

The Use of Floss in Medical Faculties of Inner Mongolia Medical University in 2017

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Abstract

Purpose: The aim of the present study was to determine the degree of using floss and the demographic characteristics of medical faculties of Inner Mongolia Medical University. **Materials and Methods:** Participants completed the questionnaire in the classroom. These participants came from the medical faculties of Chinese Medicine and Western Medicine. These participants were interviewed to determine the demographic characteristics. Non-flossors responded according to their reasons for not flossing. **Results:** A total of 3481 effective data were available for analysis. The floss prevalence was 17.21%, which was lower by 5.72% for students living in rural areas, when compared to students living in urban areas. The largest proportion of non-flossing participants in rural areas answered, "I do not know what a floss is", while participants in urban answered, "I do not want to use it". The largest proportion of answered flossing frequency was less than once a month. **Conclusion:** The present study indicates that the prevalence of using floss in medical faculties in Inner Mongolia Medical University was higher, when compared to that in Sichuan province, China, but lower than that in other countries. Although the students use floss, more than one-third of students use floss less than once a month, which is close to "never". The prevalence in rural areas is lower than those in urban areas. Male not only comprises the total number of prevalence, but also has a frequency greater than that in females. The emphasis on using floss should be improved in medical students.

Keywords

Floss, Oral Health Behavior, Region, Medical Students

*Cong Chen, Lijuan Shang, Li Jiang contributed equally to this paper.

1. Introduction

Daily oral health care has been advocated as the most effective way for maintain oral hygiene. Flossing has long been considered an indispensable part of an effective oral hygiene routine. It can remove plaque or control its accumulation [1]. Dental plaque is one of the etiologic factors in the development of chronic periodontal disease [2]. Chronic periodontal disease is a polygenetic disease that can lead to gingival bleeding and tooth loss when left untreated [3] [4] [5]. For this reason, the American Dental Association recommends flossing at least once a day to help remove plaque [6].

Though daily flossing has been recommended to prevent chronic periodontal disease, the use of dental floss as an adjunct oral hygiene aid is not encouraged throughout the world, and a large proportion of young subjects floss their teeth less than that recommended or not at all [7]. Among university students, Rimondini *et al.* found that 92% of their samples brushed at least twice a day, while only 15% of these samples flossed their teeth daily [8]. The 2014 Delta Dental Oral Health and Well Being Survey reported that 41% of Americans floss at least once daily, while 20% never floss [9]. That is, people fail to sufficiently adopt or maintain this oral habit [10].

The “oral health behavior” describes oral hygiene habits as tooth brushing, the use of dental floss, and regular dental visits [11]. However, few studies have evaluated adolescents’ compliance with flossing [12]. One study demonstrated that adolescents are positively correlated to flossing behavior and other health, cleanliness and social behaviors [13]. Equipping medical students to be agents of using floss is beneficial not only for oral health promotion, but also to patient education. Hence, a survey of the dental floss behavior of medical students is required to underpin the development and targeting of public health interventions.

The aim of the present study was to determine the severity of floss based on basic demographic characteristics of medical students in Inner Mongolia Medical University in 2017, which would be helpful to plan for corrective measures.

2. Methods

2.1. Participants

The present study was conducted in the Inner Mongolia Medical University campus of China in 2017. The participant’s major including Chinese Medicine and Western Medicine. Chinese Medicine included Traditional Chinese Medicine, Chinese Pharmacy, Acupuncture and Massage. Western Medicine included Clinical Medicine, Stomatology, Anesthesiology, Medicine Imaging, Medicine Testing Technology, Clinical Pharmacy and Pharmacy. In this university, the duration of undergraduate study is 4 or 5 years. Some of these students have internships in the final or last two years of their courses, which are conducted off campus. Students who were completing internships and living off campus were not included in the investigation.

2.2. Procedure

The investigators distributed the questionnaires, the participants answered the questionnaires, and the field workers ensured that the classroom was silent to allow students to work in private and avoid confounding their answers through discussion with their peers. The participants returned the completed questionnaire to the investigators. Some of them checked the questionnaires, while others counted the number of questionnaires. Finally, the investigators placed the questionnaires in a sealed envelope and recorded the survey time, survey sites, respondents and investigators. The protocol for the research project has been approved by Inner Mongolia Medical University Ethics Committee of the institution within which the work was undertaken.

2.3. Questionnaire

The participants were interviewed for demographic characteristics, including age, gender, ethnicity, residence place and faculty, and for flossing frequency, including 1 - 3 times per day, 4 - 6 times per week, 1 - 3 times per week, 1 - 3 times per month, and less than once a month or never. Non-flossors responded regarding the reasons for not flossing, including I do not know what a floss is, I do not know how to use it, I am affected by people around, and I do not want to use it. Ethnicity was classified as Han, Mongolian and other ethnicities, which included all other ethnicities, excluding Han and Mongolian. The residence place was classified as urban, which included cities and towns, and rural. A logical test was also set up. The participants answered question 18, while question 17 answers of F were considered as logical error. Then, all errors were screened out from the questionnaire.

2.4. Statistical Analysis

The X^2 -test was used to examine the differences in using floss among various basic demographic characteristics. Data were entered using EpiDate (Version 3.1). All statistical analyses were performed using SPSS for Windows Version 13.0, with a significance level of $P < 0.05$.

3. Results

A total of 3501 data were collected account for 97% from 10 different faculties, 1 - 3 years aged 19.77 ± 1.28 . The effective data were 3481, the percentage of effective rate accounted for 99.43%. **Table 1** presents the floss prevalence by demographic characteristics. The floss prevalence was 17.21%, for males 19.49%, which was higher by 3.59% than in females. The floss prevalence in other ethnicities was higher by 5.35% than in the Han ethnic. The floss prevalence was lower by 5.72% for students living in rural areas, when compared to students living in urban areas. However, there was no significant difference in flossing prevalence between Chinese Medicine and Western Medicine.

Table 2 presents the reasons for non-flossing participants. The largest proportion

Table 1. Flossing prevalence by demographic characteristics for medical faculties in Inner Mongolia Medical University 2017.

Characteristics	N	Flossing		χ^2	P
		n	prevalence (%)		
Total	3481	599	17.21		
Gender (N = 3480)				7.242	0.007
Male	1247	243	19.49		
Female	2233	355	15.90		
Ethnic (N = 3477)				6.153	0.046
Han	2503	406	16.22		
Mongolia	821	158	19.24		
Other	153	33	21.57		
Residence Place (N = 3427)				17.945	0.000
Rural	1194	160	13.40		
Urban	2233	427	19.12		
Faculty (N = 3481)				0.417	0.518
Chinese Medicine	820	135	16.46		
Western Medicine	2661	464	17.44		

Table 2. Reasons for non-flossing for medical faculties in Inner Mongolia Medical University 2017.

	Don't know what the floss is		Don't know method		Affected by people around		Don't want	
	n	%	n	%	n	%	n	%
Total	1198	40.60	491	16.64	194	6.57	1068	36.19
Gender								
Male	483	47.17	137	13.38	49	4.79	355	34.67
Female	715	37.10	354	18.37	145	7.52	713	37.00
Ethnic								
Han	875	40.68	369	17.15	147	6.83	760	35.33
Mongolia & Other	321	40.23	122	15.29	47	5.89	308	38.60
Residence Place								
Rural	550	51.84	144	13.57	61	5.75	306	28.84
Urban	631	34.11	341	18.43	130	7.03	748	40.43

that account for non-flossing are those who answered I do not know what a floss is (40.60%), and this was followed by non-flossors who answered, I do not want to use it (36.19%). The proportion of non-flossing for females who answered, I do not know what a floss is, was higher by 12.50%, when compared to females who answered, I do not want to use it. The highest proportion who answered I

do not know what a floss is came from Han subjects (40.68%). The largest proportion of non-flossing subjects came from the rural area, who answered I do not know what a floss is, while in the urban area, the largest proportion came from those who answered, I do not want to use it. The proportion of non-flossing in rural areas, who answered, I do not know what a floss is, was higher by 23.00%, when compared with those who answered, I do not want to use it.

Table 3 presents that the proportion of flossing frequency between males and females. Among these, the largest proportion of answered flossing frequency was less than 35.79%. The largest proportion of answered flossing frequency for male was “1 - 3 times per day” (28.40%). The largest proportion of answered flossing frequency for females was once a month (43.66%).

Figure 1 shows the prevalence of flossing for various faculties students. The Clinical Pharmacy Faculty has the lowest prevalence of flossing (11.11%). The Chinese Pharmacy Faculty has the highest prevalence (20.00%), followed by the Acupuncture and Massage Faculty (19.07%) and Medicine Imaging faculty (18.58%).

4. Discussion

The present study indicated that most of the students do not use floss to clean

Table 3. Flossing frequency for medical faculties in Inner Mongolia Medical University 2017.

Flossing Frequency	Total		Male		Female	
	n	%	n	%	n	%
1 - 3 times per day	120	20.07	69	28.40	51	14.37
4 - 6 times per week	85	14.21	46	18.93	39	10.99
1 - 3 times per week	75	12.54	31	12.76	44	12.39
1 - 3 times per month	104	17.39	38	15.64	66	18.59
<1 times per month	214	35.79	59	24.28	155	43.66

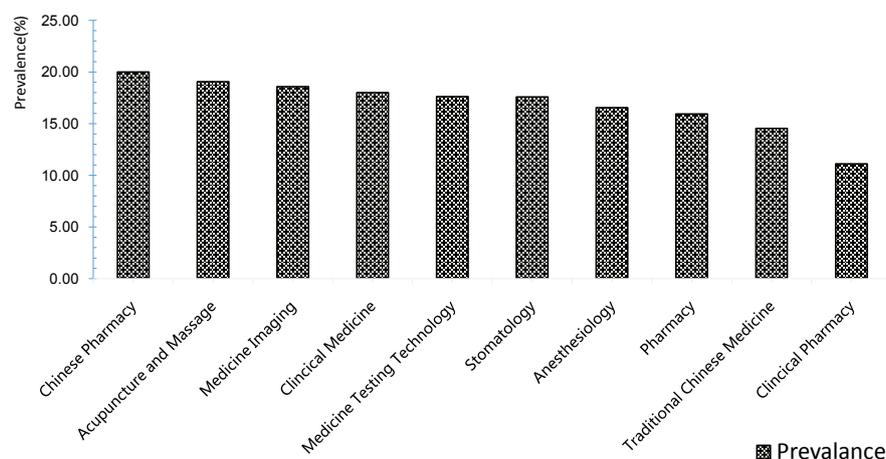


Figure 1. Prevalence of flossing for medical faculties in Inner Mongolia Medical University 2017.

interdental spaces. This is far below that for dental students in India, the Kingdom of Saudi Arabia (KSA), Yemen and United Arab Emirates (UAE) (38.1%), and lower than that in Scandinavian and Polish medical students (56.29%) [14] [15]. However, this was higher than junior and third-year medical students in Sichuan University, China (3.5% and 6.4%, respectively) [16]. Even for students who use floss, more than one-third of students use floss less than once a month, which is close to “never”, and is far from the recommended frequency, which is flossing for 2 - 4 days a week [1]. Even if the floss prevalence is higher than that in medical students in China, this remains very low. This is not only true in Inner Mongolia, but also in China.

The present flossing prevalence in rural areas is lower than that in urban areas, which is similar to a Colombian study [17]. Although the prevalence in urban areas was higher than those in rural areas, both did not reach the level of most countries. The present study further analyzed the reasons for non-flossing. The majority of non-flossing subject do not use floss because they do not know what a floss is or do not want to use it. In rural areas, more than half of non-flossing students do not know what a floss is. The lack of publicity and education [18] are the main reasons the lead to the low flossing prevalence in China. Although the dental knowledge of floss is significantly associated with dental clinic as the source [19], and floss knowledge is positively associated with use of dental floss [20], this just played a supporting role in China. In urban areas, the main reason for non-flossing was that they do not want to use it, which means that they know what a floss is, but have an insufficient subjective consciousness of it.

The present study found that the use of floss in males was more frequent than those in females, not only for the total number of prevalence, but also for the frequency that reached the recommended level. This indicates that male students were more willing to take oral health measures than female students. This result is contrary to most studies worldwide [1] [16] [19] [21], and the same gender difference was not found in the present study.

Medical students will be the health professionals in the future, and they are expected to possess accurate oral health knowledge and behavior of dental floss. Therefore, it is essential to improve their oral health knowledge and behavior of dental floss, which are of great significance to society [16] [22]. Present efforts should be encouraged in school medical students, especially in dental students.

5. Conclusion

In summary, the floss prevalence in medical students in Inner Mongolia Medical University is very low, and the prevalence in rural areas is lower than that in urban areas. The reason is that in rural areas, students do not know what a floss is, while urban students do not want to use it. Males not only account for the total number of prevalence, but also the greater frequency, when compared to females.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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