

Comparison of different teaching strategies to improve the knowledge of dental students about prescribing standards

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ABSTRACT

The aim of this study was to evaluate different teaching strategies to improve the knowledge of dental students about prescribing standards. We evaluated 72 students who were randomly separated into 3 groups (n = 24): Group 1 - at each evaluation stage, an explanatory video about prescription rules was presented; Group 2 - the same video was made available on a virtual platform (with unlimited access); Group 3 - control: the students did not have additional activities on the subject. During the study period 4 evaluations were performed, and all participants received a different clinical case to carry out a prescription for the proposed clinical situation. For each prescription performed, a score was given to different items: identification of professional and patient, concentration, dosage and quantity of the medicine, instructions, among others. The results were submitted to statistical analysis and the level of significance was set at 5%. No significant differences were observed at baseline between groups ($p > 0.05$). However, after using the strategies better results were observed for G1 when compared with G2 and G3 ($p < 0.05$). It could be concluded that among the strategies used, the use of video was the one that provided an improvement in knowledge of dental students in relation to prescribing standards.

Descriptors: Dental education. Prescription. Dentistry. Teaching.

1 INTRODUCTION

According to the World Health Organization (WHO), many medications are prescribed or sold in an inappropriate manner, so that measures are necessary to contain this problem¹. In addition to the deleterious impact on the health of patients, the inadequate use of medications aggravates access of the population to these therapeutic agents which, if well indicated and used, help to reduce the morbidity and mortality of the health system users, irrespective of being users of the public or private system. In this context, the prescription of medications is of the utmost relevance for their rational and safe use by the populations²

A “medical prescription” is a written document that portrays the conclusion of a clinical reasoning arrived at from data collected by means of careful interview and the physical evaluation, thereby contributing to the success of the clinical result and treatment offered³.

The “prescription of medications” is defined as a written order directed to the pharmacist, who explains how the drug must be supplied to the patient, and determines the conditions of its use⁴. It must always be presented in writing, which places the responsibility on both whoever prescribes and dispenses it, and it must be legible, so that the content prescribed will be correctly understood, thus avoiding misinterpretation⁵.

In addition to being clear to the patient, the medication prescription must follow the WHO criteria for rational prescription, and must be appropriate, safe, effective and economical⁶. In accordance with decree 20.931 of January 11, 1932, the prescription of medications is one of the duties of the medical professional, dentist and veterinary doctor. Considering the number of prescribers with different qualifications in the field of health, their training to choose and prescribes medications in a rational manner has become

increasingly important⁷.

Few studies have evaluated the prescription of medications in Dental clinical practice. One of the reasons for this scenario is perhaps due to the consensus that the dentists prescribe medications for shorter periods and that their therapeutic arsenal is restricted⁸. Law 5.081 of 1966 that regulates the practice of Dentistry in Brazil, in art. 6, item II determines the following: “It is the duty of the dental-surgeon to prescribe and apply pharmaceutical specialties for internal and external use, indicated in Dentistry”. It is also the legal duty of dentists to know the pharmacological characteristics of the medications they prescribe; they must always carefully analyze the information offered by the pharmaceutical laboratories, as well as the possible effects presented by the use of these medications^{9,10}.

The fact is that the prescription of medications still generates many doubts in dental students, with regard to when and how to use them. It is thus of fundamental importance to know about the way these future professionals prepare their prescriptions^{11,12}.

Considering the present panorama about the knowledge of dental students with regard to medication prescription, it is necessary to seek methods that may contribute to their training^{13,14}. Thus, the aim of this study was to evaluate different teaching strategies directed towards improving the knowledge of dental students with regard to the standards of prescribing medication.

2 METHODS

This study was conducted in accordance with the precepts determined by resolution 466/12 of the National Health Council and by the Dentistry Professional Ethics Code, in accordance with resolution CFO 179/93, which was approved by the Research Ethics Committee of the University of

São Leopoldo Mandic, protocol CAAE 46717415.0.0000.5374.

Each volunteer received the term of free and informed consent, containing the propositions of the research, as well as a guarantee of secrecy about the information provided therein, guarantee of anonymity and use of these data exclusively for research purposes. Only after agreement, by signing the term, was the individual considered a participant in the research.

Those invited to participate in the study were 90 students regularly enrolled at the São Leopoldo Mandic Dental School. Included in the present study were those who agreed to participate in the research and who had already done the subject of Therapeutics I, ministered in the 4th semester. Thus, the students of the 4th, 6th and 8th periods participated.

Only volunteers who had participated in all the stages of training and evaluation were considered. Thus, 72 students concluded all the stages of the study.

The groups were selected by draw before application of the basic test, with the purpose of not making the division tendentious in relation to the results obtained. The students were divided into three groups per period, and each group received a different teaching methodology: Group 1 (n=24) - every 2 months, an explanatory video with a duration of 15 minutes was exhibited; step by step, this used information essential to show the correct prescription of medications ; Group 2 (n=24) - the same video was made available on a virtual platform on the Internet, with unlimited access; and Group 3 (Control, n=24) - the participants were only submitted to the same evaluations at the same frequency, without having received the additional contents regularly ministered in the Undergraduate course.

In the basic tests the first evaluation of

prescription was performed for a hypothetical clinical case, in which the initial performance of each participant was measured, irrespective of the group. The other evaluations were also made by means of clinical cases interpreted by the students, who wrote a prescription for the case proposed at the end of the activity. At each evaluation, a different clinical case was used, with the purpose of students increase their rate of correct responses due to having memorized the questions. The degree of difficulty and the characteristics of the information were similar in all the tests, which were done in the students' free times.

Each evaluation was made at the end of the two-month period, before the corresponding didactic activity, with a view to reducing possible bias in the study. In total, 4 evaluations were made: one basic, and another 3 to test the efficacy of the different teaching strategies.

To each prescription, a maximum score of 5 points¹⁵ was attributed (Chart 1). The results obtained were submitted to Wilcoxon and Kruskal-Wallis Tests, at a level of significance of 5%.

3 RESULTS AND DISCUSSION

As the initial hypothesis of the study was to evaluate whether the proposed strategies were capable of improving the students' knowledge about the rules of prescription, the scores of the initial and final stage of the study were compared (table 1).

In Groups 2 and 3, it was possible to observe a worsening in the score in comparison with the base evaluation, therefore demonstrating that Group 1 was the one that showed the best result.

This result was similar to that observed by other authors¹⁶, who demonstrated that the implementation of videos improved the

performance of medical students in the prescription of medications. Within this context, watch the video in person served as reinforcement of the content directed towards the rules of prescription, because irrespective of the clinical case proposed, the students of this group presented a considerable improvement in relation to the score obtained in the basic stage

of the study. In addition, the results of the present study corroborated the findings of other researchers¹⁷, who observed that additional lectures about the topic produced an improvement in the quality of the prescriptions in comparison with the Control Group of students who only had the curricular programmatic content.

Chart 1. Items of evaluation and respective scores

Identification		1 point
	of the professional (0.5 point)	
	of the patient (0.5 point)	
Pharmaceutical direction		1.5 Points
	pharmaceutical form (0.5 point)	
	concentration (0.5 point)	
	quantity (0.5 point)	
Information to user		2.5 Points
	mode of administration (0.5 point)	
	posology (0.5 point)	
	duration of treatment (0.5 point)	
	warnings (0.5 point)	
	date of prescription and period of use (0.5 point)	

Table 1. Mean and Standard Deviation of results obtained in the initial and final stages of the study

Groups	Initial Score	Final Score	p-Value
1 (Watching video)	3.56 ± 0.75 Aa	3.98 ± 0.82 Aa	0.8137
2 Video on the platform	3.62 ± 0.64 Aa	3.02 ± 1.47 bB	0.0321
3 (Control)	3.64 ± 0.59 Aa	3.14 ± 1.15 bB	0.0373
p-Value	0.9539	<0.05	

Different capital letters represented statistical difference in the lines (Initial x Final - Wilcoxon Test, p < 0.05). Different lower cases represented statistical difference in the columns (between the groups - Kruskal-Wallis, p < 0.05).

Although other authors^{18,19} have observed that the use of resources and virtual platforms could provide and improvement in the learning curve of Dental Undergraduates, in the present

study the use of the virtual platform with free access did not provide the same result, because the students of this group had a performance similar to that of the Control Group.

Furthermore, it is important to emphasize that after the evaluations, those who had access to the platform received a message of reminder to use it, and even so, it was observed that the majority of the volunteers hardly accessed the platform.

A possible justification for these results could be the fact that the explanatory material had the same information content throughout the study, while in the study of Gonzales and Gadbury-Amyot¹⁹, new materials and images were added to arouse interest. Therefore, the present study demonstrated that the fact of making content available on virtual platforms does not guarantee that it will be fully used by students, and demonstrates the need for adjustments to this teaching strategy for the proposed topic. Furthermore, a recent study²⁰ pointed out that although the use of digital technology was a reality in Brazil, it seems that its use for the purpose of study was still not used by a large portion of the population.

The evaluations of the present study showed a significant improvement in the quality of the prescriptions written by the group that watched the video lesson in person, which corroborated the findings of previous studies about the need for new theoretical and practical approaches during the undergraduate period^{11,12}, in addition to changes in the teaching methodology, so that future professionals will be aware of their role in society and the use of correct medications. Moreover, a systematic review²¹ demonstrated that although some teaching strategies have led to improvements in prescription, further studies are still needed, which could help with improving the prescriptions written by professionals in the area of health.

4 CONCLUSION

It was concluded that among with

strategies used, the use of the video watched in person was the one that produced improvement in the students' knowledge with regard to the standards of prescribing medication.

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RESUMO

Comparação de estratégias para aprimoramento de graduandos de Odontologia na prescrição medicamentosa

O objetivo deste estudo foi avaliar diferentes estratégias para o aprimoramento de graduandos de Odontologia sobre normas de prescrição medicamentosa. Foram avaliados 72 estudantes, os quais foram divididos aleatoriamente em 3 grupos (n=24): Grupo 1 – em cada etapa de avaliação foi apresentado um vídeo explicativo sobre normas de prescrição com duração de 15 minutos; Grupo 2 – o mesmo vídeo foi disponibilizado em uma plataforma virtual (com acesso ilimitado); Grupo 3 – controle: os estudantes não tiveram atividades adicionais sobre o tema. Foram realizadas 4 avaliações e os voluntários receberam um caso clínico diferente em cada avaliação, realizando uma prescrição para a situação clínica proposta. Para cada prescrição realizada foi atribuída uma pontuação considerando diferentes itens: identificação do profissional e do paciente, concentração, dose e quantidade do medicamento, instruções, dentre outros. Os resultados obtidos foram submetidos à análise estatística, com nível de significância de 5%. Não foram observadas diferenças significativas na avaliação basal entre os grupos ($p>0,05$). Após o uso das diferentes estratégias foram observados melhores resultados para G1 quando comparados a G2 e G3 ($p<0,05$). Concluiu-se que o uso do vídeo presencial foi a estratégia que proporcionou melhores resultados em relação às normas de prescrição de

medicamentos.

Descritores: Educação em Odontologia. Prescrições de Medicamentos. Odontologia. Ensino.

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