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### **Knowledge and Attitude of Dental Students Towards Choice of Treatment Plan on Root Canal Therapy Versus Implant Placement in Dakshina Kannada-A Questionnaire Based Study**

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#### **ABSTRACT**

In the community toothache is highly predominant that makes patients to seek for essential pain-relieving treatments. The pain relieving treatments administered most commonly are endodontic treatment and tooth extraction. Careful evaluation of multiple factors is required that may influence the outcome of the proposed treatment to decide between endodontic treatment and implant placement. To access knowledge and attitude of undergraduate and postgraduate students towards choice of treatment on RCT vs implant placement in Dakshina Kannada. In this survey 100 undergraduate and post graduate students were randomly included and data was collected using a questionnaire having questions which were closed ended. Out of the 100 respondents 73 % had the opinion that endodontic treatment of a restorable tooth is better than implants, 27% of them supported implants. 85% of Participants knew that mastication force is significantly stronger in endodontic ally treated teeth, 15% didn't know that mastication force is stronger in rct treated teeth. Based on cosmetic requirement, 68% had positive attitude towards root canal treatment, while 32% suggested implant placement. Based on cost of treatment 88% preferred root canal treatment, 12% choice was implant. This survey suggested that undergraduates and post graduates preferred RCT and restoration over implants. Courses with interdisciplinary approach should be considered to have more uniformity in treatment-plan. From the survey conducted in making treatment planning decisions, the clinician must consider factors like economics, the patients desires and needs, esthetics, potential adverse outcomes and ethical factors. Appropriate treatment must be based with the patient's best interests and long- term quality of life.

**KEY WORDS:** Attitude, Implant, Knowledge, Root canal treatment, Treatment choice

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## **INTRODUCTION**

In the community toothache is highly predominant that makes patients to seek for essential pain-relieving treatments. The pain relieving treatments administered most commonly are endodontic treatment and tooth extraction<sup>1</sup>. The important outcome of oral health is preservation of patients natural dentition<sup>2</sup>. Since 19th century root canal treatment has been performed to maintain teeth that would have else been extracted. With the introduction of dental implants to dentistry, new treatment modalities are available to replace missing teeth<sup>3</sup>. Currently to patients who have compromised teeth in addition to root canal treatment ,single tooth implant are also given as a treatment option<sup>4</sup>. Compromised teeth have shown to be retained successfully by root canal treatment<sup>2</sup>. Newer advances such as introduction of biomaterials, application of dental operating microscope (DOM) during surgical and nonsurgical treatments and advances of engine-driven instruments for root canal preparation have led to high success rate in endodontic treatment<sup>1</sup>. Saving the natural tooth involves good endodontic treatment as well as follow-up restorative treatment<sup>4</sup>. If patients are carefully selected and the appropriate surgical technique are used then dental implant treatments are regarded as predictable procedures. The use of dental implants to replace missing teeth has increased significantly from past 10 years. For management of severely compromised dentitions and replacement of missing teeth dental implant therapy has become a popular and well accepted modality<sup>2-3</sup>. Endodontic treatment and the replacement of a single tooth with an dental implant are both viable treatment options<sup>3</sup>. Till now, there is no evidence-based study that has been published indicating that extraction and placement of implant is more preferential than root canal therapy<sup>1</sup>. Careful evaluation of multiple factors are required that may influence the outcome of the proposed treatment to decide between endodontic treatment and implant placement. For the success of long term treatment factors such as tooth variables , implant variables and patient variables must be considered<sup>3</sup>. Implant failure may result from incorrect treatment planning<sup>1</sup>. The main aim of the study was to access the knowledge and attitude of dental students towards choice of treatment plan.

## **MATERIAL AND METHOD**

A questionnaire based survey was outlined. The questionnaire constituted two parts. Questions were to assess dental students' knowledge and attitude. Both hard and soft copies of the questionnaire were used wherever feasible. Soft copies were submitted to respondents via email, as many responses as received during the study period were accepted. A total of 100 responses were recorded during the study period.

Q1) Do you think endodontic treatment of restorable tooth has outcome than implant?

A. YES

B. NO

Q2) Is Endodontic retreatment of failing root canal treatment in restorable tooth preferable to implant?

A. YES

B. NO

Q3) which treatment do you think takes more treatment time?

A. RCT

B. IMPLANT

Q4)Based on cost which treatment do you prefer for your patient?

A. RCT

B. IMPLANT

Q5) Which treatment requires the need for post-operative maintenance ?

A. RCT

B. IMPLANT

Q6) Does quality of bone affect the choice of treatment plan?

A. YES

B. NO

Q7) Should systematic factors be considered while making decision on treatment plan?

A. YES

B. NO

Q8) Based on cosmetic requirement which one do you prefer most?

A. RCT

B. IMPLANT

Q9) Which treatment do you feel has stronger mastication force?

A. RCT

B. IMPLANT

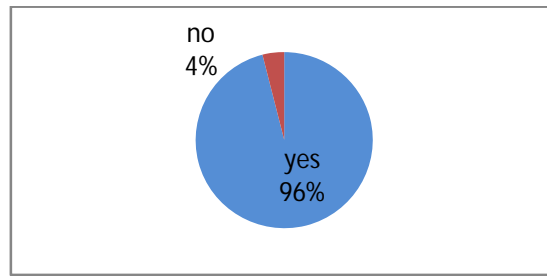
Q10) Does quality of life affect the choice of treatment ?

A. YES

B. NO

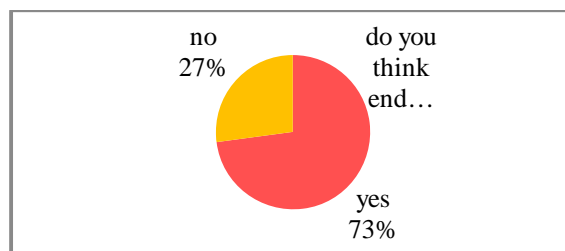
## **RESULT**

97% who participated in the survey knew that quantity of bone should be considered while making decision for treatment.96% of respondents had understanding that systemic factors should be considered for choice of treatment were as 4% of them were not aware of it.



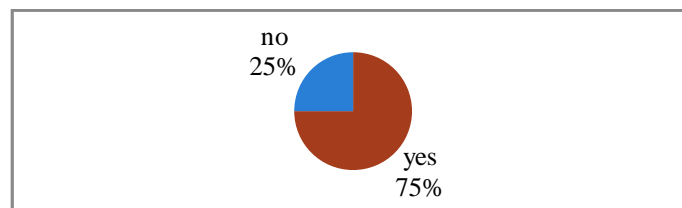
**Figure1 Systemic Factors Considered For Choice Of Treatment**

85% of participants knew that mastication force is significantly stronger in endodontic ally treated teeth, 15% didn't know that mastication force is stronger in rct treated teeth. 92% respondents knew that implant placement took more treatment time compared to root canal treatment, 2% didn't know implant placement took more time.79% participants knew that need for post-operative maintain is more for implant. Out of the 100 respondents 73 % had the opinion that endodontic treatment of a restorable tooth is better than implants, 27% of them supported implants.



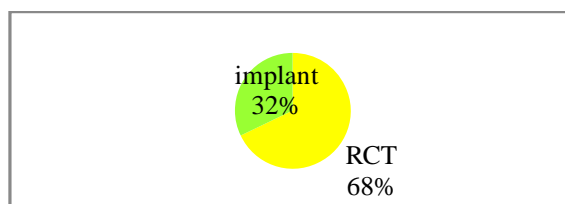
**Figure2 Choice Of Treatment For Restorable Tooth**

In choice of endodontic retreatment to implant in a restorable tooth 75% chose to do retreatment while 25% preferred implant.



**Figure 3 Endodontic Retreatment Or Implant**

Based on cosmetic requirement, 68% had positive attitude towards root canal treatment, while 32% suggested implant placement.



**Figure 4 Based On Cosmetic Requirement**

87% respondents had a outlook that quality of life of patients affect the choice of treatment, 13% had opinion that choice of treatment don't depend on quality of life. Based on cost of treatment 88% preferred root canal treatment, 12% choice was implant.

## **DISCUSSION**

The present survey collected data on dental residents' knowledge and attitude on choice of treatment towards root canal treatment versus implant. 97% of the respondents knew that quality and quantity of bone is considered while making decision for treatment. In accordance to a study by Torabinejad et al<sup>6</sup>, the quantity of available bone affects the feasibility of placing implants without bone grafting and bone quality also affects implant success. Retaining a tooth via root canal treatment with a poor long-term prognosis can lead to substantial bone loss by the time the tooth eventually is removed. 96% of respondents knew that systemic and local health factors can affect endodontic treatment outcomes. According to study by Torabinejad et al<sup>6</sup>, clinical data showed that a history of diabetes will have a negative influence on the healing of periapical lesions. People who have uncontrolled or poorly controlled diabetic, immune-suppressed or smoked have an elevated risk of developing complications after implant placement. 92% respondents knew that the time required for replacement of the tooth with implant is significantly extended than the time needed for RCT and placement of permanent restoration; in other words, earlier functional and cosmetic results are expected after endodontic treatment, compared to implant in accordance with study by Parirokh et al<sup>1</sup>. According to a study by Hannahan et al<sup>9</sup>, endodontically treated teeth have significantly less requirement for post-operative maintenance after the final restoration, while implant needs more maintenance treatments following the replacement. The mastication force is significantly stronger in endodontically treated teeth. According to study by woodmansey et al<sup>8</sup>, endodontically treated teeth were similar to the contra lateral natural teeth in all parameters estimated. The maximum bite force and median particle size of implant-supported prostheses were reduced. Endodontically treated teeth retain the natural periodontal ligament, which allows physiologic movement and these teeth can respond and adapt to functional occlusal forces to permit maximum occlusal contact during biting. In the study 73% had opinion that endodontic treatment of restorable teeth has better outcome than implant. According to a study by Hekam rabi et al<sup>2</sup>, dentists feel the prognosis of root canal therapy of a tooth is still superior to that of an implant and that retreatments are better than implants. Based on cosmetic requirement 68 % choose root canal treatment than implant. Parirokh et al<sup>1</sup> suggested that in anterior segment, with thin gingival biotype, placement of implant is seriously challenged by the cosmetic issues. In such cases, it is more appropriate to maintain the tooth and perform RCT. When biotype is thin but healthy around a natural tooth, preservation of the tooth through endodontic

therapy may provide more appropriate soft-tissue esthetics than extracting the tooth and placing a dental implant. According to a study by Pennington et al<sup>9</sup>, the treatment costs of implant are considerably more than RCT and a full coverage permanent restoration . Considering the cost-benefit ratio, endodontic treatment and endodontic retreatment are both significantly more appropriate, compared to implant.

## **CONCLUSION**

This survey suggested that undergraduates and post graduates preferred RCT and restoration over implants. Courses with interdisciplinary approach should be considered to have more uniformity in treatment-plan. From the survey conducted in making treatment planning decisions, the clinician must consider factors like economics, the patients desires and needs, esthetics, potential adverse outcomes and ethical factors. Appropriate treatment must be based with the patient's best interests and long- term quality of life.

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