



Research Article

KNOWLEDGE, ATTITUDE AND PRACTICE REGARDING ORTHODONTIC TREATMENT AMONG MEDICAL STUDENTS OF A TEACHING HOSPITAL BIRGUNJ NEPAL

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Abstract

Introduction: Malocclusion affects the overall lifestyle of individuals due to its psychological impact. It also disturbs the individual while eating, talking, and esthetics. Since medical students are the key health personnel to disseminate the correction information regarding orthodontic treatment but the evidence on the knowledge, attitude and practice regarding orthodontic treatment among them is lacking. **Objective:** To find out the knowledge, attitude and practice regarding orthodontic treatment among first, second and third year undergraduate medical students and to measure the relationship between knowledge, attitude and practice score among Medical students. **Method:** A descriptive cross sectional, questionnaire-based survey was carried out among 198 undergraduate medical students enrolled from first year to third year at selected medical college in Birgunj in Nepal. The data were collected using pretested self administered structured questionnaire. Both descriptive (frequency, percentage) and inferential statistics (Pearson correlation test) were used to analyze data in SPSS vs25. **Results:** The study findings revealed that medical students had good knowledge about adverse effect of malalignment, positive attitude towards orthodontic treatment except retainer wear (35.9%). The response to practice of orthodontic treatment was encouraging for the orthodontist but majority (51.1%) of the respondents denied the extraction of the healthy teeth for orthodontic treatment. The findings also showed that there is significant relationship between knowledge and attitude score ($p=0.001$), knowledge and practice score ($p=0.001$) as well as attitude and practice score ($p=0.015$). **Conclusion:** The study findings reveal good knowledge about malalignment of teeth and its causes but had negative attitude towards retainer wear after completion of treatment. So, to improve the knowledge, develop positive attitude and enhance correct practice among undergraduate students, educational institution can play a vital role by considering the dissemination of correct knowledge regarding orthodontic treatment.

Keywords: Attitude, Knowledge, Medical students, Orthodontic Treatment, Practice.

INTRODUCTION

Malocclusion is a common problem in the community and its prevalence is comparable to dental caries, periodontal diseases (Dhar *et al.*, 2007). It is caused due to various environmental and genetic factors. Malocclusion affects the overall lifestyle of individuals due to its psychological impact. It also disturbs the individual while eating, talking, and esthetics (Proffit and Fields, 2000). It affects not only the appearance of a person but also impacts their emotional, physical, psychological, and social life aspects (Meer *et al.*, 2016). These problems can be overcome by undergoing orthodontic treatment to live a normal healthy life but without any sense of deprivation. Undergoing orthodontic treatment depends mainly on the attitude of the person towards orthodontic treatment. Esthetical awareness has increased, courtesy the interactions among people through social media, notwithstanding the fact that a shred of misperception about orthodontic treatment still persists in the populations, though in varying degrees. The patient compliance and the treatment outcome depend mainly on the patient's attitude towards orthodontics. This necessitates the orthodontists to know the patients' attitude as well as their knowledge about their dental problems and the solutions. This in turn will help the orthodontists to make better treatment plan and execute the better treatment, without any setbacks.

It is nowadays above board in a totally demystified form that the expectations and wishes of patients can be satiated more efficiently only when the doctor is aware about the same and more so when he/she is open enough to discuss without any reservation and shyness both the possible and the impossible aspects related to the desires of the patients (Bell *et al.*, 2002). There are quite a good number of factors which have a collateral bearing on encouragement as well as discouragement and disappointment of people regarding undergoing orthodontic treatment. In a number of studies previously conducted, treatment charges are the main discouraging factor for utilization of orthodontic treatment. Apprehension of pain, time-consuming process, and lack of interest are other underlying reasons for the negative attitude of patients towards orthodontic treatment (Bailwad *et al.*, 2015). Abdellatif and Al-Emran (2005) found that majority of the individual (92%) felt that correct occlusion is quite important. Esthetics, self-confidence, and proper tooth function in eating were considered as the main motivating factors for uptake of orthodontic treatment. Various studies have been carried out previously by many researchers on the patients' views, compliance, knowledge, attitude, and practice towards orthodontic treatment, but the studies involving medical students are scarce. So, the study attempted to find out the knowledge, attitude and practice regarding orthodontic treatment among first, second and third year Medical students and to measure the relationship between knowledge, attitude and practice score among Medical students.

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METHODS

A descriptive cross-sectional design was adopted for the study. The study was conducted at National Medical College Teaching Hospital, Birgunj, Nepal among first, second, and third year undergraduate medical students who were available during the data collection period. Ethical approval was taken from Institutional Review Committee of National Medical College to conduct the study (Reference number: F-NMC/519/077-078). The minimum sample size was estimated using the formula, $n = z^2 pq / l^2$. With proportion of knowledge on orthodontic treatment duration being 85% (Shrestha *et al.*, 2014) the minimum sample size was 196. However for equal participation from each year, a total of 198 Medical students (66 from each first year, second year and third year) were selected by using non proportionate stratified random sampling technique who met the set inclusion criteria. The students who were undergoing orthodontic treatment were excluded from the study. Before data collection, self introduction, study purposes and objectives were explained to the participants. Written informed consent was obtained from each study participants. Data were collected by using pretested semi-structured self-administered questionnaire from 25th January 2021 to 27th January 2021 which consisted of two parts. The questionnaire was prepared after review of relevant literatures. First portion included the questions related to the demographic information of participants, such as age, gender, religion and educational qualification. The other part of the questionnaire comprised of 25 questions wherein six questions were related to the attitude, while others was related to knowledge and practice of students towards orthodontic treatment. A 3-point Likert scale was used to assess the attitude of the respondents which included three responses (agree, disagree, and undecided). Respondents were asked to indicate their level of agreement to a given statement by choosing one of the three response categories. Scoring is done as agree 3, undecided 2 and disagree 1. Negatively worded items are scored in reverse manner.

Higher the score higher would be favorable attitude. Multiple choice questions with three responses (yes, no, don't know) was used to assess the knowledge and practice of respondents. Each correct response was given a score of 1 and incorrect response was scored as 0. The tool was returned to the researchers by the students immediately after responding within half an hour. The collected data were entered, cleaned and analyzed in SPSS (Statistical Package for Social Sciences) version 25. Descriptive statistics including frequency and percentage and inferential statistics was computed to find out the relationship between knowledge, attitude and practice score.

RESULTS

The findings of the study revealed that the age of the respondents ranged from 18 years to 27 years. The mean age of the respondents was 21.23 years. More than half of the respondents 53.5% were male. Similarly, majority of the respondents 93.9% belonged to Hindu religion. Likewise, 33.33% of the respondents were from each first, second and third year respectively. Regarding knowledge, the study findings revealed that, 61.1% of the respondent had heard about the term malalignment of teeth and 90.9% of the respondent knew that dental checkup and treatment of malalignment is essential in early childhood and adolescent. Also, 69.2% of the respondent of present study thought orthodontic treatment to be expensive (Table 1). Data presented in Table 2 shows the attitude of respondents regarding orthodontic treatment, which illustrates that 61.6% of the respondent disagreed that people wearing braces do not look good. Majority (69.2%) of the respondent thought orthodontic treatment to be expensive. Regarding practice, 74.8% of the respondents were willing to undergo orthodontic treatment despite the orthodontic treatment take 1-2 years duration but 51.1% of the respondents were reluctant for extraction of healthy teeth for orthodontic treatment (Table 3).

Table 1. Knowledge of the Respondents regarding Orthodontic Treatment

Knowledge	Correct responses	
	Frequency	Percentage
Irregularly placed tooth in arch is malalignment of teeth	121	61.1%
Heredity influence the occurrence of malalignment of teeth	92	46.5%
Habits such as thumb sucking, tongue thrusting, and mouth breathing cause malalignment of teeth	73	36.9%
Malaligned teeth affect appearance	179	90.4%
Malaligned teeth affect chewing ability	139	70.2%
Malaligned teeth affect speech	87	43.9%
Malaligned teeth affect oral hygiene	134	67.7%
Dental checkup and treatment of malalignment is essential in early childhood and adolescent.	180	90.1%
Heard about the orthodontic treatment	166	83.8%
Orthodontic treatment is carried out by braces on teeth	137	69.2%
Teeth and jaw irregularities can be corrected by braces	170	85.9%
Orthodontic treatment cause tooth/teeth movement	113	57.1%
Orthodontic treatment outcomes affect the patient's social and personal life	110	55.6%
Orthodontic treatment is expensive.	137	69.2%

Table 2. Attitude of the Respondents regarding Orthodontic Treatment

Attitude	n =198		
	Agree F (%)	Undecided F (%)	Disagree F (%)
People who wear braces do not look good.	55(27.8)	21(10.6)	122(61.6)
Patients undergoing orthodontic treatment use special cleaning aids, such as orthodontic brushes, interdental brushes, and mouthwashes	155(78.3)	25(12.6)	18(9.1)
Brackets/wires may break due to the carelessness of patients.	164(82.8)	19(9.6)	15(7.6)
Orthodontic treatment is of long duration	137(69.2)	38(19.2)	23(11.6)
If a patient discontinues the orthodontic treatment midway, his/her problem will worsen.	111(56.1)	47(23.7)	40(20.2)
After accomplishment of the orthodontic treatment, the patient needs to wear a retainer.	71(35.9)	84(42.4)	43(21.7)

Table 3. Practice of the Respondents regarding Orthodontic Treatment

Practice	Correct Response	
	Frequency	percentage
Undergo treatment, If the correction of malaligned teeth extends for duration of around 1-2 years.	148	74.8%
Agree for the removal of healthy teeth, if some teeth have to be removed in the course of your treatment of malaligned teeth.	96	48.9%
Wear additional appliances, If the doctor instructs you to wear an additional appliance during your treatment.	184	92.9%
Wear the appliance, If the doctor instructs you to wear an appliance for additional 6 months to 1 year even after the completion of your treatment.	149	75.2%
Still continue treatment, If you experience slight pain, ulcerations, or some discomfort during the treatment for malalignment.	111	56.1%

Data presented in Table 4, 5 and 6 shows that there is significant relationship between knowledge and attitude score ($p=0.001$), knowledge and practice score ($p=0.001$) as well as attitude and practice score ($p=0.015$).

Table 4. Relationship between Knowledge and Attitude Score

n=198			
Variables	Mean±SD	Pearson r	P value
Knowledge score	9.24±2.348	0.231**	0.001
Attitude score	14.86±1.774		

**significant at 0.05 and 0.01 level

Table 5. Relationship between Knowledge and Practice Score

n=198			
Variables	Mean±SD	Pearson r	P value
Knowledge score	9.24±2.348	0.235**	0.001
Practice score	3.47±1.249		

**significant at 0.05 and 0.01 level

Table 6. Relationship between Attitude and Practice Score

n=198			
Variables	Mean±SD	Pearson r	P value
Attitude score	14.86±1.774	0.172*	0.015
Practice score	3.47±1.249		

*significant at 0.05 level

DISCUSSION

In the present study, only 61.1% of the respondent had heard about the term malalignment of teeth which is much less than the study conducted in Mumbai among general population by Mehta *et al.* (2020) (88.4%) and nearly in accordance to the finding by Shekar *et al.* (2017) (65.8%). This might be due to lack of awareness about the aesthetic and malalignment of teeth. 46.5% of the respondents agreed that malalignment of teeth is hereditary which is higher than the study conducted among high school students in Kathmandu by Dhakal *et al.* (2019) (28.86%), Soni *et al.* (2014) (15%), Essamet, Darout (2012) (36.8%), 67.7% of the respondent thought that malalignment of teeth affects oral hygiene which is less than the finding by Mehta *et al.* (2020) (76.5%), more than the finding by Dhakal *et al.* (2019) (62.71%). In the present study, 90.9% of the respondent believed that dental checkup and treatment of malalignment is essential in early childhood and adolescent which is almost in accordance to the finding by Mehta *et al.* (2020) (87.8%), more than the finding by Dhakal *et al.* (2019) (81.86%) and this might be attributed to the difference in level of education and lack of awareness about malalignment of teeth. 85.9% of the respondent in present study were of the view that malalignment of teeth can be carried out by using braces which is in accordance with the finding by Shrestha *et al.* (2014) (85.3%). 69.2% of the respondent of present study thought orthodontic treatment to be expensive which is more than the finding by Dhakal *et al.* (2019) (49.29%) and in accordance with finding by Shrestha and Shrestha (2015) (68.5%) and it might be due to age

difference of the respondent as adult patients pay their treatment bill by themselves. In the present study, 61.6% of the respondent disagreed that people wearing braces do not look good which is more than the finding by Almoammar *et al.* (2017) (45.3%), Shrestha *et al.* (2014) (49.3%) and is in accordance with finding by Bailwad *et al.* (2015) (62%). The eagerness to achieve pleasing appearance and more concern about the personality might be the reason to ignore the presence of braces in the mouth. In the present study, 78.3% of the respondent agreed that patients undergoing orthodontic treatment use special cleaning aids such as interdental brushes, orthodontic brushes, mouthwashes which is less than the finding by Almoammar *et al.* (2017) (96%), more than the finding by Shrestha and Shrestha (2015) (61.2%). 69.2% of the respondent agreed that orthodontic treatment is of long duration which is in accordance with the study finding of Shrestha *et al.* (2014) but with higher percentage (85.6%), Almoammar *et al.* (2017) (73%). It will compel the orthodontist to incorporate recent advances in orthodontic materials and techniques in order to shorten the duration of orthodontic treatment. The majority (74.7%) of the respondents were ready to undergo orthodontic treatment even though the correction of malaligned teeth extends for duration of around 1-2 years, which is higher than the finding by Dhakal *et al.* (2019) (52.57%), Mehta *et al.* (2020) (65.6%), in accordance with the finding by Essamet, Darout (2017) (78.9%) and higher than the finding by Shekar *et al.* (2017) (40.4%). This is encouraging for the orthodontist as medical students are the future health practitioner of the society. Only 48.5% of the respondents were ready to undergo orthodontic treatment if some healthy teeth had to be removed in the course of treatment of malaligned teeth which is in accordance with the study finding by Dhakal *et al.* (2019) (46.86%), Mehta *et al.* (2020) (52.6%). This is because of fear to needle and the extraction procedure that prevail in our society. 75.3% of the respondents were in agreement to wear an appliance (retainer) for additional 6 months to 1 year even after the completion of the treatment if advised by the orthodontist which has higher positive response than the study finding by Dhakal *et al.* (2019) (57.14%), Shrestha *et al.* (2014) (45.7%).

In the present study, only 56.1% of the respondents agreed to undergo orthodontic treatment if they experienced slight pain, ulcerations, or some discomfort during the treatment for malalignment which is in accordance with the study finding by Dhakal *et al.* (2019) (53.46%). The society belief about the health care professional to have attractive appearance and personality might have dragged the respondent to forget about the pain and discomfort due to braces and wires. The present study findings also revealed that there is significant relationship between knowledge and attitude score ($p=0.001$), knowledge and practice score ($p=0.001$) as well as attitude and practice score ($p=0.015$). This signifies that the knowledge, attitude and practice are directly proportional to each other indicating that if knowledge increases attitude will also be

positive, similarly if knowledge increases practice also increases and if attitude is positive practice also increases. This shows the need for improvement in orthodontic treatment knowledge, attitude and practice among medical students. The improved level of orthodontic treatment knowledge will help in attainment of good oral health of medical students which will be beneficial for improving the quality of life as well as providing the correct education and information to the patients seeking orthodontic treatment. This finding is in consistent with the study done on dental students and dental surgeons (Agrawal, 2018) that showed dental students had good knowledge about the orthodontic treatment and had a positive attitude towards it. Also it is consistent with the study findings (Essamet and Darout, 2017) which show the significant association between communication and knowledge of orthodontic treatment in orthodontic patients.

Conclusion

Medical students had good knowledge about malalignment of teeth and its adverse effect on appearance, chewing etc. but had negative attitude towards retainer wear after completion of treatment. The findings also signify that knowledge, attitude and practice are directly propositional to each other and show the need for improvement regarding orthodontic treatment knowledge, attitude and practice among the medical students.

Clinical significance

The assessment of the knowledge, attitude and practice of medical students towards orthodontic treatment would be beneficial to motivate the community people for orthodontic treatment as they are the primary health care provider in the community.

Conflict of Interest: None

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