

# The development of oral preventive medicine in China: a long way to go

Li Hanxue • Zhou Zhi • Wu Xiaoyan • Jiang Lin • Yang Zhengyan\*

Department of Preventive Dentistry, Stomatological Hospital of Chongqing Medical University, Chongqing, China.

\*Corresponding author. E-mail: 501039@hospital.cqmu.edu.cn.

Accepted 3<sup>rd</sup> February, 2022.

**Abstract.** To understand the cognition and teaching needs of oral medical students from oral preventive medicine courses, so as to explore the improvement of oral preventive medicine. A questionnaire was designed to investigate all kinds of students studying in the Stomatological Hospital Affiliated to Chongqing Medical University. A total of 266 students enrolled and completed the questionnaire. 83.83% of the students were interested in oral prevention courses, 77.44% of the students were satisfied with the teaching mode of oral preventive medicine courses, but 79.70% of the students thought that the existing teaching methods needed to be improved and the teaching practice needed to be enriched. Students who had already practiced in oral prevention department believed that the future trend of oral preventive medicine in clinical application would significantly increase ( $p=0.009<0.05$ ). (3) 95.49% of the students were willing to learn oral preventive health care, but less than 40.6% of them were willing to engage in preventive work after graduation. The students are vague about overall cognition of the oral preventive medicine. The lack of teaching practice weakens the students' understanding of the importance of theoretical knowledge of oral preventive medicine. Therefore, the development of oral preventive medicine has a long way to go.

**Keywords:** Preventive dentistry, practice teaching, teaching reform.

## INTRODUCTION

With the improvement of people's living standards, their emphasis on health is also increasing, and oral health is the premise of the whole body health (Jiangang *et al.*, 2017). In 2019, the General Office of the National Health Commission issued the "Healthy Oral Action Plan (2019-2025)" (Huanbo *et al.*, 2008), which is to implement the target requirements of the "Healthy China 2030 Plan Outline" (Hu and Maofeng, 2007) and the "China Mid - and Long-term Plan for the Prevention and Treatment of Chronic Diseases (2017-2025)" (Jun and Sun, 2014). It was proposed to give priority to prevention and combine prevention and treatment to effectively maintain the oral health of the masses. A qualified dentist can not only be competent for the diagnosis and treatment of various oral diseases, but also have the concept of oral prevention and health care (Shanbhog *et al.*, 2014). Therefore, to adapt to the reform and development of the medical model (NHCPRC, 2019), it is necessary to conduct research on

the current situation of oral prevention professional cognition, so as to explore the improvement of oral preventive medicine courses and improve the practical teaching effect.

## MATERIALS and METHODS

### Study subjects

This study was approved by Academic Affairs Division, Institutional Review Board of Stomatological Hospital of Chongqing Medical University. Students who had completed the theoretical study of oral preventive medicine in the clinical stage were selected for the questionnaire study, including undergraduates, postgraduates and regular trainee students who practiced in the Stomatological Hospital affiliated to Chongqing Medical University. Before starting the

investigation, the researchers have detailed the purpose of the study and highlighted the anonymity of the process.

### Research Methods

The questionnaire was formulated for the Oral Prevention Teaching and Research Office of the hospital according to the research purpose. A pre-survey was conducted on 20% of the survey subjects, and the Cronbach  $\alpha$  coefficient of the questionnaire was measured to be 0.811, indicating the questionnaire is reliable (The State Council of the People's Republic of China, 2017), and KMO value was 0.876, indicating high validity. In this study, 276 questionnaires were asked anonymously through the questionnaire star, and 276 questionnaires were recovered, with a recovery rate of 100%.

### Statistical processing

Statistical analysis was performed using the SPSS 22.0 software package. Counting data are presented as the number of cases and percentages, and the correlation analysis was performed using the Pearson correlation analysis.  $p < 0.05$  indicates that the statistical parameters is significant.

## RESULTS

In this study, 10 undergraduates were selected, with a sample size of 266, including 150 undergraduates, 50 master students, 66 regular students (social people), and a ratio of nearly 1:1. All students who participated in the questionnaire have studied oral preventive medicine theory courses.

### The cognition of oral medicine students on oral prevention courses

97.37% of students who think oral prevention courses are helpful for overall cognitive stomatology, 59.4% are initially exposed to oral health knowledge through school courses, 25.56% through the network; 96.15% think current textbooks covered more than 60% of oral prevention-related knowledge; 83.83% are interested in oral prevention courses, 73.31% are interested in the knowledge itself, because the course itself is a comprehensive course.

### Cognitive connection between oral preventive medicine courses and resident physician training and the requirements of medical practitioner examination

The cognitive results of the relationship between the oral

preventive medicine course and resident training and practitioner examination requirements showed that the course basically meets the resident training requirements and practitioner examination requirements (more than 60% accounted for 88.72% and 90.98%).

### Teaching requirements of stomatology students for oral preventive medicine

77.44% of students were satisfied with the existing oral preventive teaching model, 78.20% tended to be case analysis focused on oral health education model; 79.70% considered existing teaching methods to be improved; 47.37% were less willing to write reports or summary materials and report; 76.69% believed that practical performance should be included in the final assessment (Table 1).

### Evaluation of the teaching results of oral preventive medicine

Through the course of learning, about 62.41% of students saw a significant improvement in oral epidemiological survey design, and 74.06% of students believed that the ability to promote and educate has been greatly improved. However in "literature access, writing PPT, data analysis and processing, organizational management and coordination", most students (49.25%) think that there is only a little improvement; and the association between theoretical course content and clinical practice was only 60-80%; while 48.50% of the students believed that the course teaching and oral medical post requirements were generally close contact, and needed to be improved. More than half of the students believed that the depth and breadth of the course can meet the current needs of clinical post skills; while 58.65% of students believed that although the course experienced a semester of study, however, only 60-80% of the course-related knowledge is absorbed.

### Teaching Outlook of Oral Preventive Medicine (Pearson correlation analysis)

With the progress of clinical work and the deep understanding of oral prevention medicine, 95.49% of students said they would continue to deepen and strengthen the knowledge of oral prevention, but only 40.6% were willing to do prevention-related work after graduation. Pearson correlation analysis between the internship in the course showed a positive correlation between the application of preventive medicine in oral clinical practice and the form and performance of the achievement presentation ( $p=0.007$  and  $p=0.001$ , both less than 0.05) (Table 2).

Pearson correlation analysis shows "Stomatology

Table 1. Oral medical students' teaching needs for oral preventive medicine

The Project	Number of people (n)	The percentage is (%)
Are you satisfied with the existing oral preventive medicine teaching model?		
Satisfaction	206	77.44%
Not very satisfied	56	21.05%
Not satisfied	4	1.50%
Open the teaching model of oral preventive medicine expectation?		
Case analysis	208	78.2%
Scenario simulation (role-playing) teaching	148	55.64%
Problem-based (PBL) teaching	170	63.91%
Flip classroom (students learn independently in advance before or after class, and teachers communicate and interact with students during classroom time)	103	38.72%
Others	6	2.26%
Can you accept the practical results in the final assessment?		
Yes	204	76.69%
No	18	6.77%
It doesn't matter	44	16.54%
Learn the information you wish to get		
Oral Epidemiological survey design	199	74.81%
Oral health education mode	216	81.2%
Oral tertiary prevention	201	75.56%
Oral prevention project design and implementation strategy	198	74.44%
Others	5	1.88%
What do you think you can improve the teaching reform of this course?		
Teaching Methods (TBL Teaching, PBL Teaching, etc.)	174	65.41%
Teaching means (multimedia, online teaching, community practice, etc.)	212	79.7%
Assessment method	106	39.85%
Teaching content	93	34.96%
Others	13	4.89%
The last thing you feel you want to participate in during the oral prevention learning task or activity is?		
Early theoretical and background knowledge learning	34	12.78%
Preparation of a learning project or activity plan	60	22.56%
Communicate with other members during the task or project	13	4.89%
Write reports or summarize materials and report	126	47.37%
Others	23	8.65%
Self-evaluation of the learning effect	10	3.76%

Table 2. Results of Pearson-related analysis of internship in preventive stomatology

	Have you already practiced in the preventive stomatology department?	p value
With the development of oral preventive medicine, how do you think its application trend in oral clinic will change in the future?	0.164**	0.007
Form and performance of the achievement display	0.205**	0.001

\* p&lt;0.05 \*\* p&lt;0.01

students of different identities and teaching methods (multimedia, Teaching it online, Community practice, etc.) that need to be improved”, “Coverage degree of preventive medicine related knowledge in the current oral preventive

medicine professional textbooks”, “The degree of knowledge learned after a semester of study” and “The association of theory and internship in the current courses” show positive correlation (p=0.048,0.001,0.014,0.035 all

**Table 3.** Pearson Correlation Analysis of Student identity Type and awareness of the course

	Your identity is this?	<i>p value</i>
Teaching means (multimedia, online teaching, community practice, etc.)	0.121*	0.048
How many oral preventive medicine related knowledge is covered in the current oral preventive medicine professional teaching materials?	0.199**	0.001
Do you think this course experiences a semester of study and how you accept knowledge?	0.151*	0.014
The correlation between theory and practice in the current oral preventive medicine course?	0.129*	0.035

\* $p < 0.05$  \*\* $p < 0.01$ **Table 4 Results of cross-analysis of preventive stomatology practice**

Title	Name	Have you already practiced in the preventive stomatology department? (%)		Total	$\chi^2$	$p$
		Yes	No			
With the development of oral preventive medicine, how do you think its application trend in oral clinic will change in the future?	It will be improved	109(90.83)	120(82.19)	229(86.09)	7.487	0.024*
	There has not been much change	9(7.50)	12(8.22)	21(7.89)		
	Not clear	2(1.67)	14(9.59)	16(6.02)		
Total		120	146	266		
Form and performance of the achievement display	Not selected	116(96.67)	123(84.25)	239(89.85)	11.14	0.001**
	Selected	4(3.33)	23(15.75)	27(10.15)		
Total	120	146	266			

\*  $p < 0.05$  \*\*  $p < 0.01$ 

&lt;0.05) (Table 3).

**Cross-analysis results of the students participating in the questionnaire**

The cross analysis's results of students' identity types showed that after learning the oral prevention course, the last link to participate in the implementation of oral prevention learning tasks or activities was "writing reports or summarizing materials and reporting" ( $p=0.036 < 0.05$ ), and the first way for stomatological students to contact oral

health care knowledge is through "school courses" ( $p=0.000 < 0.05$ ). The examination method in oral preventive medicine teaching needs to be improved ( $p=0.004 < 0.05$ ), while in the future study of oral preventive medicine, the form and expressiveness of achievement display need to be improved ( $p=0.000 < 0.05$ ).

The results of cross-analysis of internship in the department showed that students who have practiced in preventive stomatology think the trend of preventive medicine in oral clinical practice will improve ( $p=0.024 < 0.05$ ), and the proportion of form and performance need to be increased ( $p=0.001 < 0.05$ ) (Table 4).

## DISCUSSION

The improvement of living standards has greatly changed people's opinions about health. "Prevention first, combine prevention and treatment" has become the inevitable trend of the development of modern medicine, and stomatology is no exception (NHCPRC, 2019; The State Council of the People's Republic of China, 2017; Xiangjun *et al.*, 2013). However, the results of the fourth national oral health epidemiological survey showed that the masses have no obvious prevention and treatment of oral diseases, still mainly simple treatment of oral diseases and lack of oral health knowledge (Xiping, 2018). The results of the survey of oral medicine students showed that their primary exposure to oral health care knowledge was mainly through school courses, suggesting that the prevalence of oral preventive health care knowledge was very low. Therefore, it is particularly important to improve the concept of oral preventive health care and cultivate oral talent with solid oral clinical skills but also overall preventive medicine.

Through a survey of stomatology students in our school, 97.37% of oral students affirmed the importance of oral prevention course for overall cognitive stomatology. 79.70% of the students believed that the teaching methods need to be improved, while 78.20% believed that the teaching mode should be based on case analysis, and the practical results should be included in the assessment to optimize the formative evaluation. These results all suggested the urgent need of oral prevention curriculum teaching and assessment methods for some reform measures. Oral preventive medicine is a very practical course, and simple theoretical knowledge will make students feel the content is abstract, and most preventive health knowledge has been repeatedly mentioned in the other oral related courses. In oral prevention course, teachers spend a lot of time explaining oral health knowledge, community health service policy knowledge, which make students feel cumbersome, but students feel obscure when they make the oral epidemiological investigation and community intervention, and no relevant practice teaching hinder the students' cognition of preventive stomatology. Therefore, the establishment of an appropriate social practice base is an important guarantee for the smooth progress of oral prevention practice, which is consistent with many studies (Yu *et al.*, 2017; Zhao and Juan, 2016). Moreover, the development of oral practice courses is also conducive to teachers designing teaching programs on the basis of closely following the syllabus, and improving students' interest in learning, so that students can experience the importance of theoretical knowledge and practical significance, so as to have a deep in-depth understanding of oral preventive medicine.

In the evaluation of teaching effect, students are most unwilling to participate in the link "report or summary materials and report, learning effect", as it reminds us in

addition to strengthen the course theory and practice, and we also need to guide students to organize the data, and ensure the accuracy of the results, rich results, and at the same time set curriculum close connect with statistics, education and other courses. Oral preventive medicine is a relatively comprehensive discipline. Its theory is closely related to the stomatology, preventive medicine, children's stomatology, statistics and literature retrieval, and practice requires participants to have richer humanistic knowledge and multiple exchange and cooperation ability to complete a certain project. Therefore, the effective guidance of teachers is particularly important, which is also the challenge brought by teachers in teaching reform. Through systematic learning, the students who will find the improvement of their scientific research ability is also conducive to their future knowledge exploration in medical field.

The stratified analysis showed that the practice of stomatology students in preventive stomatology department significantly improved their understanding of the future trend of oral preventive medicine, and they are willing to study and strengthen the knowledge of oral prevention, but few doctors are still willing to engage in oral preventive medicine for many reasons, partly because the course of oral preventive medicine is too abstract, affecting the cognition of oral preventive medicine in practice. More likely, it is because of the low economic value and social fastest realization value than other oral majors. In recent years, the Chinese government has issued a series of important documents, such as the Healthy China 2030 Plan, China Medium and Long Term Plan for the Prevention and Treatment of Chronic Diseases (2017-2025), Healthy Oral Action Plan (2019-2025), and Healthy China Action (2019-2030), which all revolve around the two cores of disease prevention and health promotion, and promote the transformation from disease-centered treatment to people's health. It can be predicted that the state will continue to increase the human, material and financial investment in disease prevention, public health, including oral public health and disease prevention, so as to create a better environment beneficial to the health of residents in the whole society.

## CONCLUSION

In order to better realize the concept, "prevention first, prevention and control combination" of oral cavity, the oral prevention course mode should be adjusted, to increase the content of practical related courses, promote oral medicine students' ability to better grasp the prevention concept of oral diseases, and effectively apply it to oral clinical medical services.

In short, the development of oral preventive medicine has a long way to go. At the present stage, there are some problems in the oral prevention courses that need to be solved. How to reasonably improve the oral preventive

medicine courses and cultivate more excellent oral prevention-related talents for the nation will be the direction of our efforts in the future.

## ACKNOWLEDGEMENTS

We thank Xia Chen for her assistance in editing the English of this manuscript.

## CONFLICTS OF INTEREST

The authors have no conflicts of interest to disclose.

## FUND

This project was supported by the Research Project of National Health Commission of the People's Republic of China (201502002) and Teaching Reform Project of Stomatological Hospital of Chongqing Medical University (KQJ201907).

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