutical companies and class mates respectively, figure3. There were 44(48.9%) of students followed WHO guide for good prescribing, while 35 (38.9%) didn't know about it and 11 (12.2%) didn't follow such guideline. The confidence levels while prescribing the

medication were 53 (58.9%), while devoid of confidence were 37 (41.1%).

53(58.9%) students felt comfortable and secure while prescribing medication,

whereas 37(41.1%) didn't feel secure and comfortable, fig4.

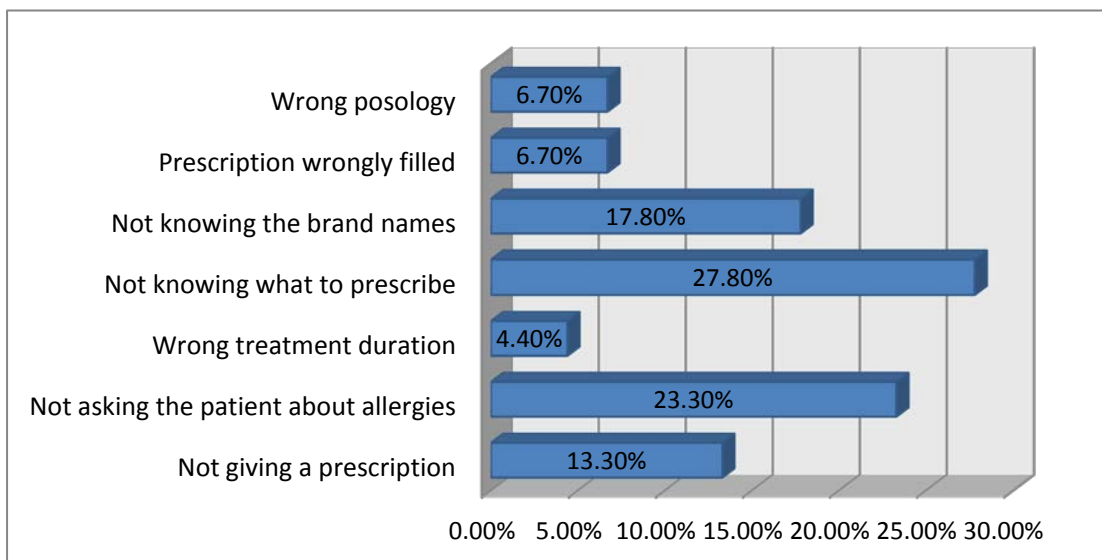
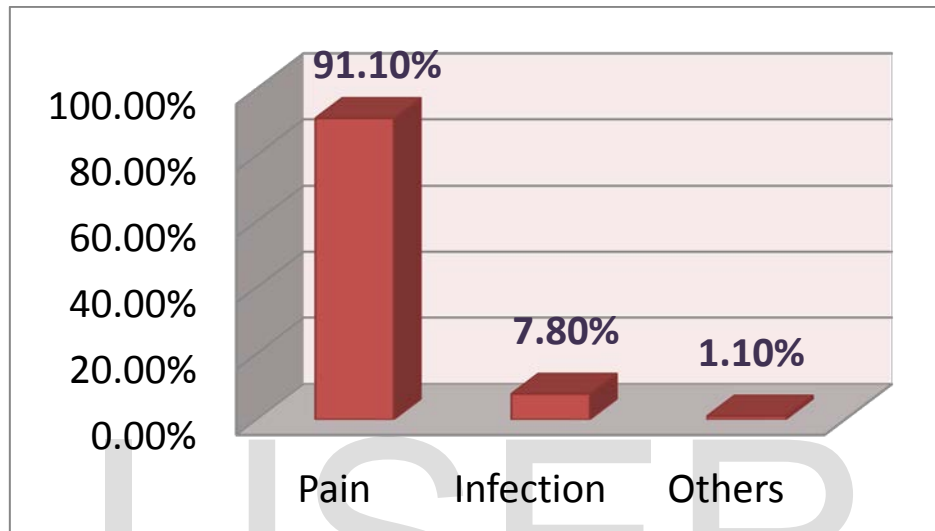


Fig1: Most common condition treated in dental clinic

Fig2:Common errors during prescription

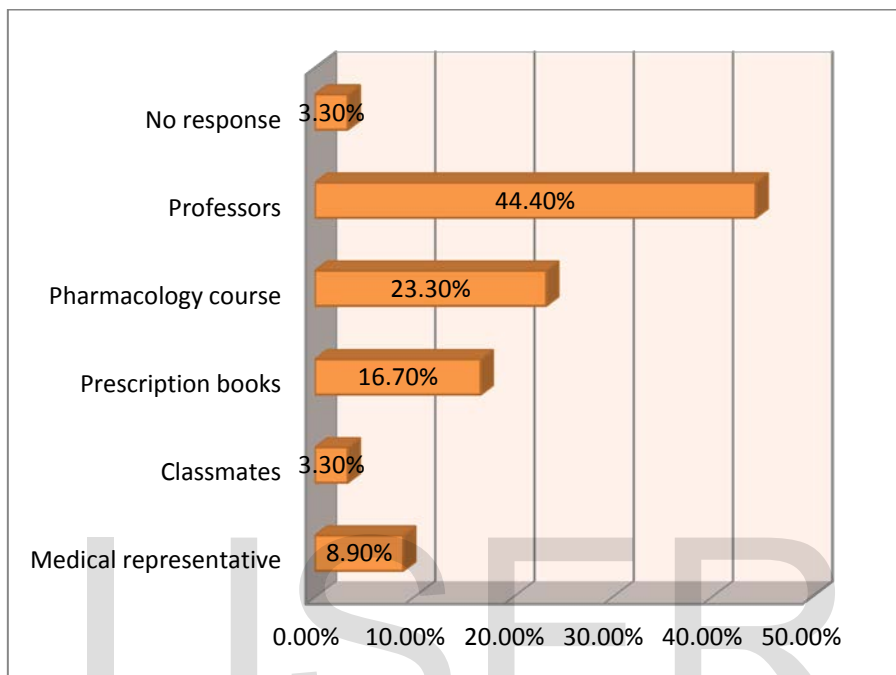


Fig3: Source of prescription information

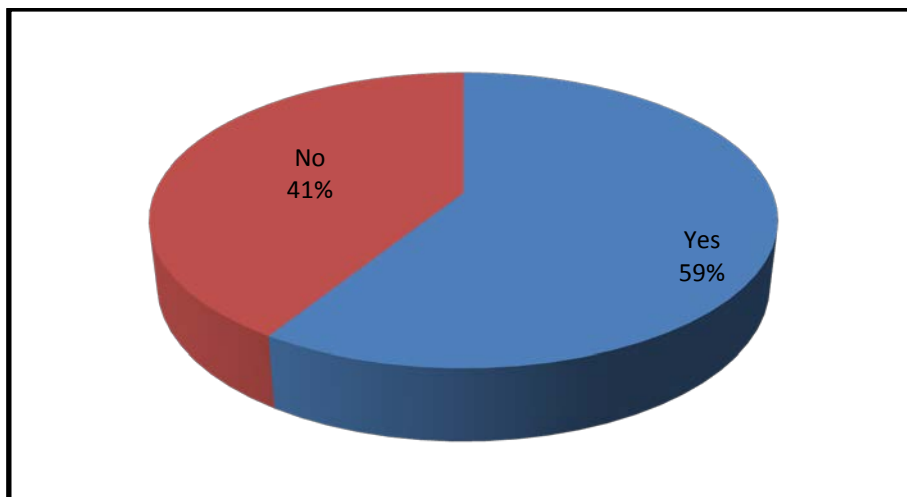


Fig4: Do you feel comfortable and secure while prescribing drugs?

Discussion:

In the present study, the large majority of students were from level 12 (64.4%).

The students reported that pain management represented the most common reason for prescription (91.1%), while infection represented 7.8% among all

reasons, whereas the least percent 1.1% was related to non-dental conditions. In

Indian study [16] it was reported that the most common reason for prescription

was pain followed by infection, also Jian et al[1] reported that pain was the main

reason. This is very obvious that patients with dental problems need to relief their

pain and most of their dental problems occur as a result of infections which result

from low dental care. Two studies from Mexico and India showed different results

from ours, where the dominant condition treated in dental practice was infection followed by pain and finally other conditions not related to oral health [17,18]. In the current study, the most commonly prescribed NSAIDs was Ibuprofen (78.9%) and the least one was paracetamol (7.8%), while aspirin represented 13.3%. Regarding Antibiotics, amoxicillin was the most commonly used (88.9%), while ampicillin was the least one (1.1%). In agreement with our results, previous studies [16,1,19] reported that the most common used antibiotic was amoxicillin. A study conducted on dental students and interns in Yemeni universities showed that amoxicillin was the most frequently used antibiotics, while paracetamol was the most frequent NSAID used, while Ibuprofen ranked the third grade followed by aspirin [13]. Also, other previous studies [9,17,20] reported that amoxicillin was over prescribed by dental students and interns when compared to other antibiotics, this can be returned to the fact that amoxicillin has a broad spectrum activity in the treatment of mixed odontogenic infection [13]. However, bacterial resistance against this antibiotic is a big concern, so it should be used after performing

special tests to look at its necessity. In agreement with our findings, it was reported previously [17,18] that Ibuprofen and amoxicillin were the most common used NSAID and antibiotic respectively, however the opposite was found regarding paracetamol and ampicillin, where they lastly ranked in our study while they ranked the second grade in the Mexico and Indian studies [17,18]. The students in this study reported that the most common errors they made were not knowing what to prescribe (27.8%) and not asking patients about allergies (23.3%), however confidence level while prescribing was reported by 58.9% and 58.9% reported feeling comfort and secure while prescribing medication. The most common mistakes reported in a previous study were in the following order; not asking the patients about allergy, not knowing what to prescribe, wrong dosage and wrongly filled the prescriptions [16]. Prescribing errors in dental Yemeni students were not knowing the brands names which was the dominant mistake followed by prescription wrongly filled, wrong treatment duration and finally wrong posology [13]. A previous study [17] showed that the most common error during prescription

was wrong posology, while not knowing what to prescribe was in the forth rank [17]. 44.4% of our participants mentioned that their source of information for drug prescription was their clinical professors, while 23.3% and 16.7% said their pharmacology course and prescription book respectively, the least percents get their information either from medical representative (8.9%) or class mates (3.3%).

A previous study [16] showed different results, where the main source for information was pharmacology course followed by professors and official books, however medical representatives and classmate ranked the last two sources in agreement with our study. Similar findings to ours were reported previously in Mexico study [17] where the main source of prescription information for students was professor followed by pharmacology course and then prescription book, also class mate and medical representatives represented the least two sources of information. Guidelines on drug prescription were recommended by WHO which involved the identification of patients' diagnosis, method of drug administration, its pharmacological form, dosage, frequency and duration as well as advices to

patients [21,22]. The majority of our students (48.9%) followed the WHO guideline for good prescribing, while 12.2% didn't and higher rate 38.9% reported that they were unaware of it. Higher percent of dental students (58%) were aware of the WHO guidelines in a previous study [1]. Guzman-Alvarez et al [17] reported that 30% followed WHO guide, while in Yemeni study [13] there were 6.4% only did. The large majority (60.6%) of dental students from Mexico didn't use the WHO guide [17].

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Conclusion:

A moderate level of knowledge was found among students, however there were several gaps in their knowledge and their prescription practice. It is recommended to establish educational programs for increasing their knowledge and increasing their awareness about the wise use of antibiotics, especially those of wide spectrum.

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