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Perception About The Prevalence Of Dilaceration Among Dental Students

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ABSTRACT

INTRODUCTION

The term dilaceration was first moulded in the year 1848 by Tomes who explained the term as forceful separation of cap and developed dentin from the pulp in which the development of dentin is still processing. Over a period of time it had been explained as angulation or deep bend or curve within the linear relation of the tooth's crown to its root. Consequently the current examination is to explore discernment about the prevalence of dilaceration among dental students residing at Saveetha Dental College.

MATERIALS AND METHODS

The study was conducted with 120 dental students residing at Saveetha Dental College. Inclusion criteria includes dental students of age 18 to 25 residing at Saveetha Dental College.The exclusion criteria includes other professionals except dentists. Nearly 10 questionnaires were sent and 120 responses were received. Data was collected by means of online google survey forms.Data will be entered in Microsoft Excel Sheet and analysed using SPSS software. Descriptive statistics was expressed by means of number, frequency and percentage. Chi square test was used to find out association between variables.

RESULT

At the end of the survey, responses were collected and analysed.Both males(48.33%) and females(39.17%) responded as dilaceration occurs due to trauma. Pearson chi-square test shows p-value is 0.533,(p- value>0.05). Hence ,it is statistically not significant. Both males(45%) and females(43.33%) responded as Dilaceration affects permanent dentition . Pearson chi-square test shows p-value is0.11,(p- value>0.05). Hence it is statistically not significant.

CONCLUSION

Dilaceration is not a usual anomaly but it is an essential anomaly which affects mostly the permanent dentition.The study concluded that there was adequate awareness about prevalence of dilaceration among male than female dental students.

KEY WORDS: Dilaceration, Prevalence, Perception, Dental students,Innovative technology.

INTRODUCTION

The term dilaceration was first moulded in the year 1848 by Tomes who explained the term as forceful separation of cap and developed dentin from the pulp in which the development of dentin is still processing . Over a period of time it had been explained as angulation or deviation or sharp bend or curve within the linear relation of tooth's crown to its root. Dilaceration In latin means tear up(1,2)

It is relatively common, in clinical experience, that the non-eruption of permanent incisors is thanks to prolonged retention of its deciduous corresponding tooth, to the absence of the permanent succeeding tooth or the installation of developmental abnormalities(3) which is noticed from the age of eight, in the first transitional period of the mixed dentition. With the exception of trauma, root dilaceration may be a dental anomaly during which the root presents a curvature of various angles, caused by the displacement of the crown from the remainder of the root during its early development. For Chehayeb, a root deviation can be considered root dilaceration when the angle between the root and the long axis of the tooth is equal to or greater than 20°(4,5)

The explanation for root dilaceration is controversial, being attributed to a robust relation with the trauma within the dentition - as intrusive luxation or avulsion of its deciduous corresponding tooth. However, there are reports that associate to this anomaly, hereditary factors,the presence of cysts or tumors, supernumerary teeth and ectopic development of the upper incisor tooth germ, with the root following the curvature of the palate, presenting the alteration.(6) Dilaceration is not usual but it is an essential dental anomaly that impacts all teeth (2,7)

The second explanation proposes an idiopathic developmental disturbance because of the explanation for dilacerations especially in cases that haven't any clear evidence of traumatic injury. Supporters of this theory maintain that an injury to a deciduous tooth sometimes results in intrusion or avulsion, an occasion that normally occurs before the age of 4. At this age, the formation of the basis of the succedaneous adult tooth doesn't start. Therefore, injury isn't the most etiological factor of dilaceration and this disorder is caused by ectopic tooth germ development. Previous researches were done about Prevalence of dilaceration in the Turkish population,Jordanian adults.They proved that dilaceration is

less susceptible to traumatic injury. In my study it was found that dilaceration mainly occurs due to trauma .Our team has extensive knowledge and research experience that has translated into high quality publications (8),(9),(10),(11),(12),(13),(14),(15),(16),(17),(18),(19),(20),(21),(22),(23),(24),(25),(26),(27). Hence the present study is to investigate prevalence of dilaceration among dental students residing at Saveetha Dental College.

MATERIALS AND METHODS

This study was conducted with 120 dental students residing at Saveetha Dental College. .These samples were selected based on inclusion and exclusion criteria. Inclusion criteria includes dental students of age 18 to 25 residing in different colleges. The exclusion criteria includes other professionals except dentists.The study was approved by SRB Saveetha Dental College.

Nearly 10 questionnaires were sent and 120 responses were received. The questionnaire consisting of 10 questions was created by a pathologist and was reviewed by another author and validated and circulated across different institutions. The questionnaire consisted of questions addressed to dental students about perception about prevalence of dilaceration among dental students and assessed their knowledge and attitude towards prevalence of dilaceration. Around 120 responses were received. Dilaceration is not a usual anomaly. Due to a limited period of time only limited samples can be done . All the received responses were tabulated and the results were represented graphically.

STATISTICAL ANALYSIS

Data will be entered in Microsoft Excel Sheet and analysed using SPSS software. Descriptive statistics was expressed by means of number, frequency and percentage. Chi square test was used to find out association between variables. Level of statistical significance will be $P<0.05$.

Questionnaires were as follows,

1) Age
2) Gender
3) Level of education
4) Bend or deviation in the linear relation of tooth’s crown to its root is called?
5) Can the crown of the toot be crooked?
6) Can the root be crooked?
7) Why do you think this phenomenon occurs?
8) Does it affect the treatment?

9) Have you encountered a bent tooth?
10) This phenomenon affects which dentition?
11) Which is the most difficult procedure to you for a tooth affected by the above phenomena
12) Do you think a bent tooth affects the position of your other teeth?
13) Select the picture of dilacerated tooth

RESULT

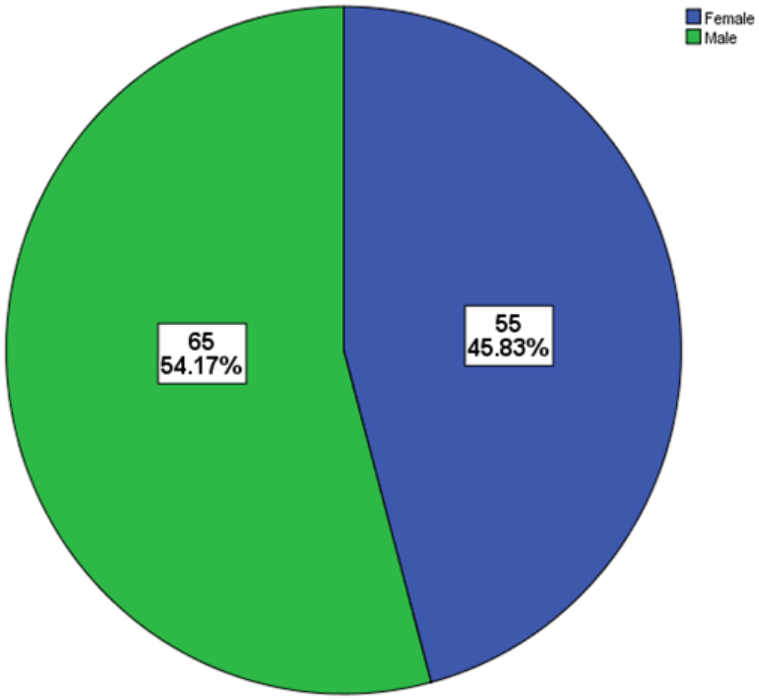

FIGURE 1 Represents the responses of gender. 54%(green) of them were male .45%(blue) of them were female. Majority of them were male.

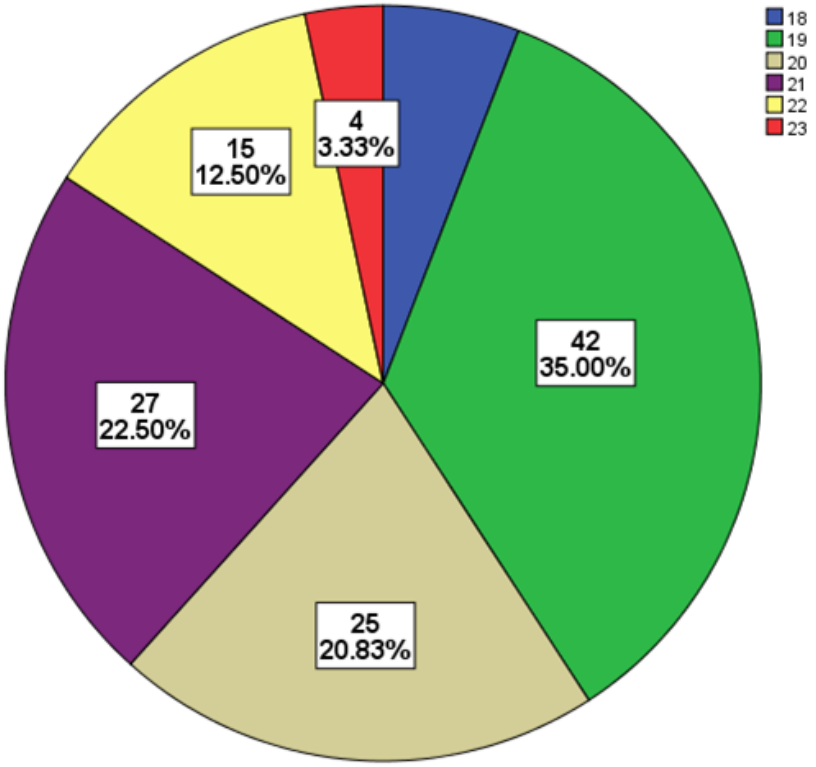

FIGURE 2: Represents the responses of age . 2%(blue) were among the 18 age group. 35% (green)were among the 19 age group. 20% (beige)were among 20 age groups. 22%(purple) were among the 21 age group. 12%(yellow) were among the 22 age group. 4% (red)were among the 23 age group.Majority of the participants belonged to the 19 age group.

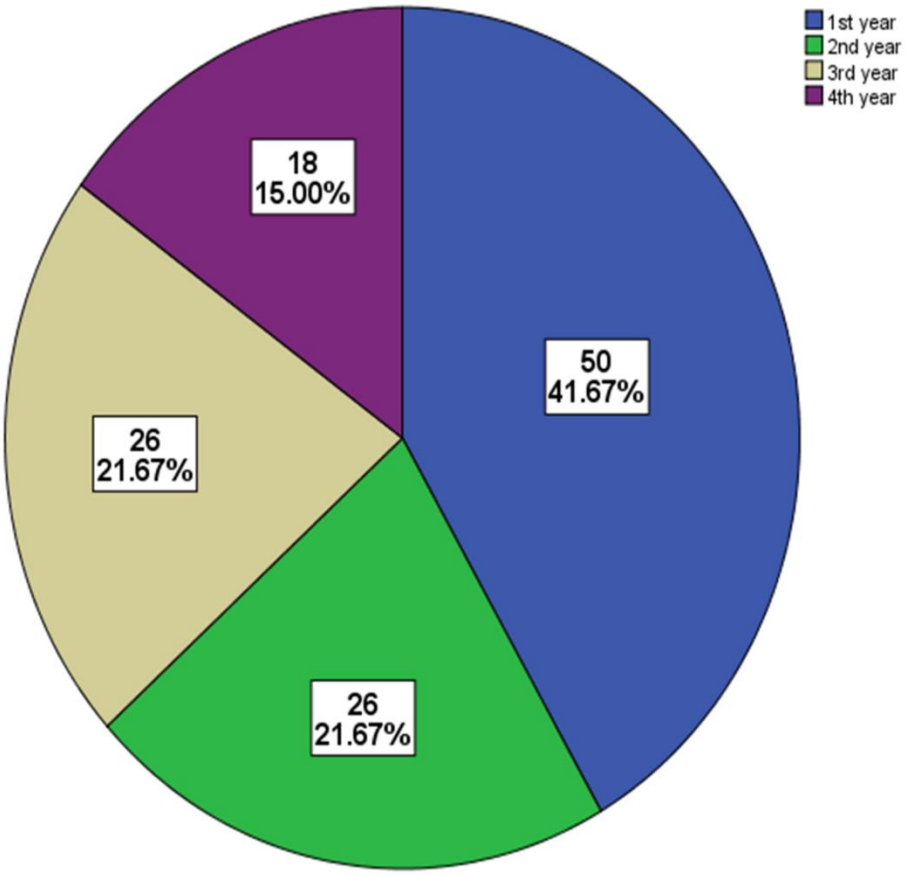

FIGURE 3 Represents responses of the level of education. 41 %(blue) of them were among 1 st year. 21%(green) of them were 2nd year students. 21% (beige)of them were in their 3rd year. 15%(purple) of them were among 4 th year. Majority of the participants were first year students.

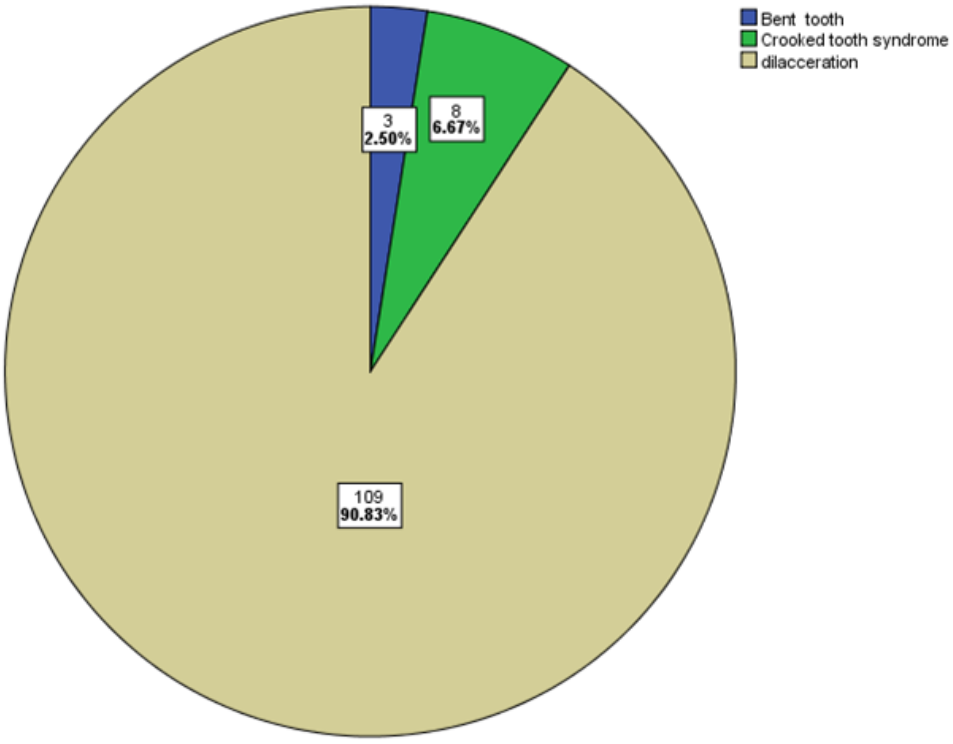

FIGURE 4 Pie chart showing percentage distribution whether bend or deviation in the linear relation of the tooth's crown to its root is known as bent tooth or crooked tooth syndrome or dilaceration. 2.50%(blue)responded as bent teeth. 6.67%(green) responded to crooked tooth syndrome. 90.83%(beige)responded as dilaceration. Majority(90.83%) of participants responded to dilaceration.

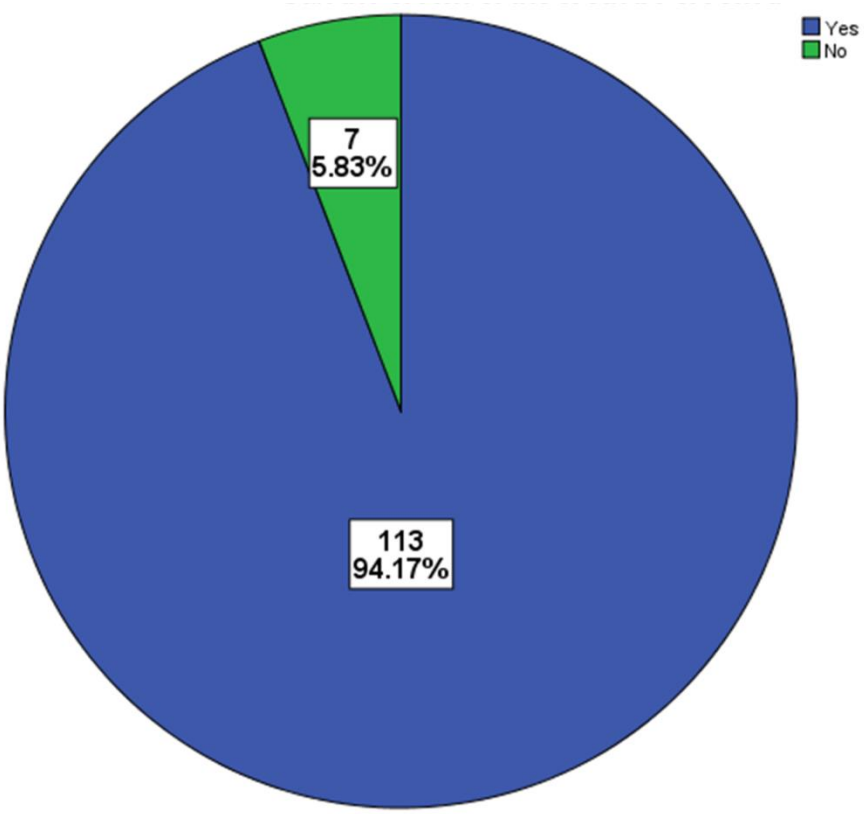

FIGURE 5 Pie chart showing percentage distribution whether crown of the tooth be crooked or not.94.17%(blue) responded as yes. 5.83%(green) responded as no. Majority of the participants(94.17%) responded yes.

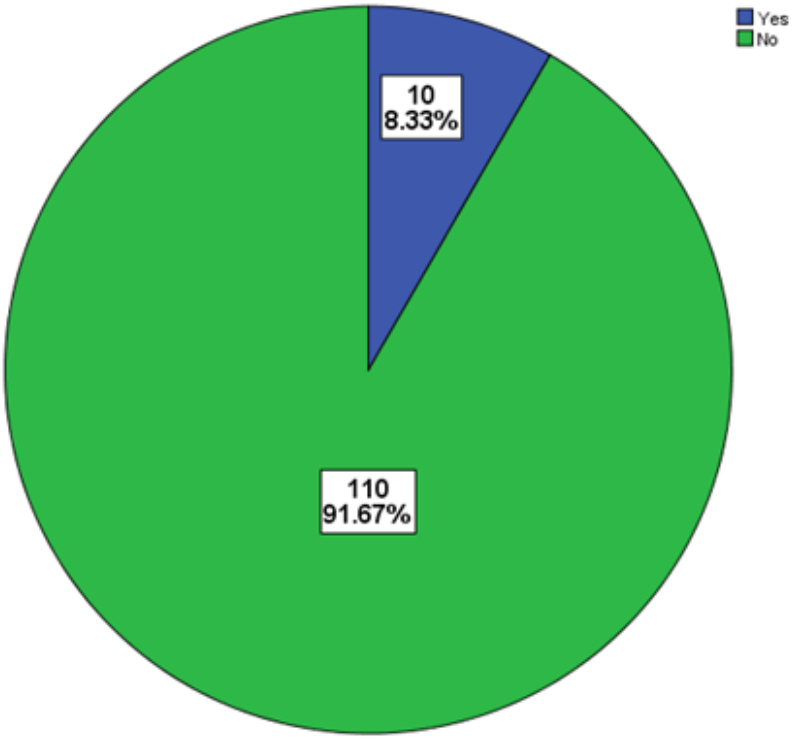

FIGURE 6 Pie chart showing percentage distribution ,whether root can be crooked or not. 91.67%(green) of the participants responded as no. 8.33%(blue) of the participants responded as yes. Majority of the participants (91.67%) responded no.

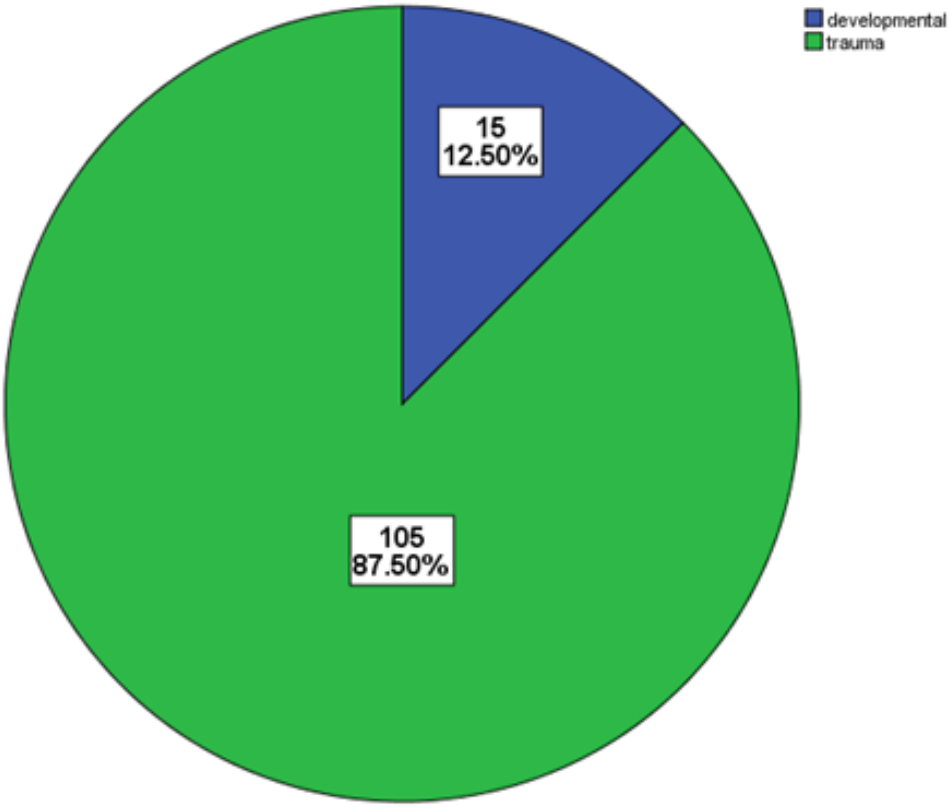

FIGURE 7: Pie chart showing percentage distribution,whether dilaceration occurs due to trauma or developmental anomaly.87.50%(green) of the participants responded as trauma. 12.50%(blue) of the participants responded as developmental.Majority of the participants (87.50%) responded as trauma.

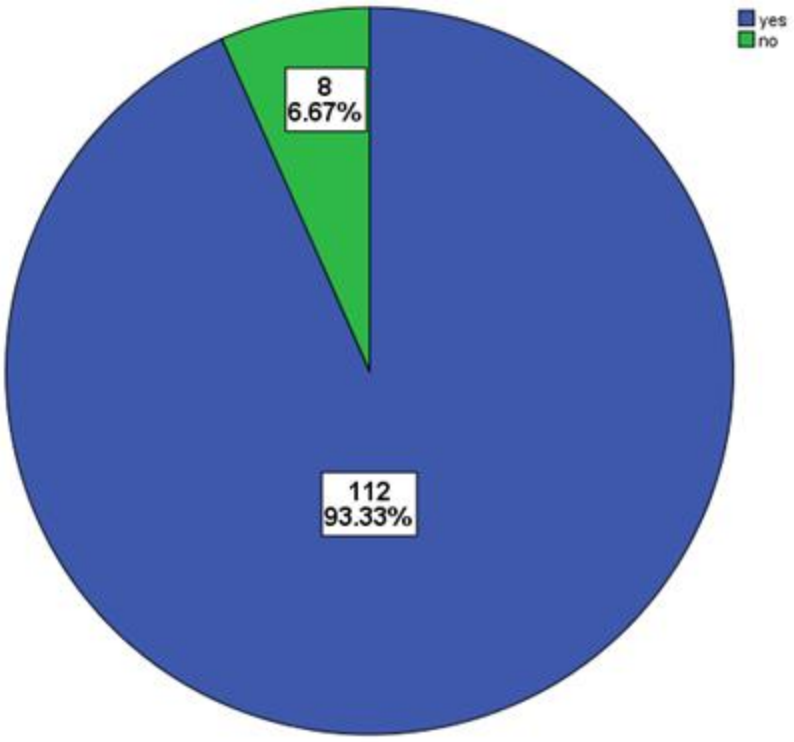

FIGURE 8 : Pie chart showing percentage distribution ,whether dilaceration affects the treatment or not . 93.33%(blue) responded as yes. 6.67%(green) responded as no. Majority(93.33%) of the participants responded as yes.

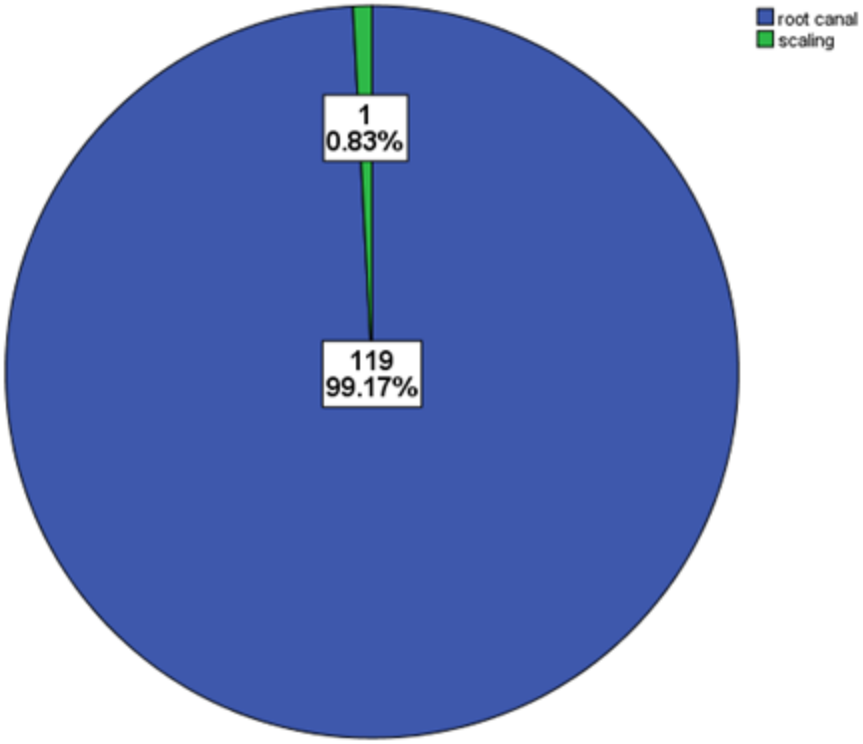

FIGURE 9 Pie Chart showing percentage distribution of which is the most difficult procedure according to you for a tooth affected by dilaceration.99.17%(blue) responded as root canal and 0.83 % (green)responded as scaling. Majority of the participants (99.17%)responded as root canal treatment.

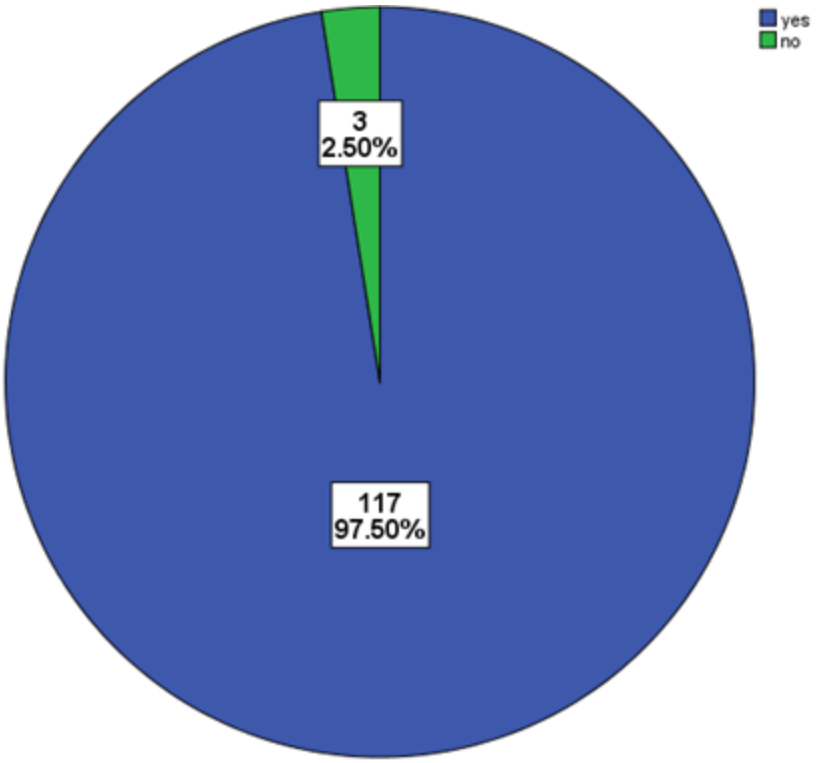

FIGURE 10 Pie chart showing percentage distribution Whether bent tooth affects the position of your teeth or not.97.50%(blue) of the participants responded as yes and 2.50%(green) of the participants responded as no.Majority(97.50%) of the participants responded as yes

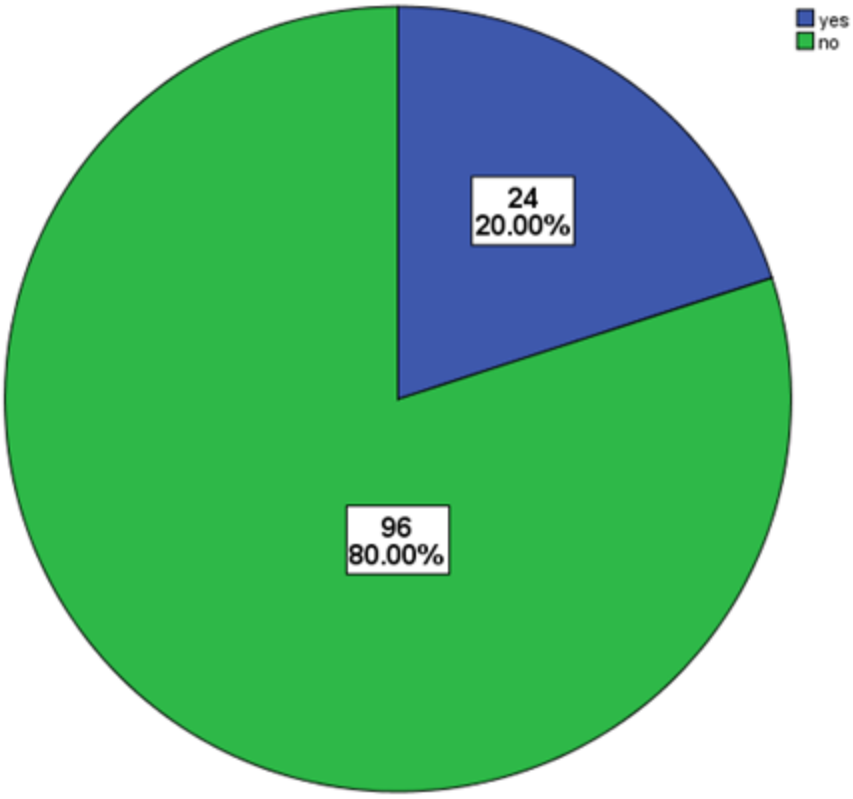

FIGURE 11 Pie Chart showing percentage distribution of responses ,whether you have encountered a bent tooth or not. 97.50%(blue) responded as yes and 2.50%(green) responded as no.blue represents yes and green represents no.Majority (97.50%) of the participants responded as yes.

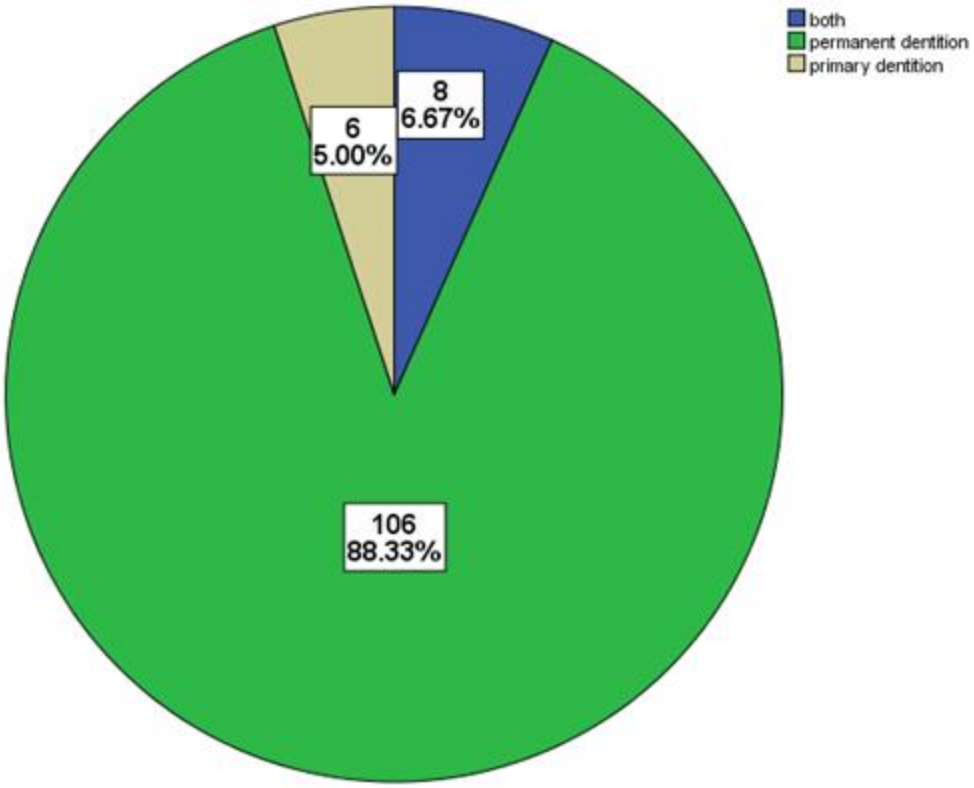

FIGURE 12 Pie Chart showing percentage distribution whether dilaceration affects permanent dentition or primary dentition or both.88.33% (green) responded as permanent dentition. 6.67% (blue) answered both primary and permanent dentition. 5%(beige) answered primary dentition. Majority (88.33%) of the participants responded as permanent dentition.

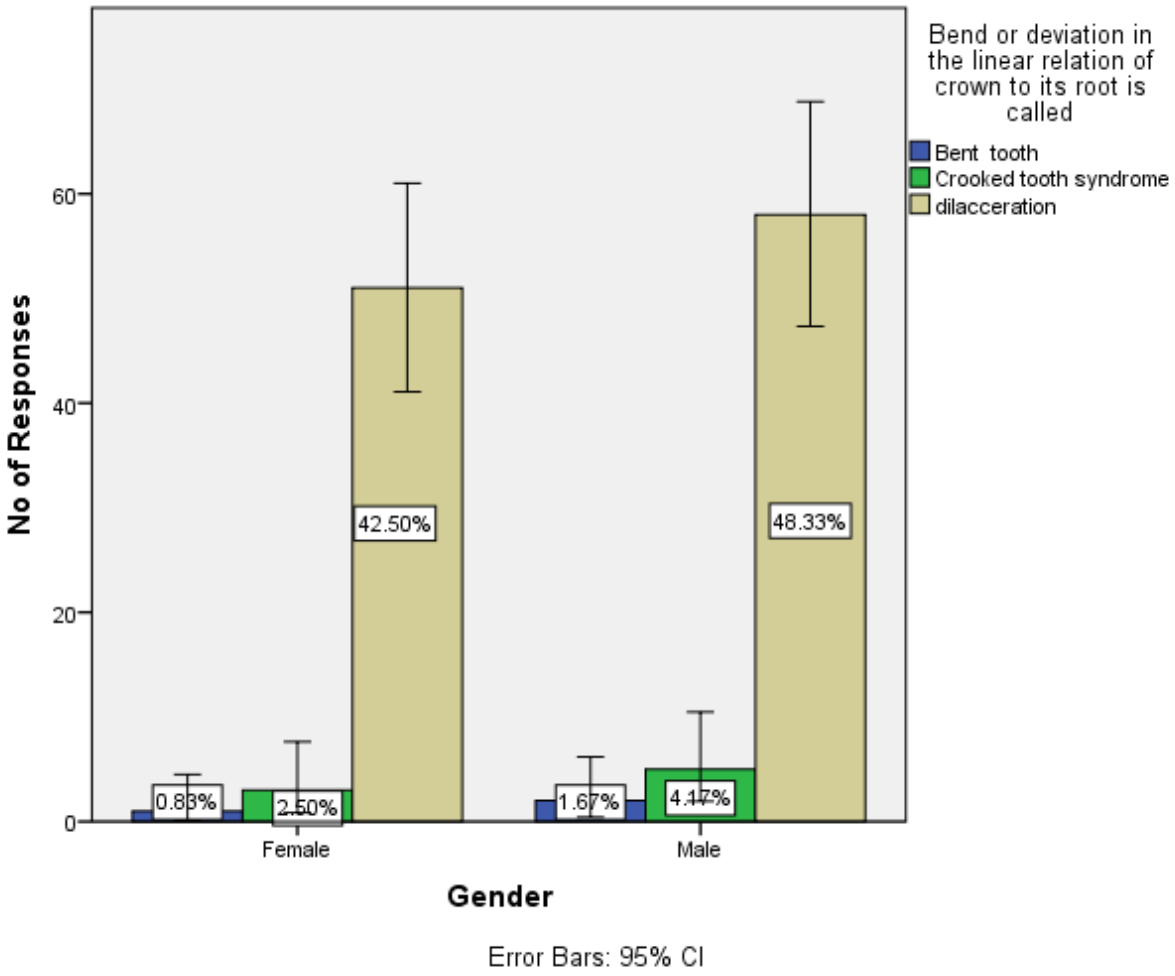

FIGURE 13: Bar graph showing association between gender and bend or deviation in the linear relation of the tooth's crown to its root. X- axis represents gender and Y- axis represents the percentage of responses.Blue represents bent tooth, Green represents crooked tooth syndrome,Beige represents dilaceration. Both males(48.33%) and females(42.50%) responded as a bend or deviation in the linear relation of the tooth's crown to its root.Majority of males(48.33%) responded as bend or deviation in linear relation of crown to its root is known as dilaceration. Pearson chi-square test shows p-value is 0.797,(p- value>0.05). Hence ,it is statistically not significant.

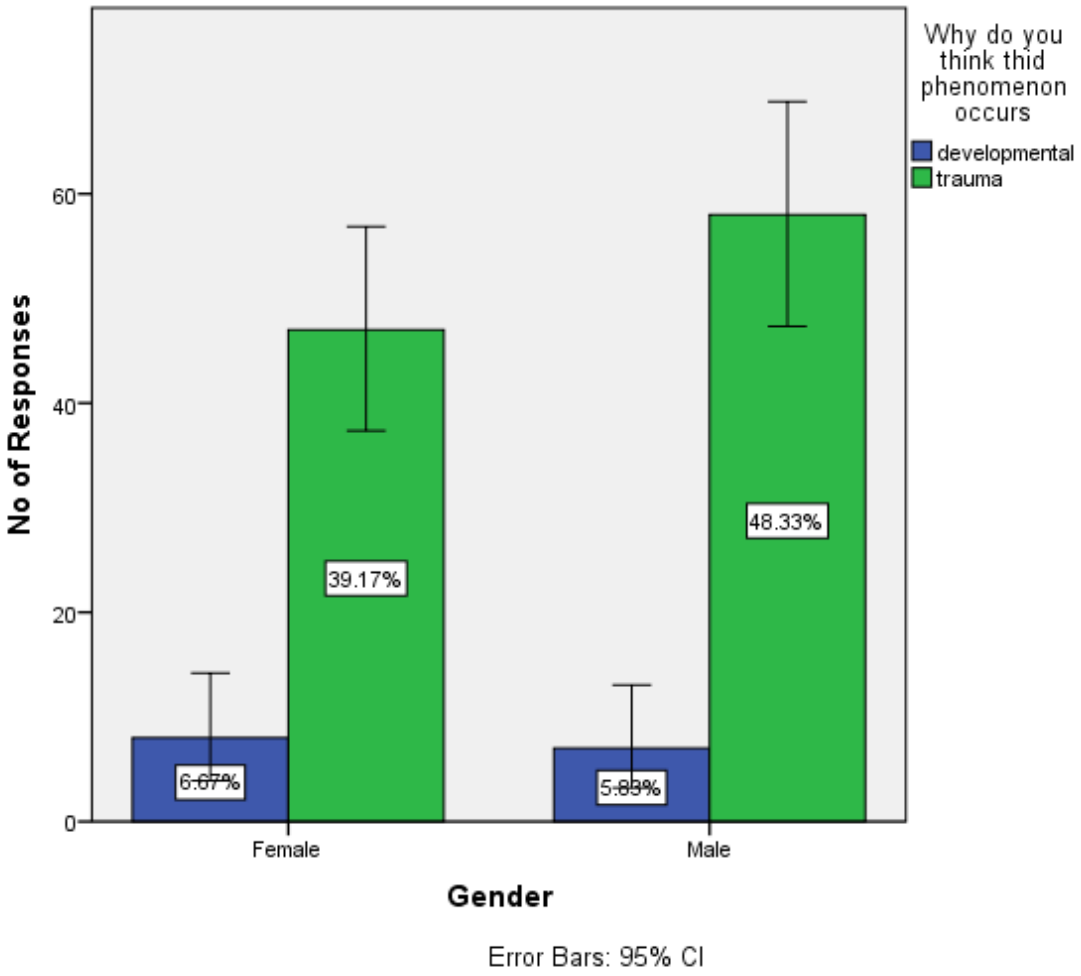

FIGURE 14: Bar graph showing association between gender and whether dilaceration occurs due to trauma or developmental anomaly. X- axis represents gender and Y- axis represents the percentage of responses. Blue represents developmental anomaly.Green represents trauma .Both males(48.33%) and females(39.17%) responded as dilaceration occurs due to trauma.Majority of males(48.33%) responded as dilaceration occurs due to trauma. Pearson chi-square test shows p-value is0.533,(p- value>0.05). Hence, it is statistically not significant.

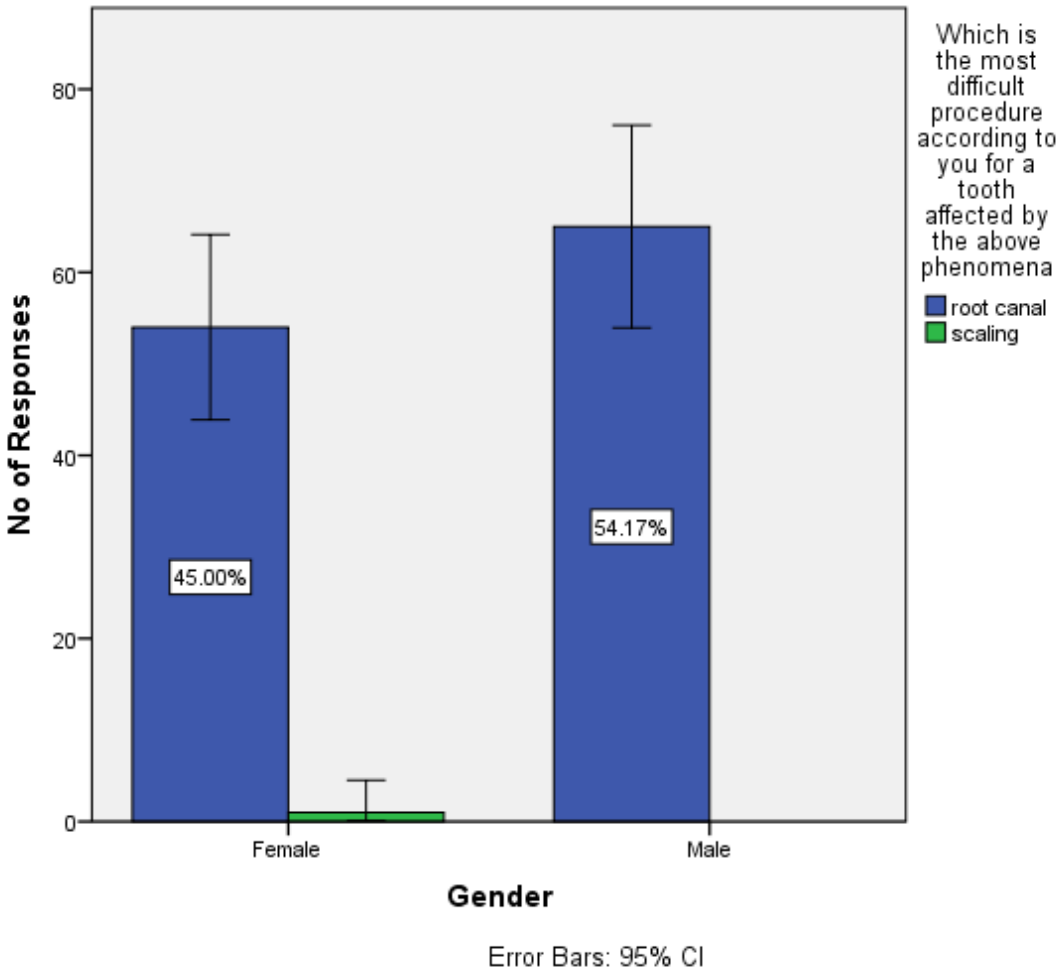

FIGURE 15: Bar graph showing association between gender and which is the most difficult procedure according to you for a tooth affected by dilaceration, X- axis represents gender and Y- axis represents the percentage of responses.Blue represents root canal treatment.Green represents scaling.Both males(54.17%) and females(45%)responded as the root canal treatment is the most difficult procedure according to you for a tooth affected by the above phenomena.Majority of the males(54.17%) responded as root canal treatment is the most difficult procedure . Pearson chi-square test shows p-value is0.275,(p- value>0.05). Hence, it is statistically not significant**.**

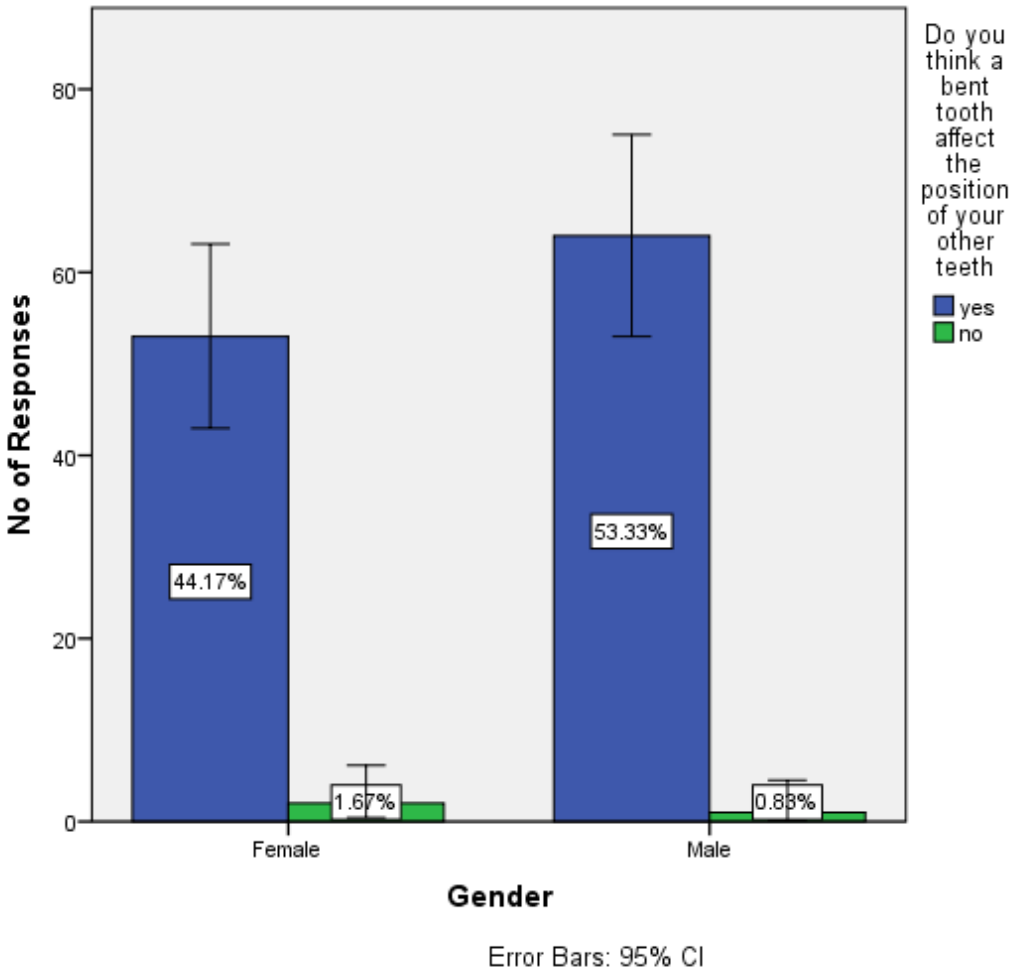

FIGURE 16: Bar graph showing association between gender and whether a bent tooth affects the position of your teeth or not. X- axis represents gender and Y- axis represents the percentage of responses.Blue represents yes,Green represents no. Both males(53.33%) and females(44.17%) responded as yes for bent teeth affecting the position of your teeth.Majority of the males(53.33%) responded as yes for bent teeth affect the position of the teeth.Pearson chi-square test shows p-value is0.463,(p- value>0.05). Hence, it is statistically not significant.

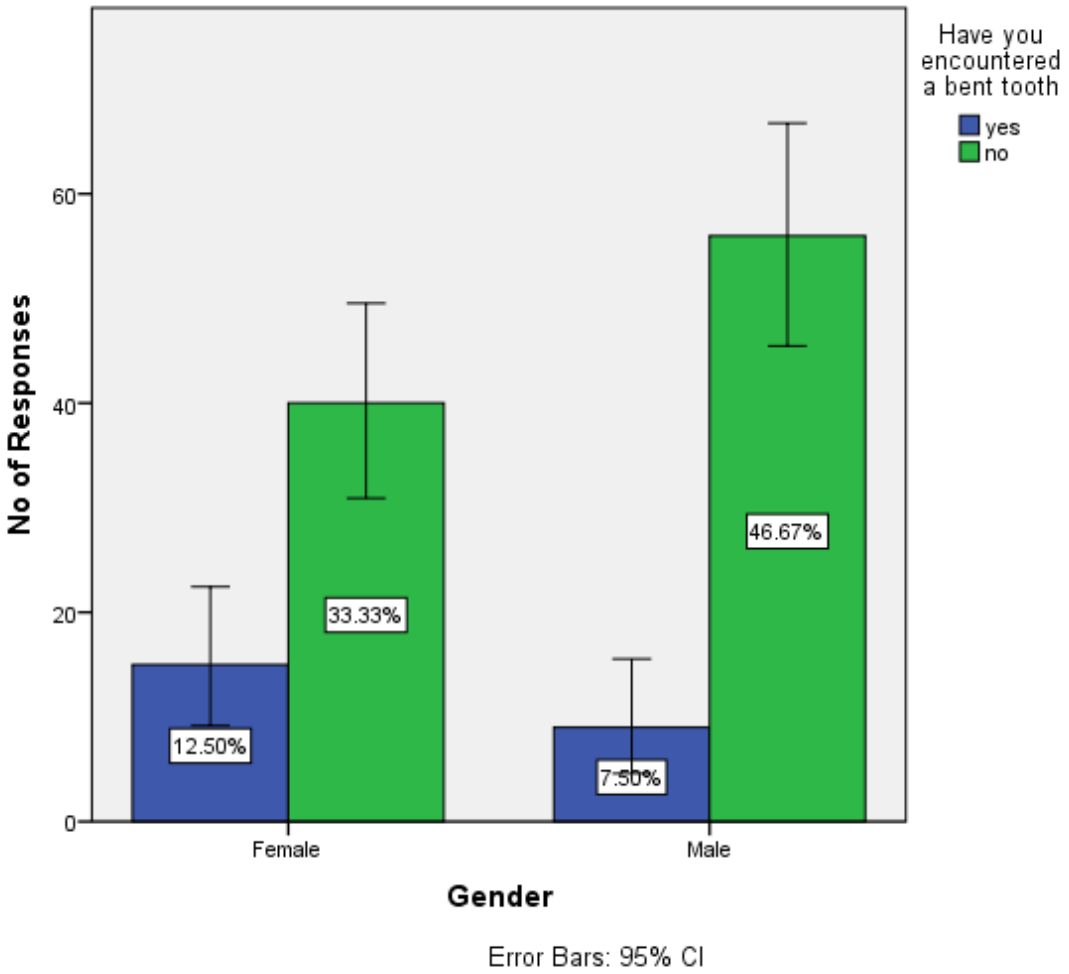

FIGURE 17: Bar graph showing association between gender and whether you have encountered a bent tooth or not. X- axis represents gender and Y- axis represents the percentage of responses. Blue represents yes.Green represents no.Both males(53.33%) and females(44.17%) responded as yes for having encountered a bent tooth.Majority(53.33%) of males responded as yes. Pearson chi-square test shows p-value is0.067,(p- value>0.05). Hence it is statistically not significant.

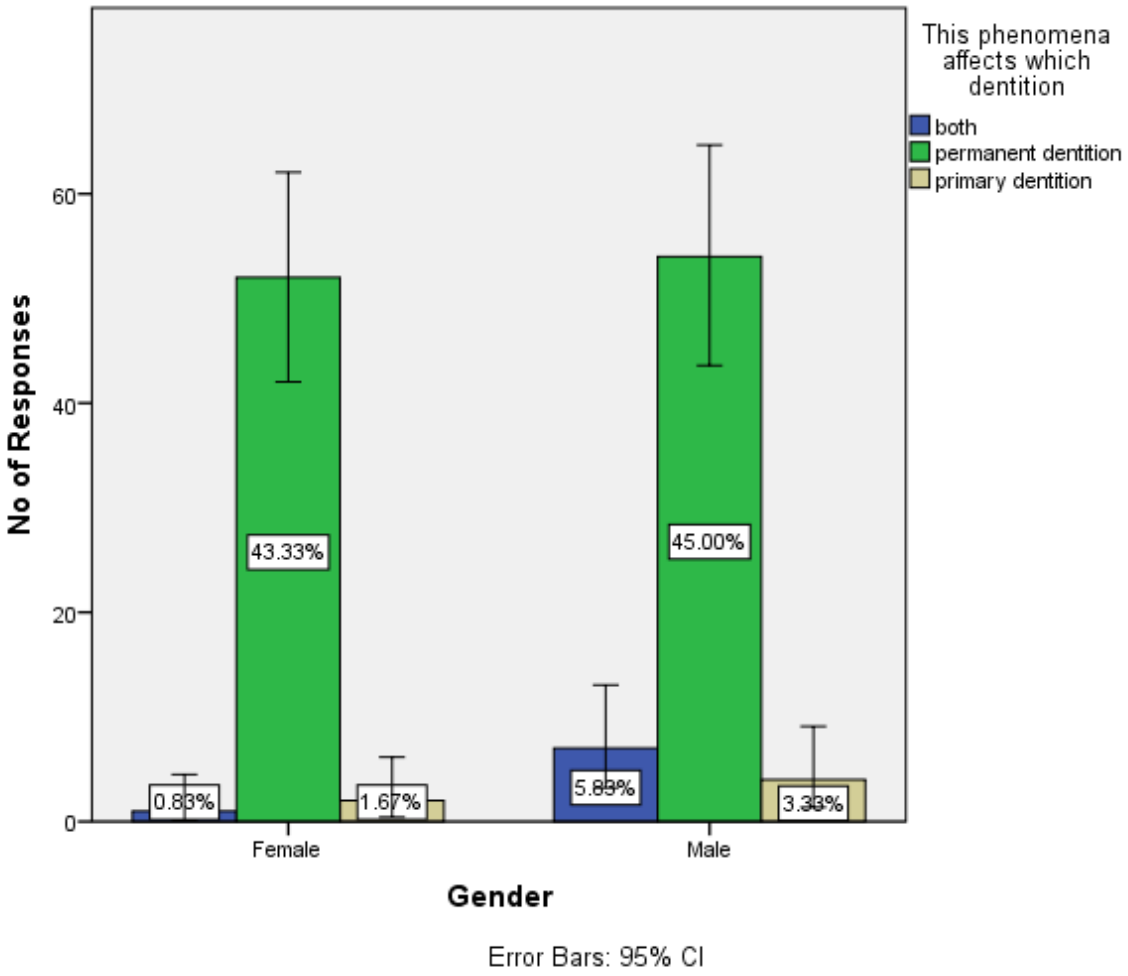

FIGURE 18: Bar graph showing association between gender and whether dilaceration affects permanent dentition or primary dentition or both.. X- axis represents gender and Y- axis represents the percentage of responses.Blue represents both.Green represents permanent dentition.Beige represents primary dentition.Both males(45%) and females(43.33%) responded as Dilaceration affects permanent dentition . Pearson chi-square test shows p-value is 0.11,(p- value>0.05). Hence it is statistically not significant.

54% of them were male.45% of them were female. green indicates male. Majority of them were male(figure 1). 2% were among the 18 age group. 35% were among the 19 age group. 20% were among 20 age groups. 22% were among the 21 age group. 12% were among the 22 age group. 4% were among the 23 age group.Majority of them were among the 19 age group (figure 2). 41 % of them were among 1 st year. 21% of them were 2nd year students. 21% of them were in their 3rd year. 15% of them were among 4 th year. Majority of them were 1st year students(figure 3).2.50% responded as bent teeth. 6.67% responded to crooked tooth syndrome. 90.83% responded as dilaceration.Majority of them

answered bent or deviation in the linear relation of the tooth's crown to its root is called dilaceration(figure 4). 94.17% responded as yes. 5.83% responded as no.Majority of them answered that the crown of the tooth can be crooked(figure 5).91.67% responded as no. 8.33% responded as yes. Majority of them answered that the root of the tooth can be crooked(figure 6). 87.50% responded as trauma. 12.50% responded as developmental.Majority of them answered that dilaceration occurs due to trauma(figure 7). 93.33% responded as yes. 6.67% responded as no. Majority of them think dilaceration affects treatment(figure 8). 99.17% responded as root canal and 0.83 % responded as scaling. Majority of them answered that root canal treatment is the most difficult procedure for a tooth affected by dilaceration(figure 9).97.50% responded as yes and 2.50% responded as no. Majority of them answered that a bent tooth affects the position of the teeth(figure 10). 97.50% responded as yes and 2.50% responded as no. Majority of them answered that a bent tooth affects the position of the teeth (figure 11).88.33% answered permanent dentition.6.67% answered both primary and permanent dentition. 5% answered primary dentition. Majority of them answered permanent dentition(figure 12). Both males (48.33%) and females (42.50%) responded as a bend or deviation in the linear relation of the tooth's crown to its root. Pearson chi-square test shows p-value is0.797,(p- value>0.05). Hence, it is statistically not significant (figure 13). Both males (48.33%) and females(39.17%) responded as dilaceration occurs due to trauma. Pearson chi-square test shows p-value is0.533,(p- value>0.05). Hence ,it is statistically not significant(figure 14).Both males (54.17%) and females (45%) responded as the root canal treatment is the most difficult procedure according to you for a tooth affected by the above phenomena . Pearson chi-square test shows p-value is0.275,(p- value>0.05). Hence ,it is statistically not significant(figure 15). Both males (53.33%) and females (44.17%) responded as yes for bent teeth affecting the position of your teeth. Pearson chi-square test shows p-value is 0.463, (p- value>0.05). Hence ,it is statistically not significant(figure 16). Both males (53.33%) and females(44.17%)) responded as yes for Have you encountered a bent tooth? Pearson chi-square test shows p-value is 0.067, (p-value>0.05). Hence, it is statistically not significant (figure 17). Both males (45%) and females (43.33%) responded as Dilaceration affects permanent dentition. Pearson chi-square test shows p-value is0.11,(p-value>0.05). Hence it is statistically not significant(figure 18).

DISCUSSION

In this present study we have observed that out of 120 responses. Majority (45.83%) of them were female which is noted to be different from other studies where the majority (9.8%)of them were males. As per a previous study conducted by Miloglu O and Nabavizadeh M,done among Turkish population

and Jordanian Adults we know that dilaceration is a bend or deviation in the linear relationship of tooth's crown to its root (or) it is an angulation (or) sharp curve in root or crown of developed tooth of 90° or more which is similar to our study where majority(90.83%) of them agreed to that assertion (28)(7,29). In a study conducted by Moazami, among dental students we know that dilaceration is an abnormal angulation (or) bend in the root and less frequently in the crown of the root which is similar to our study where majority(94.12%) of them consented to that statement(28). By the previous study conducted by Miloglu and Hamasha, we know that dilaceration is often supposed as a result of trauma which agreed to be similar to our study where majority (87.50%) of them agreed to that statement(7,29)(28). By the previous study conducted by Mahesh we observed that dilaceration was caused as a result of trauma which is similar to our findings where majority(87.50%) of them consented to that assertion(30). Previous study conducted by Hamasha and Miloglu observed that dilaceration is a true developmental anomaly that is not related to history of trauma which was different from my study; it is noted that dilaceration mainly occurs due to trauma(7,29). By the previous study conducted by Topouzelis we know that dilaceration is the result of developmental anomaly which is less susceptible to traumatic injury which was different from my study in that it is noted that dilaceration occurs due to trauma(1). Previous study by Mahesh we observed that dilaceration occurs in permanent teeth which was similar to my study where the majority(88.33%) of them agreed to that assertion(30). Another study conducted by Miloglu, we know that any developmental disturbances are proposed as another possible cause in cases that have clear evidence of traumatic injury which was noted to be the same as our study where majority(87.50%) of them agreed to that assertion(29)By the previous study conducted by Miloglu, we know that the cause for dilaceration is mechanical trauma to the primary predecessor tooth which was different from my study whereas in my study it was noted that it often affects permanent dentition . By the study conducted by Raut, we know that root canal treatment is essential to assess the level of difficulty in dilaceration which was similar to our study where the majority(99.17%) of them consented to that assertion(31). Due to a limited period of time only limited samples can be done for perception about prevalence of dilaceration needs among dental students. In future we will be able to do as many samples as possible.

CONCLUSION

Dilaceration is not a usual anomaly but it is an essential anomaly which affects mostly permanent dentition.The study concluded that there was adequate awareness about prevalence of dilaceration among male than female dental students .

AUTHORS CONTRIBUTION

Prenetha: Literature search, data collection analysis, manuscript drafting.

Dr.Palati Sindhuja : Aided in conception of the topic, has participated in the study design, statistical analysis and has supervised in preparation and final corrections of the manuscript.

Dr.Lakshmi.T.A : Data verification, manuscript drafting, preparation of the manuscript.

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CONFLICT OF INTEREST

The author declares that there was no conflict of interest in the present study

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- Saveetha Institute of Medical and Technical Sciences
- Saveetha Dental College and Hospitals
- Saveetha University
- Ashwin Dental care-Chennai

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