



Oral healthcare attitude among students of a medical university

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Article History

Received: 16 September 2020

Reviewed & Revised: 18/September/2020 to 14/October/2020

Accepted: 14 October 2020

E-publication: 23 October 2020

P-Publication: November - December 2020

Citation

Muhammad Zahid Iqbal, Salah-Ud-Din Khan, Muhammad Shahid Iqbal. Oral healthcare attitude among students of a medical university. *Medical Science*, 2020, 24(106), 3891-3900

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General Note



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ABSTRACT

Objective: This study determined the attitude of university students about oral healthcare practices. *Method:* A cross-sectional study was conducted to assess the attitude of university students about oral healthcare in a medical university. A self-developed and validated study tool was distributed among the study participants using a convenient stratified sampling technique. The selected participants were students from four faculties of a university. The Statistical Package for Social Science (SPSS) Version 24.0 was used

to analyze the data. *Results:* Among 324 study participants, 118 (36.4%) students were from faculty of pharmacy, 81 (25.0%) medicine, 67 (20.7%) biotechnology, and 58 (17.9%) were from business faculties. Out of a total of 324 participated students, female students were 234 (72.2%), and male students were 92 (27.8%). *Conclusion:* Overall, a good and positive attitude was observed regarding oral healthcare practices among the students.

Keywords: oral health, healthcare practices, attitude, students, university.

1. INTRODUCTION

The practice of keeping the mouth clean and free of germs and problems is known as oral hygiene (Gil-Montoya *et al.*, 2006). There are many ways to obtain good oral health, and many techniques have been proved to have a good impact on oral healthcare (Miegel and Wachtel, 2009). One of the primary practices that should be done is by brushing the teeth (Zeedyk *et al.*, 2005) regularly and precisely. Brushing of the tongue can also be done to help remove the bacteria and to freshen the breath (Scully and Felix, 2005). Use of mouth rinse or mouthwash, together with daily brushing and flossing, increase oral health (Ciancio *et al.*, 2010). Antimicrobial mouthwash further helps reduce bacteria and plaque activity, which can lead to gingivitis and gum disease (Barnett, 2006). Fluoride mouth rinses help prevent the decaying of the teeth (Horst *et al.*, 2018).

The daily diet plays a significant role in dental care (Spivack *et al.*, 2018). The consumption of unhealthy food and soft drinks leads to many oral diseases and complications (Johansson *et al.*, 2020). These diseases can permanently damage the areas on the hard surface of teeth, which cause tiny openings or holes (Siqueira and Rocas, 2019). Moreover, the periodontal disease, which is a gum disease that may lead to tooth loss and is usually observed among 15-20% of middle-aged adults (Levine and Stillman-Lowe, 2019). Another common oral illnesses are dental cavities, which affects many adults and leads to severe pain and discomfort (Do and Moon, 2020). The proper education about oral healthcare is one of the essential aspects of maintaining oral hygiene. Improper oral healthcare practices may lead to various other diseases other than oral problems (Peres *et al.*, 2019; Basheer *et al.* 2020).

Less attention or negative attitude towards oral healthcare by university students is the primary cause of the prevalence of oral health problems among them (Goodarzi *et al.*, 2019). Attitude related barriers may be due to a lack of concern towards their oral healthcare (Iqbal *et al.*, 2020). Furthermore, most of the students assume that having basic knowledge is enough to sustain and maintain good oral hygiene (Sabounchi *et al.*, 2019), but it is not the case in real oral healthcare. The present study was conducted to evaluate the attitude about oral healthcare among students in a private university in Malaysia.

2. MATERIALS AND METHODS

A cross-sectional study was conducted among university students using a self-developed and validated research tool. Stratified convenient sampling was done to determine the sample size of this research. The sample size of 350 students was decided based on the student population in the pre-final and final year students from each faculty in the study site. Students' consent was obtained prior to participation, and all aspects of the study regarding the data confidentiality of the participants were strictly followed. Data were collected from April 2018 to September 2018 using a convenience sampling technique.

The participants' responses were obtained using a 5-point Likert scale research tool. The research instrument was developed after an extensive literature review after consultations with content experts. The obtained question scores were converted into a percentage form to ease the data interpretation.

Statistical analyses

Data analyses and calculations were carried out using Statistical Package for Social Science (SPSS) version 24.0. Frequencies with percentages were calculated for the categorical variables, and means with standard deviations were calculated for the continuous variables.

3. RESULTS

There was a total of 324 university students were recruited to participate in the study. The students were from four faculties. There were 118 (36.4%) students from pharmacy, 81 (25.0%) medicine, 67 (20.7%) biotechnology and 58 (17.9%) from business faculties. Table 1 also presents the demographic characteristics of the students involved in the present study. Out of a total of 324 participated students, female students were more than male students. There were 234 (72.2%) female students and 92 (27.8%) male students.

Table 1 Demographic details of participated students (N =324)

Characteristics	N	%
Year of study		
Pre-final	169	52.2
Final	155	47.8
Place of living		
Hosteller	216	66.7
Non-Hosteller	108	33.3
Gender		
Male	90	27.8
Female	234	72.2
Marital status		
Single	322	99.4
Married	2	0.6
Race		
Malay	8	2.4
Chinese	231	71.3
Indian	82	25.4
Others	3	0.9

Students from different age groups participated in the study. Out of total of studied students, < 20 years students were 32 (9.9%), 21-25 were 281 (86.7%) and > 25 were 11 (3.4%). Table 2 presents various questions used to evaluate the attitude of the study participants.

Table 2 Attitude questions regarding oral healthcare

No.	Questions
1	I believe changing toothbrushes regularly is imperative in acquiring appropriate oral healthcare.
2	In my opinion, it is vital to brush teeth before breakfast.
3	I believe brushing teeth before night-sleeping is significantly essential.
4	I believe hard bristles toothbrush cleans teeth more effectively and efficiently.
5	I do not mind sharing my toothbrush with my family or/and friends.

Table 3 & figure 1 presents the responses for the first question and their association with the demographic information of the study participants.

Table 3 Response to question 1(N (%))

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	p-Value
Faculty						
Pharmacy	0 (0.0)	1 (0.8)	4 (3.4)	53 (44.9)	60 (50.6)	0.027*
Medicine	1 (1.2)	2 (2.5)	3 (3.7)	42 (51.9)	33 (40.7)	
Biotechnology	0 (0.0)	0 (0.0)	2 (3.0)	25 (37.3)	40 (59.7)	
Business	0 (0.0)	3 (5.2)	4 (6.9)	17 (29.3)	34 (58.6)	
Year						
Pre-final	0 (0.0)	5 (3.0)	6 (3.6)	72 (42.6)	72 (42.6)	0.329
Final	1 (0.6)	1 (0.6)	7 (4.5)	65 (41.9)	65 (41.9)	
Place						
Hosteller	1 (0.5)	4 (1.9)	4 (1.9)	101(46.8)	106(49.1)	0.052
Non-Hosteller	0 (0.0)	2 (1.9)	9 (8.4)	36 (33.6)	60 (56.1)	

Gender						
Male	0 (0.0)	1 (1.1)	4 (4.5)	47 (52.8)	37 (41.6)	0.067
Female	1 (0.4)	5 (2.1)	9 (3.8)	90 (38.5)	129(55.1)	
Age (Years)						
18-20	1 (3.1)	0 (0.0)	3 (9.4)	12 (37.5)	16 (50.0)	0.218
21-25	0 (0.0)	6 (2.1)	9 (3.2)	122(43.4)	144(51.2)	
>25	0 (0.0)	0 (0.0)	0 (0.0)	3 (30.0)	7 (70.0)	
Marital Status						
Single	1 (0.3)	5 (1.6)	13 (4.0)	136(42.2)	167(51.9)	0.119
Married	0 (0.0)	1 (50.0)	0 (0.0)	1 (50.0)	0 (0.0)	
Race						
Malay	0 (0.0)	0 (0.0)	1 (12.5)	2 (25.0)	5 (62.5)	0.491
Chinese	1 (0.4)	6 (2.6)	9 (3.9)	99(42.9)	116(50.2)	
Indian	0 (0.0)	0 (0.0)	3 (3.7)	34 (41.5)	45 (54.9)	
Others	0 (0.0)	0 (0.0)	0 (0.0)	2 (66.7)	1 (33.3)	

* Significant at $p < 0.05$

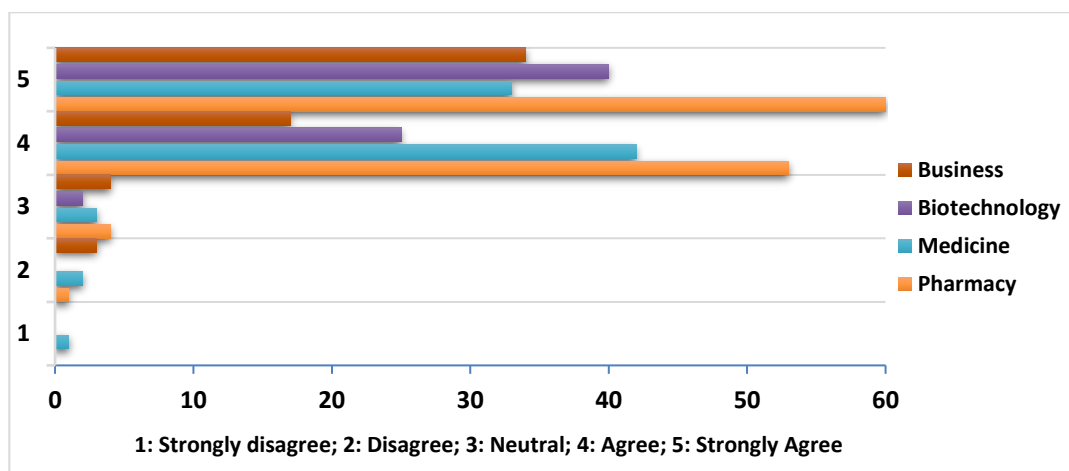


Figure 1 Difference in attitude regarding OHC in faculty

Table 4 and figure 2 illustrates the second question responses according to the demographic information of the study participants.

Table 4 Response to question 2(N (%))

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	<i>p</i> -Value
Faculty						
Pharmacy	0 (0.0)	1 (0.8)	9 (7.6)	47 (39.8)	61 (51.7)	0.111
Medicine	0 (0.0)	3 (3.7)	8 (9.9)	37 (45.7)	33 (40.7)	
Biotechnology	0 (0.0)	0 (0.0)	4 (6.0)	20 (29.9)	43 (64.2)	
Business	1 (1.7)	0 (0.0)	6 (10.3)	12 (20.7)	39 (67.2)	
Year						
Pre-final	1 (0.6)	0 (0.0)	14 (8.3)	70 (41.4)	84 (49.7)	0.619
Final	0 (0.0)	4 (2.60)	13 (8.4)	46 (29.7)	92 (59.4)	
Place						
Hosteller	1 (0.5)	2 (0.9)	13 (6.0)	85 (39.4)	115(53.2)	0.711
Non-Hosteller	0 (0.0)	2 (1.9)	13(12.1)	31 (29.0)	61(57.0)	
Gender						
Male	0 (0.0)	1 (1.1)	12 (13.5)	34 (38.2)	42 (47.2)	0.381

Female	1 (0.4)	2 (1.3)	15 (6.4)	82 (35.0)	133(56.8)	
Age						
18-20	0 (0.0)	1 (3.1)	2 (6.2)	10 (31.2)	19 (59.4)	0.028*
21-25	1 (0.4)	3 (1.1)	24 (8.5)	102(36.3)	151(53.7)	
>25	0 (0.0)	0 (0.0)	1 (10.0)	3 (30.0)	6 (60.0)	
Marital Status						
Single	1 (0.3)	4 (1.2)	27 (8.4)	115(35.7)	175(54.3)	0.052
Married	0 (0.0)	0 (0.0)	0 (0.0)	1 (50.0)	1 (50.0)	
Race						
Malay	0 (0.0)	0 (0.0)	0 (0.0)	5 (62.5)	3 (37.5)	0.062
Chinese	1 (0.4)	4 (1.7)	19 (8.2)	93 (39.8)	115(49.8)	
Indian	0 (0.0)	0 (0.0)	7 (8.5)	18 (22.0)	57 (69.5)	
Others	0 (0.0)	0 (0.0)	1 (33.3)	1 (33.3)	1 (33.3)	

* Significant at $p < 0.05$

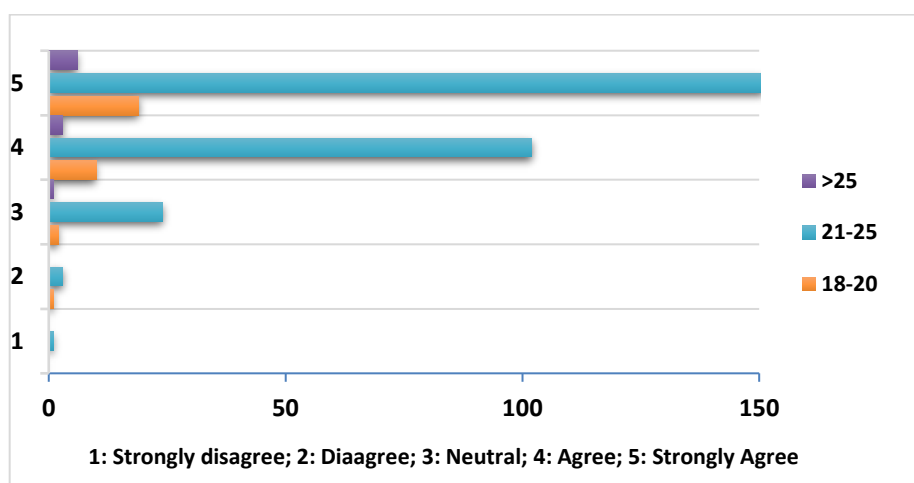


Figure 2 Difference in attitude regarding OHC in age

Table 5 and figure 3 illustrate the students' responses to the third question according to the demographic information of the study participants.

Table 5 Response to question 3(N (%))

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	p-Value
Faculty						
Pharmacy	0 (0.0)	0 (0.0)	0 (0.0)	45 (38.1)	73 (61.9)	0.053
Medicine	2 (2.5)	0 (0.0)	0 (0.0)	37 (45.7)	36 (44.4)	
Biotechnology	0 (0.0)	0 (0.0)	0 (0.0)	21 (31.3)	46 (68.7)	
Business	0 (0.0)	3 (5.2)	3 (5.2)	17 (29.3)	35 (60.3)	
Year						
Pre-final	1 (0.6)	3 (1.8)	5 (3.0)	58 (34.3)	102(60.4)	0.711
Final	1 (0.6)	0 (0.0)	4 (2.6)	62 (40.0)	88 (56.8)	
Place						
Hosteller	2 (0.9)	1 (0.5)	3 (1.4)	79 (36.6)	131(60.5)	0.510
Non-Hosteller	0 (0.0)	2 (1.9)	6 (5.6)	41 (38.3)	58 (54.2)	
Gender						
Male	0 (0.0)	0 (0.0)	5 (5.6)	38 (42.7)	46 (51.7)	0.811
Female	2 (0.9)	3 (1.3)	4 (1.7)	82 (35.0)	143(61.1)	

Age						
18-20	1 (3.1)	1 (3.1)	0 (0.0)	12 (37.5)	18 (56.2)	0.361
21-25	1 (0.4)	2 (0.7)	9 (3.2)	103(36.7)	166(59.1)	
>25	0 (0.0)	0 (0.0)	0 (0.0)	4 (40.0)	6 (60.0)	
Marital Status						
Single	2 (0.6)	2 (0.6)	6 (2.8)	119(37.0)	190(59.0)	0.029*
Married	0 (0.0)	1 (50.0)	0 (0.0)	1 (50.0)	0 (0.0)	
Race						
Malay	0 (0.0)	0 (0.0)	0 (0.0)	4 (50.0)	4 (50.0)	0.071
Chinese	2 (0.9)	3 (1.3)	5 (2.2)	80 (34.6)	141(61.0)	
Indian	0 (0.0)	0 (0.0)	3 (3.7)	35 (42.7)	44 (53.7)	
Others	0 (0.0)	0 (0.0)	1 (33.3)	1 (33.3)	1 (33.3)	

* Significant at $p < 0.05$

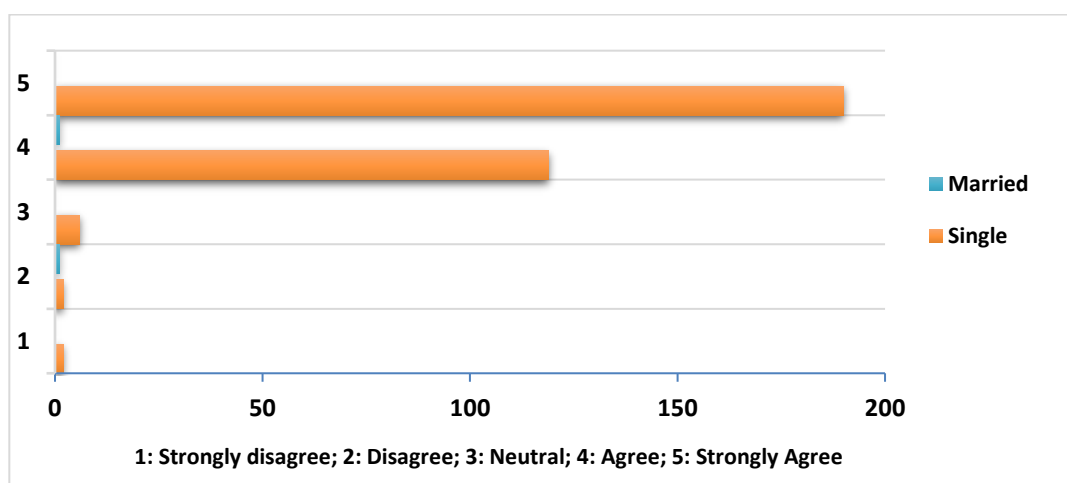


Figure 3 Difference in attitude regarding OHC in marital status

Table 6 and figure 4 illustrates the fourth question responses according to the demographic information of the study participants.

Table 6 Response to question 4(N (%))

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	p-Value
Faculty						
Pharmacy	11 (9.3)	40 (33.9)	44 (37.3)	19(16.1)	4 (3.4)	0.119
Medicine	4 (4.9)	30 (37.0)	26 (32.1)	17(21.0)	4 (4.9)	
Biotechnology	4 (6.0)	20 (29.9)	29 (43.3)	9 (13.4)	5 (7.5)	
Business	2 (3.4)	8 (13.8)	16 (27.6)	9 (15.5)	23 (39.7)	
Year						
Pre-final	15 (8.9)	52 (30.8)	65 (38.5)	29(17.2)	8 (4.7)	0.172
Final	6 (3.9)	46 (29.7)	50 (32.3)	25(16.1)	28 (18.1)	
Place						
Hosteller	18 (8.3)	69 (31.9)	80 (37.0)	32(14.8)	17 (7.9)	0.041*
Non-Hosteller	3 (2.8)	28 (26.2)	35 (32.7)	22(20.6)	19 (17.8)	
Gender						
Male	8 (9.0)	23 (25.8)	32 (36.0)	16(18.0)	10 (11.2)	0.069
Female	12 (5.1)	75 (32.1)	83 (35.5)	38(16.2)	26 (11.1)	
Age						0.055

18-20	2 (6.2)	7 (21.9)	15 (46.9)	5 (15.6)	3 (9.4)	
21-25	18 (6.4)	86 (30.6)	98 (34.9)	46(16.4)	33 (11.7)	
>25	1 (10.0)	4 (40.0)	2 (20.0)	3 (30.0)	0 (0.0)	
Marital Status						
Single	21 (6.5)	98 (30.4)	114(35.4)	53(16.5)	36 (11.2)	0.067
Married	0 (0.0)	0 (0.0)	1 (50.0)	1 (50.0)	0 (0.0)	
Race						
Malay	1 (12.5)	3 (37.5)	3 (37.5)	1 (12.5)	0 (0.0)	0.077
Chinese	18 (7.8)	70 (30.3)	84 (36.4)	32(13.9)	27 (11.7)	
Indian	2 (2.4)	25 (30.5)	26 (31.7)	20(24.4)	9 (11.0)	
Others	0 (0.0)	0 (0.0)	2 (66.7)	1 (33.3)	0 (0.0)	

* Significant at $p < 0.05$

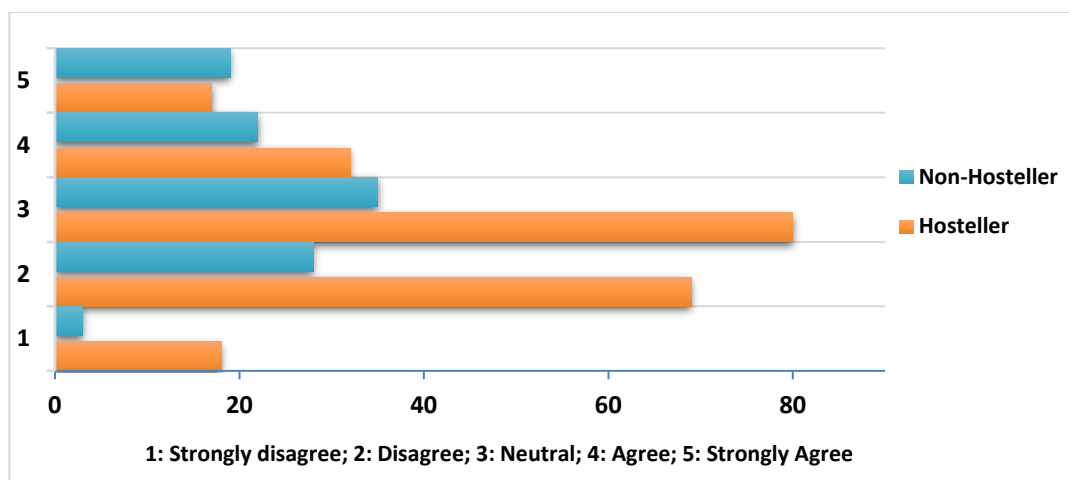


Figure 4 Difference in attitude regarding OHC in place

Table 7 and figure 5 denotes the response of the fifth question and the demographic information of the study participants.

Table 7 Response to question 5(N (%))

Variables	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	<i>p</i> -Value
Faculty						
Pharmacy	81 (68.6)	25 (21.2)	6 (5.1)	4 (3.4)	2 (1.7)	0.115
Medicine	45 (55.6)	15 (18.5)	8 (9.9)	10(12.3)	3 (3.7)	
Biotechnology	45 (67.2)	10 (14.9)	7 (10.4)	2 (3.0)	3 (4.5)	
Business	25 (43.1)	4 (6.9)	6 (10.3)	5 (8.6)	18 (31.0)	
Year						
Pre-final	112(66.3)	30 (17.8)	17(10.1)	9 (5.3)	1 (0.6)	0.054
Final	84 (54.2)	24 (15.5)	10 (6.5)	12 (7.7)	25 (16.1)	
Place						
Hosteller	133(61.6)	40 (18.5)	17 (7.9)	18 (8.3)	8 (3.7)	0.055
Non-Hosteller	62 (57.9)	14 (13.1)	10 (9.3)	3 (2.8)	18 (16.8)	
Gender						
Male	54 (60.7)	10 (11.2)	8 (9.0)	12(13.5)	5 (5.6)	0.387
Female	141(60.3)	44 (18.8)	19 (8.1)	9 (3.8)	21 (9.0)	
Age						
18-20	17 (54.1)	7 (21.9)	3 (9.4)	2 (6.2)	3 (9.4)	0.311
21-25	174(61.9)	44 (15.7)	23 (8.2)	17 (6.0)	23 (8.2)	
>25	5 (50.0)	2 (20.0)	1 (10.0)	2 (20.0)	0 (0.0)	

Marital Status						
Single	196(60.9)	54 (16.8)	26 (8.1)	20 (6.2)	26 (8.1)	0.006
Married	0 (0.0)	0 (0.0)	1 (50.0)	1 (50.0)	0 (0.0)	
Race						
Malay	5 (62.5)	0 (0.0)	2 (25.0)	1 (12.5)	0 (0.0)	0.018*
Chinese	140(60.6)	41 (17.7)	17 (7.4)	13 (5.6)	20 (8.7)	
Indian	49 (59.8)	13 (15.9)	8 (9.8)	6 (7.3)	6 (7.3)	
Others	2 (66.7)	0 (0.0)	0 (0.0)	1 (33.3)	0 (0.0)	

* Significant at $p < 0.05$

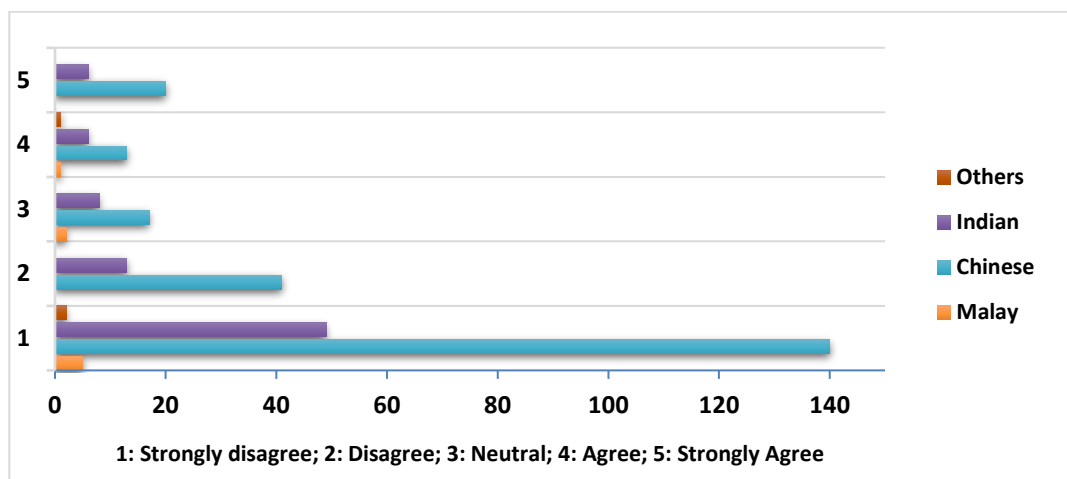


Figure 5 Difference in attitude regarding OHC in race

4. DISCUSSION

The current study was novel by its nature in Malaysia that evaluates the attitude of university students belong to different faculties in a private university. The results of the current study disclosed most of the university students presented a positive attitude about oral health. The majority of the students answered strongly agrees and agree as compared to the other options given when the question was asked about the belief in changing toothbrushes regularly to maintain oral hygiene. The response to the question about the changing of toothbrush showed that the biotechnology students had a more positive attitude (59.7%) as compared with the other healthcare faculty students. This indicates that this variable had no relationship with the attitude towards the oral health of the respondents. In other words, a positive attitude does not have any relation to disease-related knowledge. The justification was supported by a study conducted by Yao and colleagues (Yao *et al.*, 2019). The results related to the changing of the toothbrush are supported by another study conducted in Saudi Arabia, according to which the knowledge does not have any impact on a positive attitude towards oral health among university students (Mustafa *et al.*, 2017).

The response from the respondents to question about brushing their teeth before breakfast showed that the majority of the respondents answered strongly agree and fewer respondents answered strongly disagree. Faculty of business (68.7%) and Chinese ethnicity (61.0%) showed a more positive response as compared with the other variables in the current study. The possible reason could be the difference in the number of students under these two categories. The results of the present study were also in line with the study conducted in Malaysia by Iqbal and colleagues (Iqbal *et al.*, 2020). The results of the current study about the brushing of teeth before breakfast are also supported by another study conducted in the UAE in 2019 (Abu-Gharbieh *et al.*, 2019). The response to the question about brushing before sleeping answered by the majority of respondents with the option strongly agreed. Only a few respondents presented a negative attitude about the question of the brushing at night. The possible reason behind could be the positive thinking of respondents about their oral health. All of the respondents were worried about their oral health that was the reason for showing a positive attitude toward the question. The similar results and findings among the university students were reported by a study conducted in Malaysia (Law *et al.*, 2020). The cited study also showed the positive practice and attitude toward oral health by the students.

The response about the belief of hard bristles toothbrush cleaning the teeth more effectively and efficiently by the respondents showed a neutral attitude. The majority of the students were not sure about the type of toothbrush, which can clean the tooth more precisely. The results about the kind of toothbrush were well supported by a study conducted in Saudi Arabia (Linjawi *et al.*, 2019),

according to which more of the respondents were not having proper awareness about the type of toothbrush should be used. The response from the respondents to questions about the sharing of a toothbrush with their friends or family members showed that most respondents did not pick the strongly agree option, and the majority decided on the strongly disagree option. The results of the current study on this question showed that the majority of the respondents had appropriate knowledge about the sharing of toothbrushes with their friends and family members. The possible reason behind this could be the proper knowledge of the students about this question of the study. They all knew that the sharing of a toothbrush with anyone should be discouraged. The results of the current study were supported by the studies conducted in various parts of the world i.e., Malaysia (Al-Tayar *et al.*, 2019), Egypt (Al-wesabi *et al.*, 2019), and in China (Yao *et al.*, 2019).

5. CONCLUSION

Overall the present study reported an appealing and positive attitude of the studied cohort of the students of different faculties of a private university in Malaysia. This study was novel among its type as there was no earlier study conducted among a private university in Malaysia to determine the attitude of the university students about oral health.

Acknowledgment

The authors would like to thank the Deanship of Scientific Research at Prince Sattam bin Abdulaziz University, Alkharj, Saudi Arabia, for the support in the publication of this manuscript. The authors would also like to express their sincere gratitude to all of the participants involved in this study in any capacity.

Conflicts of interest

The authors declare that there are no conflicts of interest.

Ethical approval

The ethical committee approval code of the study was AUHEC/FOP/2018/21

Funding

This study had not received any external funding.

Data and materials availability

All data associated with this study are present in the paper.

Peer-review

External peer-review was done through double-blind method.

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