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Knowledge, Attitude and Practice of Patients Visiting Dental Department of Hetauda Hospital Towards Orthodontic Treatment

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ABSTRACT

Background

There are insufficient studies to assess knowledge, attitude, and practice (KAP) towards orthodontic treatment in general patients visiting dental treatment in government hospitals, although the studies have been done in high school students and orthodontic patients. The objective of this study was to assess the KAP of patients towards orthodontic treatment.

Methods

In this cross-sectional study, data from 400 patients visiting dental department of Hetauda Hospital were collected. The data was collected through the structured questionnaire. A 3-point Likert scale was used to assess the degree of KAP of patients towards orthodontic treatment. Descriptive statistics including frequency, percentage, and mean for Likert scale were calculated.

Results

All the patients had a good degree of knowledge except heredity and habits such as thumb sucking, tongue thrusting, and mouth breathing influence the occurrence of malalignment of teeth (moderate degree of knowledge). Also, all the patients had a good degree of attitude and practice towards orthodontic treatment.

Conclusions

The data was encouraging as the patients had a good degree of KAP towards orthodontic treatment.

Keywords: attitude; knowledge; orthodontic treatment; practice.

INTRODUCTION

Malocclusion has a prevalence of 20% to 100%.[1,2] Almost 19.4% of the patients visiting the teaching hospital are in definite or extreme need of orthodontic treatment in Nepal.[3,4,5] The degree of knowledge, attitude, and practice (KAP) towards orthodontic treatment also serves as a guideline for facilitating the orthodontist in educating potential patients in providing advice and also provide with their views towards the expectations of this treatment procedure.[6,7,8,9,10] There were not sufficient studies to assess KAP towards orthodontic treatment in general patients visiting for dental treatment in government hospitals, although the studies have been done in high school students and orthodontic patients. The objective of this study was to assess KAP of patients visiting dental department of Hetauda Hospital towards orthodontic treatment.

METHODS

This was a descriptive cross-sectional study conducted on patients visiting the dental department. This was a government hospital-based study because mainly rural and underprivileged people visit the government hospital. The sample size was calculated using the formula $4pq/l^2$. Considering the proportion of people who have heard of an orthodontist p=45.71%,[13] q=1-p, and permissible error l=0.05, the sample size was around 400. The sampling was done by a simple random sampling technique. Flipping the coin (Head included and tail not included) by an independent person was used for the sample selection. The study was conducted in 2023 for 6 months. Patients visiting to the dental department for dental treatement with age ≥ 15 years and ≤ 35 years (Since adolescents and young adults are more

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concerned about esthetic orthodontic treatment, we have targeted this age group of patients)[9] while patients undergoing or have undergone orthodontic treatment, Patients with dentofacial deformities, patients not willing to participate, patients referred from other departments were excluded from this study. The study variables included age, sex, and degree of KAP. The study was conducted after getting ethical approval. The materials used in the study included a questionnaire, information sheet, and consent form. The questionnaire was translated into the Nepali language by two authors, and the best version of the questionnaire was then constructed. Backward translation was then performed by other two authors which was found to be very close to the original questionnaire. The questionnaire consisted of demographic information of participants, 14 questions (numbered from Q1 to Q14) were related to knowledge, six questions (numbered from Q15 to Q20) were related to attitude, and five questions (numbered from Q21 to Q25) were related to practice towards orthodontic treatment. The questionnaire was explained to the patients whenever required. Informed written consent was obtained from all patients. The potential bias included interviewer bias. Data were collected by two researchers as per inclusion and exclusion criteria. The data was collected through the structured closed-ended questionnaire (adapted from the study by Singh et al, permission taken) through face-to-face interviews visiting the dental department.[14] A numerical coding list was prepared and according to the coding list, data was entered into Microsoft Excel 2021 and transferred into Statistical Package for Social Sciences (SPSS version 18) for statistical analysis. Accuracy was checked for every 50 entries. The inter-reliability of the interviewers was checked for 60 samples i.e. 15% of the total sample size. The data were again taken after 2 weeks to check the intra-reliability of interviewers through the intraclass correlation coefficient. The mean and standard deviation for ages was determined. Descriptive statistics including frequency, percentage, and a 3-point Likert scale were used to assess the degree of KAP of patients towards orthodontic treatment. The difference in the degree of KAP towards orthodontic treatment between males and females was tested using the Mann-Whitney U test. The level of significance was adjusted at 0.05 at 95% confidence interval. A 3-point Likert scale was used to assess the KAP of the patients which included three responses agree, disagree, and undecided. Scoring was given as 3 for agree, 2 for undecided, and 1 for disagree. Negatively worded question i.e. question number 15 was scored in a reverse manner. The higher the score higher would be the knowledge, favorable attitude, and practice. The scoring criteria and determination of level were depicted as 1.0-1.50 poor, 1.51-2.0 moderate, and 2.01-3.0 good. The expected outcome of the research results included the degree of KAP of patients towards orthodontic treatment. The degree of KAP towards orthodontic treatment obtained from this study would serve as a guideline for facilitating the orthodontist in educating potential patients in providing advice.

RESULTS

The inter-reliability and intra-interviewer reliability of interviewers through intra-class correlation coefficient was greater than 0.90 for all questions suggestive of excellent reliability. Out of 400 patients in the sample, 178 (44.5%) were male and 222 (55.5%) were female. The mean age of the patients was 26.67 ± 5.967 years. The frequency and percentage of KAP of patients towards orthodontic treatment are given in (Table 1). The Scoring and degree of KAP of patients towards orthodontic treatment are given in (Table 2).

DISCUSSION

Although malocclusion itself is not a life-threatening disorder, it can negatively impact a patient's interactions with others and psychological well-being.[13] The KAP of patients towards orthodontic treatment affect compliance and clinical outcome.[14,15,16] This would also help the clinicians to pay closer attention to the areas that the patients are less aware of. There was a higher number of females than males in our study. This was similar to the study by Mathew et al.[16] This may be due to the higher population of females than males in the country itself.[17] Also, 88% of the patients

Table 1. Knowledge, attitude, and practice of patients towards orthodontic treatment.

Knowledge	Response		
	Agree (%)	Undecided (%)	Disagree (%)
Irregularly placed tooth in arch is malalignment of teeth.	352 (88%)	18 (4.5%)	30 (7.5%)
Heredity influences the occurrence of malalignment of teeth.	161 (40.3%)	64 (16%)	175 (43.8%)
Habits such as thumb sucking, tongue thrusting, and mouth breathing cause malalignment of teeth.	154 (38.5%)	64 (16%)	182 (45.5%)
Malaligned teeth affect appearance.	335 (83.8%)	13 (3.3%)	52 (13%)
Malaligned teeth affect chewing ability.	285 (71.3%)	20 (5%)	95 (23.8%)
Malaligned teeth affect speech.	187 (46.8%)	49 (12.3%)	164 (41%)
Malaligned teeth affect oral hygiene.	269 (67.3%)	21 (5.3%)	110 (27.5%)
Dental checkups and treatment of malalignment are essential in early childhood and adolescence.	376 (94%)	7 (1.8%)	17 (4.3%)
Heard about the orthodontic treatment.	347 (86.8%)	9 (2.3%)	44 (11%)
Orthodontic treatment is carried out by braces on teeth.	341 (85.3%)	43 (10.8%)	16 (4%)
Teeth and jaw irregularities can be corrected by braces.	346 (86.5%)	39 (9.8%)	15 (3.8%)
Orthodontic treatment causes tooth/teeth movement.	274 (68.5%)	74 (18.5%)	52 (13%)
Orthodontic treatment outcomes affect the patient's social and personal life.	211 (52.8%)	57 (14.3%)	132 (33%)
Orthodontic treatment is expensive.	270 (67.5%)	97 (24.3%)	33 (8.3%)
Attitude			
People who wear braces do not look good.	130 (32.5%)	47 (11.8%)	223 (55.8%)
Patients undergoing orthodontic treatment use special cleaning aids, such as orthodontic brushes, interdental brushes, and mouthwashes.	322 (80.5%)	71 (17.8%)	7 (1.8%)
Brackets/wires may break due to the carelessness of patients.	384 (96%)	16 (4%)	0 (0%)
Orthodontic treatment is of long duration	299 (74.8%)	89 (22.3%)	12 (3%)
If a patient discontinues the orthodontic treatment midway, his/her problem will worsen.	373 (93.3%)	23 (5.8%)	4 (1%)
After accomplishment of the orthodontic treatment, the patient needs to wear a retainer.	145 (36.3%)	186 (46.5%)	69 (17.3%)
Practice			
Undergo treatment, if the correction of maligned teeth extends for duration of around 1-2 years.	349 (87.3%)	20 (5%)	31 (7.8%)
Agree for the removal of healthy teeth, if some teeth have to be removed in the course of your treatment of maligned teeth.	196 (49%)	43 (10.8%)	161 (40.3%)
Wear additional appliances, if the doctor instructs you to wear an additional appliance during your treatment.	350 (87.5%)	34 (8.5%)	16 (4%)
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.	362 (90.5%)	23 (5.8%)	15 (3.8%)
Still continue treatment, if you experience slight pain, ulcerations, or some discomfort during the treatment for malalignment.	346 (86.5%)	18 (4.5%)	36 (9%)

agreed that an irregularly placed tooth in the arch is a malalignment of teeth. This was in contrast to the study by Singh et al (61.1%) and Shekar et al (65.8%).[12,18] This difference may be due to increased awareness of the participants in our study. 40.3% of the patients agreed that heredity influences the occurrence of malalignment of teeth which was higher than the study by Dhakal et al (26.86%), Soni et al (15%), and Essamet and Darout (26.5%).[11,19,20] However, our study was similar to the study by Singh et al (46.5%) and Shekar et al (43.5%).[12,18] 38.5% agreed that habits such as thumb sucking, tongue thrusting, and mouth breathing cause malalignment of teeth, which was similar to the study by Singh et al (36.9%), Dhakal et al (41.43%) but less than the study by Shekar et al (52.2%) and Soni et al (65%).[11,12,18,19] 83.8% agreed that malaligned teeth affect appearance which was similar to the study by Singh et al (90.4%) and more

Table 2. Scoring and degree of knowledge, attitude, and practice of patients towards orthodontic treatment.

Knowledge	Male		Female	
	Score	Degree	Score	Degree
Irregularly placed tooth in arch is malalignment of teeth.	2.86	Good	2.76	Good
Heredity influences the occurrence of malalignment of teeth.	2.02	Good	1.92	Moderate
Habits such as thumb sucking, tongue thrusting, and mouth breathing cause malalignment of teeth.	1.99	Moderate	1.88	Moderate
Malaligned teeth affect appearance.	2.71	Good	2.71	Good
Malaligned teeth affect chewing ability.	2.44	Good	2.5	Good
Malaligned teeth affect speech.	2.1	Good	2.02	Good
Malaligned teeth affect oral hygiene.	2.33	Good	2.45	Good
Dental checkups and treatment of malalignment are essential in early childhood and adolescence.	2.87	Good	2.92	Good
Heard about the orthodontic treatment.	2.72	Good	2.78	Good
Orthodontic treatment is carried out by braces on teeth.	2.83	Good	2.8	Good
Teeth and jaw irregularities can be corrected by braces.	2.8	Good	2.85	Good
Orthodontic treatment causes tooth/teeth movement.	2.62	Good	2.5	Good
Orthodontic treatment outcomes affect the patient's social and personal life.	2.25	Good	2.15	Good
Orthodontic treatment is expensive.	2.6	Good	2.59	Good
Attitude				
People who wear braces do not look good.	2.24	Good	2.23	Good
Patients undergoing orthodontic treatment use special cleaning aids, such as orthodontic brushes, interdental brushes, and mouthwashes.	2.79	Good	2.79	Good
Brackets/wires may break due to the carelessness of patients.	2.97	Good	2.95	Good
Orthodontic treatment is of long duration	2.72	Good	2.72	Good
If a patient discontinues the orthodontic treatment midway, his/her problem will worsen.	2.95	Good	2.9	Good
After accomplishment of the orthodontic treatment, the patient needs to wear a retainer.	2.19	Good	2.19	Good
Practice				
Undergo treatment, if the correction of maligned teeth extends for duration of around 1-2 years.	2.85	Good	2.75	Good
Agree for the removal of healthy teeth, if some teeth have to be removed in the course of your treatment of maligned teeth.	2.1	Good	2.08	Good
Wear additional appliances, if the doctor instructs you to wear an additional appliance during your treatment.	2.81	Good	2.85	Good
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.	2.86	Good	2.87	Good
Still continue treatment, if you experience slight pain, ulcerations, or some discomfort during the treatment for malalignment.	2.66	Good	2.86	Good

than the study by Shekar et al (50.7%) and Dhakal et al who found 59.14% thought irregular teeth affect appearance and 76.29% believed that teeth should be properly aligned for the better facial appearance.[11,12,18] 71.3% agreed that malaligned teeth affect chewing ability which was similar to the study by Dhakal et al (70.14%), Singh et al (70.2%), Soni et al (70%) and more than the study by Shekar et al (58.3%).[11,12,18,19] Similar to the studies of Dhakal et al (56%), Singh et al (43.9%), and Shekar et al (54%), 46.8% of respondents agreed that malaligned teeth affect speech in our study.[11,12,18] 67.3% agreed that malaligned teeth affect oral hygiene which was similar to the study by Dhakal et al (62.71%), by Singh et al (67.7%), and more than the study by Shekar et al (49.9%).[11,12,18] 94% agreed that dental checkup and treatment of malalignment is essential in early childhood and adolescence which was similar to the study by Sing et al (90.1%) and more than the study by Shekar et al (58%) and Dhakal et al (81.86%).[11,12,18] 86.8% agreed that they have heard about the orthodontic treatment in our study which was similar to the study by Singh et al (83.8%).[12] 85.3% agreed that orthodontic treatment is carried out by braces on teeth similar to the study by

Shrestha et al (85%), but more than the study by Singh et al (69.2%) and less than the study by Mathew et al (97.8%).[9,12,16] This difference may be as Mathew et al conducted the study in orthodontic patients however we conducted the study in general dental patients.[16] 86.5% agreed that teeth and jaw irregularities can be corrected by braces which was similar to Singh et al (85.9%).[12] 68.5% agreed that orthodontic treatment causes tooth/teeth movement which was more than the study by Singh et al (57.1%)[12], 52.8% agreed that orthodontic treatment outcomes affect the patient's social and personal life which was similar to the study by Singh et al (55.6%) and less than the study by Almoammar et al (89.3%).[12,14] Orthodontic treatment is expensive, according to 67.5% of respondents, which was similar to the study by Singh et al (69.2%) and Shrestha et al (68.5%) and slightly more than the study by Dhakal et al (49.29%).[9,11,12] Our study was also in contrast to the study by Almoammar et al in (81.2%).[14] The finding of our study was encouraging as financial restriction could be a barrier for the patients to undergo orthodontic treatment.[14]

Likewise, 32.5% agreed that people who wear braces do not look good, while 11.8% were undecided and 55.8% disagreed similar to the study by Singh et al who found 27.8% agreed that people who wear braces do not look good, 10.6% were undecided and 61.6% disagreed.[12] Almoammar et al found 45.3% of the respondents disagreed that people wearing braces do not look good which was slightly less than our study.[14] Mathew et al found 73.6% had a positive attitude toward the attractiveness of patients wearing braces which was in contrast to our study.[16] Similarly, Shrestha et al found 49.3% of patients disagreed that people wearing braces do not look good which was slightly less than our study.[9] 80.5% agreed that patients undergoing orthodontic treatment use special cleaning aids, such as orthodontic brushes, interdental brushes, and mouthwashes which was similar to the study by Singh et al (78.3%), slightly less than the study by Almoammar et al (96%) and in contrast to the study by Mathew et al (58.2%).[12,14,16] This was an encouraging finding as brackets/wires act as plaque retentive means which could lead to gingivitis.[21] 96% agreed that brackets/wires may break due to the carelessness of patients which was more than the study by Singh et al (82.8%) and Mathew et al (51.3%).[12,16] This may be due to Mathew et al conducted the study in orthodontic patients.[16] Shrestha et al found only 28.9% admitted that brackets/wires usually break due to their carelessness.[9] 74.8% agreed that orthodontic treatment is of long duration which was similar to the study by Almoammar et al (73%), more than the study by Singh et al (69.2%) and less than the study by Mathew et al (86.6%) and Shrestha et al (85%).[9,12,14,16] This finding from our study was comparable to that of Essamet and Darout in treated participants (79.6%), and it was higher than in untreated participants (44.5%).[20] Nimeri et al have mentioned low-level laser therapy, cytokine, vitamin D, piezocision, and surgical techniques as the methods to accelerate tooth movement due to the huge demand for shorter orthodontic time.[22] 93.3% agreed that if a patient discontinues the orthodontic treatment midway, their problem will worsen similar to the study by Shrestha et al (90%), more than the study by Singh et al (56.1%) and Mathew et al (69.4%).[12,16] This shows that patients had increased awareness leading to a positive attitude towards orthodontic treatment in our study. Only 36.3% agreed that after accomplishment of the orthodontic treatment, the patient needs to wear a retainer while 46.5% were undecided and 17.3% disagreed similar to the study by Singh et al who found 35.9% agreed, 42.4% were undecided and 21.7% disagreed to wear a retainer.[12] 45.7% of patients had the information on wearing of retainer after completion of orthodontic treatment.[9] 80.9% of respondents were aware of the need for a retainer after completion of orthodontic treatment.[16] This shows that patient requires increased awareness for the need of a retainer after completion of orthodontic treatment in our participants. The awareness of the need for retainer wear upon completion of the active orthodontic treatment should be stressed enough as it is vital in the overall maintenance of successful orthodontic treatment.[16] Also, 87.3% agreed to undergo treatment if the correction of maligned teeth extends for a duration of around 1-2 years while

5% were undecided and 7.8% disagreed which was more than the study by Shekar et al and Singh et al in which only 40.4% and 74.8% of participants agreed to undergo treatment if the correction of maligned teeth extends for a duration of around 1-2 years respectively.[12,18] The finding of this study was also higher than the study by Dhakal et al (52.57%).[11] This shows the increased interest of the participants in the correction of their irregular teeth. 49% agreed with the removal of healthy teeth, if some teeth have to be removed in the course of their treatment of maligned teeth while 10.8% were undecided and 40.3% disagreed while Shekar et al and Singh et al found 34.7%and 48.9% agreed with the removal of healthy teeth if some teeth have to be removed in the course of their treatment of maligned teeth respectively.[12,18] The finding of this study was similar to the finding of Dhakal et al in which 50.29% of the participants were aware that a few teeth may have to be removed for aligning irregular teeth and 46.86% agreed for the removal of some teeth for orthodontic treatment.[11] 87.5% agreed to wear additional appliances if the doctor instructs them to wear an additional appliance during their treatment which was similar to the study by Singh et al (92.9%).[12] 90.5% agreed to wear the appliance if the doctor instructs them to wear the appliance for additional 6 months to 1 year even after the completion of their treatment while Dhakal et al, Shekar et al and Singh et al found only 57.14%, 43.1%, and 75.2% respectively.[11,12,18] 86.5% agreed to continue treatment if they experience slight pain, ulcerations, or some discomfort during the treatment for malalignment while 4.5% were undecided and 9% disagreed while Dhakal et al, Shekar et al and Singh et al found only 53.43%, 42.4%, and 56.1% respectively.[11,12,18] All the patients had a good degree of knowledge except heredity and habits such as thumb sucking, tongue thrusting, and mouth breathing influences the occurrence of malalignment of teeth (moderate degree of knowledge). This is the indication that clinicians should stress these areas while providing education and making aware to these patients towards orthodontic treatment. Also, all the patients had a good degree of attitude and practice towards orthodontic treatment. Shrestha et al found poor attitude toward wearing retainers, moderate attitude toward social aesthetics of braces wearers, use of special cleaning aids, and carefulness of appliance wear which was in contrast to our study.[9] This increased level of awareness might be due to the information from friends, relatives, the internet, and social media. The improved level of KAP towards orthodontic treatment would help in the attainment of good oral health of participants, beneficial for improving quality of life.[11]

CONCLUSIONS

The data was encouraging as the patients had a good degree of KAP towards orthodontic treatment except for the knowledge of heredity and habits such as thumb sucking, tongue thrusting, and mouth breathing influences the occurrence of malalignment of teeth (moderate degree of knowledge).

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