

KNOWLEDGE, ATTITUDE, AND PRACTICE ON DENTAL CARIES AND ORAL HYGIENE AMONG MEDICAL STUDENTS IN ISLAMABAD PAKISTAN

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Abstract: The objective of the study was to evaluate the awareness, attitudes, and practices on oral hygiene and dental caries among medical students studying at Rawal Medical and Dental College, Islamabad. It was a descriptive cross-sectional study carried out at Rawal Medical and Dental College, Islamabad in a time period of four months i.e. from 1st January 2018 to 30th April 2018 by using a convenient sampling technique. 350 students of MBBS (1st to 5th year) of Rawal Medical and Dental College were enrolled in this research study. A total fourteen-item close-ended questionnaire, consisting of 4 items for knowledge about dental caries (including sugar, bacteria, not brushing causes caries, benefits of fluoride on dental health), 5 for each attitude and practice (including a visit to a dental clinic for a dental checkup, and frequency of brushing, toothpaste type, brushing time, brushing methods and materials). The results of this study revealed that out of 330 medical students, 185 were female and 145 were male. Male students had significantly greater awareness about dental caries ($p < 0.05$). Most of these medical students (46%) had a tendency of visiting once a year for a dental checkup. The maximum number of medical students had once per day (60%) brushing routine in the early morning (54.2%) with toothpaste (52%) containing fluoride content. The knowledge of dental caries was found as significantly associated with the use of fluoridated dentifrice, brushing practices, brushing methods, and brushing materials ($p < 0.05$). The current study concluded that awareness and practice status of dental caries and oral hygiene in students of the medical profession was found to be satisfactory. However further oral health education programs must be carried out for the control and prevention of oral ailments and better dental hygiene among dental students.

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Keywords: Oral hygiene, Dental caries, Medical student, Attitude, Knowledge

INTRODUCTION

Oral health is taken as fundamental to general health and well-being. Knowledge related to oral health is understood to be a prerequisite for health-related behavior(1). Oral hygiene focuses on the practices that retain the mouth healthy and hygienic by brushing and flossing to prevent tooth decay and gum disease (2). A healthy mouth facilitates a person.

to talk, socialize and eat without facing any active disease, embarrassment, and distress (3, 4). Several oral disorders have significant effects on the status of general health, whereas systemic disorders may put a common effect on oral health and relate to significant pain, anxiety, and impaired social performance (5, 6). Worldwide, dental caries is considered a key public health problem due to its high

prevalence and considerable social impact in essential life activities. The microbial community of caries is varied and contains several facultative and bacteria mutans is considered to be the main etiological agent of dental caries (7). There are three factors responsible for causing dental caries; diet, bacteria, and host (8). Many studies have been carried out to detect risk indicators of dental caries to find out high-risk individuals (9). Pakistani people are less aware of oral health due to socio-economic issues and insufficient health care resources (10). In Pakistan, the oral health system is currently in a transition phase and also needs significant resources and facilities. The lack of dental awareness has a significant influence on the two most prevalent dental diseases; periodontal the highly important time period of a student's life is spent at school and college which is the place that develops their attitudes, habits, and beliefs for a lifetime (12). Organizations can play a leading role in conveying awareness of the causes and avoidance of the most prevalent oral disorders which delivers an ideal situation for encouraging good oral health activities among all age groups. The principle of risk-based management of caries in clinical education has been recommended and is part of the undergraduate curriculum in recent years (13). There are very limited studies that have collected data on knowledge of dental caries among children and health professionals, but their information is scanty with concern to medical students.

Due to the limitation of studies on attitudes and behavior about oral health among university medical students, the current

study is vital in health services. In scientific literature there is deficiency of data on knowledge, attitude and behavior about dental health among medical students. The current research study aims to evaluate the level of awareness, attitudes, and practices on dental caries and oral hygiene among medical students studying at Rawal Medical and Dental College, Islamabad.

METHODOLOGY

It was a descriptive, cross-sectional study carried out at Rawal Medical and Dental College, within a period of four months i.e. from 1st January 2018 to 30th April 2018. By using a convenient sampling technique, a self-administered standard structured questionnaire was distributed among 350 medical students studying in the Bachelor of Medicine and Bachelor of Surgery (MBBS) program to assess the knowledge of oral hygiene and dental caries, out of which 330 students of medical profession completed the questionnaire.

A total fourteen-item close-ended questionnaire, consisting of 4 items for knowledge about dental caries (including sugar causes caries, bacteria cause caries, not brushing causes caries, benefits of fluoride on dental health), 5 for each attitude and practice (including a visit on a dental clinic for a dental checkup, once in three months, only if in pain, once in years and never visited and frequency of brushing, toothpaste type, brushing time, brushing methods and materials). The questionnaire was constructed in the English language.

Only the students of basic science and clinical science studying MBBS program were included, whereas health professionals such as consultants, medical officers, paramedics, and nursing

professionals were excluded. Verbal informed consent was taken and the objective of the research study was elaborated to the participants evidently with the assurance of confidentiality.

STATISTICAL ANALYSIS

The data were explored with the help of SPSS version 16.0 statistical software. Frequency distribution was used to describe the distribution of knowledge on dental caries cases in the study sample. The Chi-square test was utilized to check for the relation between knowledge on dental caries with gender, use of fluoridated dentrifice, brushing habit, brushing method, and brushing material. The p-value was calculated as <0.05 showing statistically significant results.

RESULTS

Out of 330 medical students, 185 (56.1%) were female and 145 (43.9%) were male. Among all respondents, male respondents had more awareness than female respondents about dental caries. 78 (23.63%), 83 (25.25%) and 94 (28.48%) male respondents had knowledge about sugar, not brushing and bacteria respectively that causes caries and 58 (17.57%) had knowledge about benefits of fluoride on dental health and rest of them did not know about the subject matter. Similarly, 25 (7.57%), 33 (10%) and 24 (7.27%) female respondents were having knowledge about sugar, not brushing and bacteria respectively that causes caries and 13 (3.93%) had knowledge about benefits of fluoride on dental health and rest of them did not know about the subject matter. The results are shown in table I.

Out of the total population, 123 (37.3%) respondents had knowledge of dental

caries and among them 95 (65.5%) were male and 28 (15.1%) were female respondents. The knowledge of dental caries was found higher in males than females. At a 5% significance level the result was statistically significant (Table II).

Out of 330 respondents, 173 (52%) respondents used fluoridated dentrifice and 157 (48%) respondents not used fluoridated dentrifice.

Among the total participants, 79 (45.7%) participants had awareness about dental caries who used fluoridated dentrifice and those who did not use it had 44 (28%) awareness about dental caries. The awareness about dental caries was noted to be maximum among the respondents who utilized fluoridated dentrifice. At 5% significance level the result was statistically significant (Table II). Among all respondents, 265 (39%) respondents visited dental clinic for dental check-up, 38 (6%) were once in three months, 49 (7%) were only if in pain, 309 (46%) once in year and 12 (2%) were never visited.

Out of total respondents, 11 (3.3%), 198 (60%) and 121 (36.7%) respondents were found as brushing their tooth occasionally, once per day and twice per day respectively. Similarly, 50 (15.2%), 101 (30.6%) and 179 (54.2%) respondents were brushing their tooth before and after eating, after eating and in early morning respectively.

Among all, most of the respondents had a brushing habit once per day and brushed their teeth in the early morning.

Among the respondents, 36.4%, 37.9%, and 36.4% respondents had knowledge of dental caries with occasional, once-per-day, and twice-per-day brushing habits respectively. The awareness about

dental caries was noted to be maximum in those respondents who had brushing habit once per day. The result was not statistically significant at 5% level of significance. Similarly, 58%, 28.7% and 36.3% of participants had awareness about dental caries with before and after eating, after eating and early morning brushing time respectively. The awareness about dental caries was found to be maximum among the respondents who had before and after eating brushing habits. The result was statistically significant at 5% level of significance (Table III). Among all respondents, 265 (39%) respondents visited dental clinic for a dental checkup, 38 (6%) were once in three months, 49

(7%) were only if in pain, 309 (46%) once in year and 12 (2%) were never visited. Out of total respondents, 11 (3.3%), 198 (60%) and 121 (36.7%) respondents were found as brushing their tooth occasionally, once per day and twice per day respectively. Similarly, 50 (15.2%), 101 (30.6%) and 179 (54.2%) respondents were brushing their tooth before and after eating, after eating and in early morning respectively.

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Among the respondents, 36.4%, 37.9% and 36.4% respondents had knowledge on dental caries with occasional, once per day and twice per day brushing habit respectively. The awareness about dental caries was noted to be maximum in those respondents who had brushing habit once per day. The result was not statistically significant at 5% level of significance. Similarly, 58%, 28.7% and 36.3% of participants had awareness about dental caries with before and after

eating, after eating and early morning brushing time respectively. The awareness about dental caries was found to be maximum among the respondents who had before and after eating brushing habit. The result was statistically significant at 5% level of significance (Table III).

Among all respondents brushing method, 108 (33%) respondents followed horizontal, 64 (19%) vertical, 158 (48%) mixed methods during brushing. Similarly, 66 (20%) respondents used brush and toothpowder, 166 (50.3%) used brush and toothpaste, 52 (15.8%) used finger and tooth powder and 46 (13.9%) used dattiwan and others material for brushing.

The awareness on dental caries was revealed to be maximum among those respondents who followed vertical brushing methods and who used dattiwan and other materials during brushing. At 5% significance level the result was statistically significant (Table IV).

DISCUSSION

Oral health is a basic element of the general health of a person and has been declared a vital problem of public health with a significant social impact (14). As William Osler said mouth is the mirror of general health of human beings (15). Optimal health cannot be accomplished independent of oral health. Unhealthy oral conditions may very badly disturb general health of the population and some medical disorders may have an undesirable influence on oral health (16).

Oral diseases are more prevalent in the developing nations. In Pakistan, there is limited data available on the oral health.

status of medical students. Therefore, the present research study was focused on dental caries and knowledge regarding oral hygiene among the student of medical professionals. Knowledge acquisition regarding oral health includes complex cognitive processes: reasoning, association, learning, communication and perception of the conditions about oral health (17). It was found that the total knowledge on dental caries was higher in males than the females which were found statistically significant at a 5% level of significance ($p=0.0001$). This may be due to the knowledge of oral hygiene in males than females. The results of a Pakistani study conducted by Mehmood et al revealed that the knowledge level of 95% of students was satisfactory. Among them 47% were male and 48% were female students (18).

This study highlights that 31.2% of respondents knew that sugar causes caries, 35.2% knew that not brushing teeth causes caries, 35.8% knew that bacteria cause caries and 21.6% had knowledge about the benefits of fluoride on dental health. The knowledge of dental caries in those who used fluoridated dentifrice was 45.7% which was found statistically significant at a 5% level of significance ($p=0.001$). Fluoride has an anti-cariogenic effect that prevents caries and can even reverse the initial phases of tooth decay (19).

The present research study showed the highest number of respondents had a habit of visiting once a year for dental check-ups which indicates a negative attitude toward dental care. The results of a study conducted by Baseer et al revealed that the attitude toward visiting the dentist varied among different health professionals like 50% of technicians.

and 52.7% of nurses reported that they regularly go to the dentist for dental check-ups. In the same way it was found that 66.7% of medical students go to consult the dentist whenever they suffer from tooth ache. 54.5% of doctors and 45.8% pharmacists visited the dentist occasionally (20).

This study found that the maximum number of respondents had brushing habit once per day and also had more knowledge of caries, which was not statistically significant at a 5% level of significance ($p=0.962$). This may be due to a lack of knowledge about brushing twice a day is good for maintaining proper oral hygiene. A similar finding was also obtained in a study conducted by Baral et al [21]. In a Pakistani study conducted by Mehmood et al, it was found that 41.7% of students use to clean their teeth once, 32.2% clean twice, 17.7% of students clean their teeth three times and 8% clean their teeth more than three times a day (18).

This present study also establishes that awareness about dental caries was maximum among the respondents who had before and after eating brushing habits which were statistically significant at a 5% level of significance ($p=0.002$). In this study, the highest number of respondents followed mixed brushing methods. A study conducted by Baral et al also obtained similar findings (21). The present study also found that knowledge and awareness about dental caries were found maximum among those respondents who followed vertical brushing methods and who used dattiwan and other materials during brushing, which is statistically significant at 5% level of significance. The vertical brushing method considers manual dexterity to rotate bristles from the gums

towards and across the teeth which helps to prevent caries. Dattiwan is a stem or root of the plant which becomes brush-like after treatment and is suitable for oral hygiene (21). Although medical students have good knowledge of the benefits of dattiwan use, the practice of dattiwan was not so frequent among the students at medical college.

The current research study data showed the knowledge, awareness, attitude, and habit practice status of medical profession students which helps to achieve optimal oral health care. Further oral health education programs in schools, colleges, Universities, and communities must be arranged on regular basis for the control and prevention of oral diseases.

CONCLUSION

This study was the formal assessment of dental health knowledge and related behavior of medical students. The present study concluded that male respondents showed relatively good knowledge of oral hygiene and dental caries than female respondents which was found to be statistically significant. It is possible that females had no knowledge about dietary factors causing caries. However, carrying knowledge and awareness does not assure that it will be efficiently utilized; this requires effective campaigning within the community through various medical associations and organizations. Adequate knowledge, good behaviors, and oral hygiene practices among medical students are further suggested to be enhanced with positive attitudes, Comprehensive knowledge, and healthy behavior in relation to oral health.

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Table I. Knowledge regarding dental caries among the study population (n = 330)

Causes	Knowledge on dental caries			
	Yes		No	
	Male	Female	Male	Female
	No. (%)	No. (%)	No. (%)	No. (%)
Sugar	78 (23.63)	25 (7.57)	67 (20.30)	160 (48.48)
Not brushing	83 (25.25)	33 (10)	62 (18.78)	152 (46.06)
Bacteria	94 (28.48)	24 (7.27)	52 (15.75)	160 (48.48)
Benefits of fluoride on dental health	58 (17.57)	13 (3.93)	87 (26.36)	171 (51.81)

Table II. Association between gender, use of fluoridated dentrifice and knowledge of dental caries(n = 330)

	Knowledge on dental caries			p-value
	Yes	No	Total	
	No. (%)	No. (%)	(No)	
Gender				
Male	95 (65.5)	50 (34.5)	145	0.0001
Female	28 (15.1)	157 (84.8)	185	
Total	123 (37.3)	207 (62.7)	330	
Fluoridated dentrifice				
Used	79 (45.7)	94 (54.3)	173	0.001

Not used	44 (28.0)	113 (72.0)	157
Total	123 (37.3)	207 (62.7)	330

Table III. Association between brushing habit and knowledge of dental caries (n = 330)

Brushing habit	Knowledge on dental caries			p-value
	Yes	No	Total	
	No. (%)	No. (%)	(No)	
Occasional	4 (36.4)	7 (63.6)	11	0.962
Once per day	75 (37.9)	123 (62.1)	198	
Twice per day	44 (36.4)	77 (63.6)	121	
Before and after eating	29 (58)	21 (42.0)	50	0.002
After eating	29 (28.7)	72 (71.3)	101	
Early morning	65 (36.3)	114 (63.7)	179	

Table IV. Association between knowledge on dental caries and brushing practices (n = 330)

Brushing habit	Knowledge on dental caries			p-value
	Yes	No	Total	
	No.(%)	No.(%)	(N)	
Horizontal	26 (24.1)	82 (75.9)	108	0.002
Vertical	31 (48.4)	123 (62.1)	64	

Mixed	66 (41.8)	92 (58.2)	158	
Brushing materials				
Brush andToothPowder	29 (58)	21 (42.0)	50	0.0001
Brush andTooth Paste	29 (28.7)	72 (71.3)	101	
Finger andToothPowder	65 (36.3)	114 (63.7)	179	
Dattiwanand Others	34 (73.9)	12 (26.1)	46	