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## RESEARCH ARTICLE

# AWARENESS KNOWLEDGE AND ATTITUDE AMONG FINAL YEAR, POSTGRADUATE AND DENTAL PRACTITIONERS ON RESIDUAL ALVEOLAR RIDGES: A QUESTIONNAIRE BASED STUDY

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**ABSTRACT**

**Aim:** The main aim was to find appropriate and comfortable options to treat resorbed alveolar ridges.
**Objective:** The main objective was to find a cure and appropriate options to for the augmentation of highly resorbed alveolar ridges in an effect to provide a much comfortable and reasonable option to completely edentulous patients in an effect to wear denture bases or treat the resorbed alveolar ridge to give an implant.
**Materials and Methods:** The survey was carried in saveetha dental college by distributing a questionnaire to about 150 dental student, post graduates and dental practitioners. The questionnaire consisted of 13 close ended questions and 2 open ended questions.
**Results:** The extent to how much dental students and dental practitioners know about management of highly resorbed ridges progressively increases from dental practitioners to postgraduates then when compared to the final years This can be attributed to increased experience ad exposure
**Conclusion:** Although the awareness and knowledge among the students, post graduates and dental practitioners is sufficient and satisfactory which was assessed through this survey. It provides the need to educate the practitioners and post graduates to carry out the same and practice it in patients with severe residual alveolar ridges.



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## INTRODUCTION

Teeth, jaws, and oral mucosa are not static objects; they are dynamic (change over time) and hence, Edentualism is much more than just the simple presence or absence of teeth and biochemically complex processes such as bone remodelling (Samyukta, 2016). Alveolar ridge resorption refers to the bone remodelling that occurs following tooth extraction (Araujo, 2005). Tooth loss has a direct impact on quality of life by impairing the ability to masticate, speak and socialize (Gerritsen, 2010 and Santo Grace and Dhanraj Ganapathy, 2016 ). It is well established that tooth extraction is followed by a reduction of the buccolingual as well as apicocoronal dimension of the alveolar ridge at the edentulous site (Lekovic, 1988 and Schropp, 2003). Alveolar ridge resorption refers to bone remodelling which occurs following tooth extraction (Amal Jamjoom, 2009). The absence of a tooth in its alveolus triggers a cascade of biological events which in turn results in significant local anatomic changes (Van derWeijden, 2009). This may lead to aesthetic and functional defects which in turn leads to difficulty in placing an implant (Bartee, 2001). Traumatised alveolar ridges are mainly the root causes of trauma or infections or cases following tooth extraction and this may lead to aesthetic and functional defects. Following an extraction, bone resorption occurs in two phases. In the first phase, the bundle bone that anchors the tooth in the alveolar process through Sharpey's fibers is rapidly resorbed and replaced with newly formed immature woven bone (Tan, 2012; Wang, 2012 and Pagni, 2012). Restorations supported by means of dental implants are currently a highly predictable treatment modality for the rehabilitation of partial and complete edentulism.1 Advantages of oral implant treatment over conventional non-surgical prosthetic rehabilitation has added to its wide acceptance (Annibali, 2012). Alveolar ridge, as a part of the periodontium, plays an integral role in the maintenance of both the natural dentition and dental implants. An adequate volume of bone at the site of implant placement is a necessity to ensure favourable biomechanics and long term aesthetic outcome (George, 2015). Reestablishment of the natural dimensions of the alveolar process is essential for both functional rehabilitation and aesthetic restoration; if missing teeth are to be restored with implant supported prostheses, restoring these dimensions is of crucial importance. Bone

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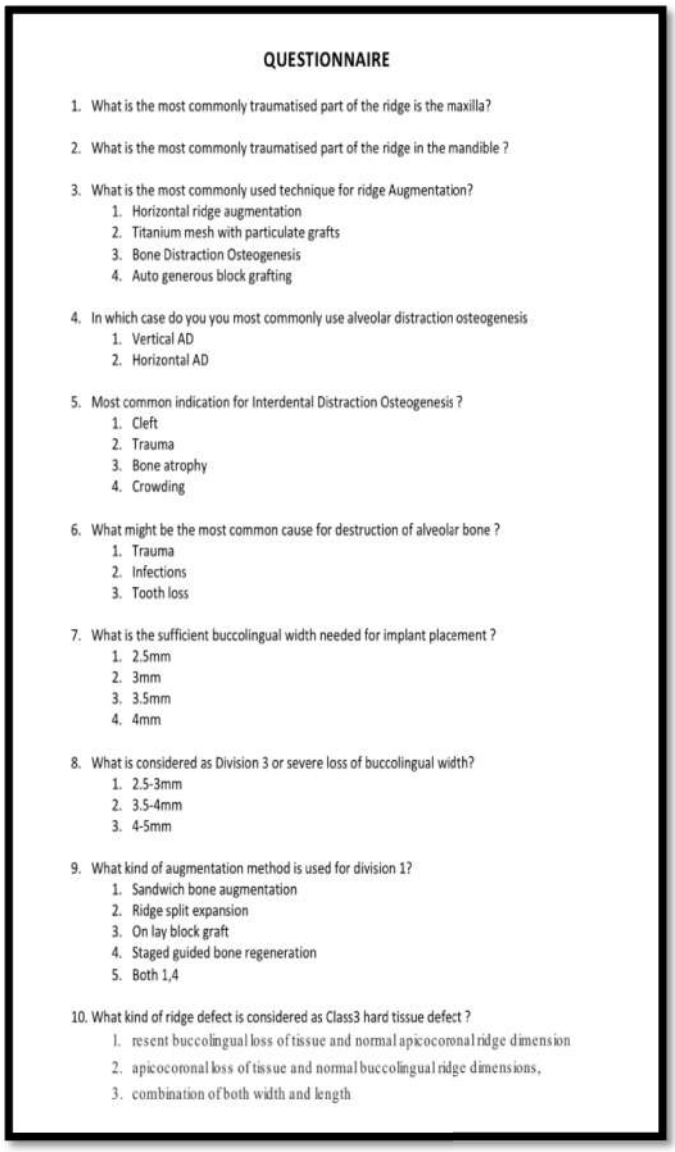
augmentation techniques may be used for the applications of extraction socket defect grafting, horizontal ridge augmentation, vertical ridge augmentation, and sinus augmentation. To maximise the results for each of these applications, a variety of different techniques is employed. They include particulate grafting, membrane use, block grafting, and distraction osteogenesis, either alone or in combination. When considering the various modalities of treatment for the prosthetic replacement of teeth following tooth loss, the end goal of therapy is to provide a functional restoration (Bone Augmentation Techniques Bradley, 2017), grafting options & non-bone grafting options with ever evolving alternatives. The general consensus is that horizontal ridge augmentation is highly predictable, with good resultant implant survival rates when compared to vertical ridge augmentation (Esposito, 2009). Alveolar distraction osteogenesis is a viable clinical alternative for vertical, horizontal and interdental alveolar ridge augmentation, and mostly used to regenerate bone for the placement of dental implants, closure of the defect and creation of new bone6.this study has assessed the level of relative dentists knowledge on management of highly resorbed alveolar ridges in order to evaluate effectiveness and promote instructional knowledge through the assessment of the acquired results.

## MATERIALS AND METHODS

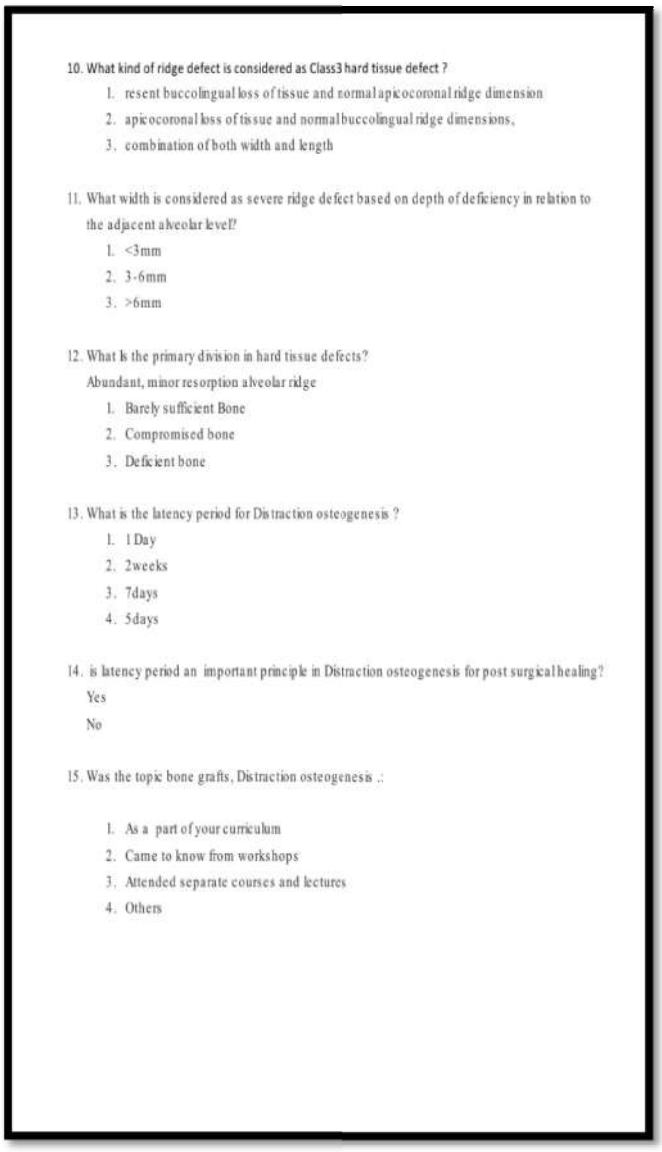
A cross sectional questionnaire survey was carried out to assess the knowledge, attitude and awareness on resorbed alveolar ridges among final year, post graduate dental students and dental practitioners. Convenient sample size of 150 dental students and practitioners was decided and data was collected by questionnaire. From them about 45 Interns and 70 post graduate dental students and 35 dental practitioners filled the questionnaire. This questionnaire was approved by the scientific research board of SAVEETHA dental college. A specially designed questionnaire consisting of close ended questions and 2 open ended question was said to assess the knowledge on resorbed alveolar ridges among final year and PG dental students and dental practitioners. This questionnaire was distributed to the final year and post graduate dental students and dental practitioners in Chennai. The name and Identity of the students and the practitioner was maintained anonymous. All the students were given a half an hour to one hour time to complete the questionnaire. The completed questionnaires were immediately collected and were analysed.

The questionnaire used for the survey has been attached below:



QUESTIONNAIRE

1. What is the most commonly traumatised part of the ridge is the maxilla?
2. What is the most commonly traumatised part of the ridge in the mandible ?
3. What is the most commonly used technique for ridge Augmentation?
   1. Horizontal ridge augmentation
   2. Titanium mesh with particulate grafts
   3. Bone Distraction Osteogenesis
   4. Auto generous block grafting
4. In which case do you you most commonly use alveolar distraction osteogenesis
   1. Vertical AD
   2. Horizontal AD
5. Most common indication for Interdental Distraction Osteogenesis ?
   1. Cleft
   2. Trauma
   3. Bone atrophy
   4. Crowding
6. What might be the most common cause for destruction of alveolar bone ?
   1. Trauma
   2. Infections
   3. Tooth loss
7. What is the sufficient buccolingual width needed for implant placement ?
   1. 2.5mm
   2. 3mm
   3. 3.5mm
   4. 4mm
8. What is considered as Division 3 or severe loss of buccolingual width?
   1. 2.5-3mm
   2. 3.5-4mm
   3. 4-5mm
9. What kind of augmentation method is used for division 1?
   1. Sandwich bone augmentation
   2. Ridge split expansion
   3. On lay block graft
   4. Staged guided bone regeneration
   5. Both 1,4
10. What kind of ridge defect is considered as Class3 hard tissue defect ?
    1. resent buccolingual loss of tissue and normal apicocoronal ridge dimension
    2. apicocoronal loss of tissue and normal buccolingual ridge dimensions,
    3. combination of both width and length



10. What kind of ridge defect is considered as Class3 hard tissue defect ?
    1. resent buccolingual loss of tissue and normal apicocoronal ridge dimension
    2. apicocoronal loss of tissue and normal buccolingual ridge dimensions,
    3. combination of both width and length
11. What width is considered as severe ridge defect based on depth of deficiency in relation to the adjacent alveolar level?
    1. <3mm
    2. 3-6mm
    3. >6mm
12. What Is the primary division in hard tissue defects?
    Abundant, minor resorption alveolar ridge
    1. Barely sufficient Bone
    2. Compromised bone
    3. Deficient bone
13. What is the latency period for Distraction osteogenesis ?
    1. 1 Day
    2. 2weeks
    3. 7days
    4. 5days
14. is latency period an important principle in Distraction osteogenesis for post surgical healing?
    Yes
    No
15. Was the topic bone grafts, Distraction osteogenesis .:
    1. As a part of your curriculum
    2. Came to know from workshops
    3. Attended separate courses and lectures
    4. Others

## Data Analysis

The data entry was done by Microsoft Excel. The collected data was analysed using descriptive analysis.

**Table 1. The number of students from each year who have answered the questionnaire**

| Year of study | No.ofstudents |
|---|---|
| Final years/interns | 45 |
| Post graduates | 70 |
| Dental practioners | 35 |

**Table 2. The tabulation of data for question3**

| Column1 | No.of students |
|---|---|
| 1. Horizontal ridge augmentation | 114 |
| 2. Titanium mesh with particulate grafts | 12 |
| 3. Bone Distraction Osteogenesis | 18 |
| 4. Auto generous block grafting | 6 |

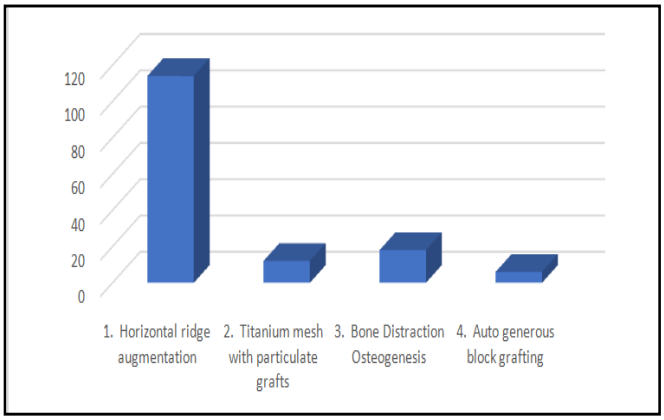



**Figure 1. Graphical analysis of Table 2**

**Table 3. The tabulation of data for question 4**

| Column1 | No.of students |
|---|---|
| 1. Vertical AD | 132 |
| 2.Horizontal AD | 18 |

**Table 4. The tabulation of data for question 5**

| Column1 | No.of students |
|---|---|
| 1. Cleft | 90 |
| 2. Trauma | 18 |
| 3. Bone atrophy | 36 |
| Crowding | 6 |

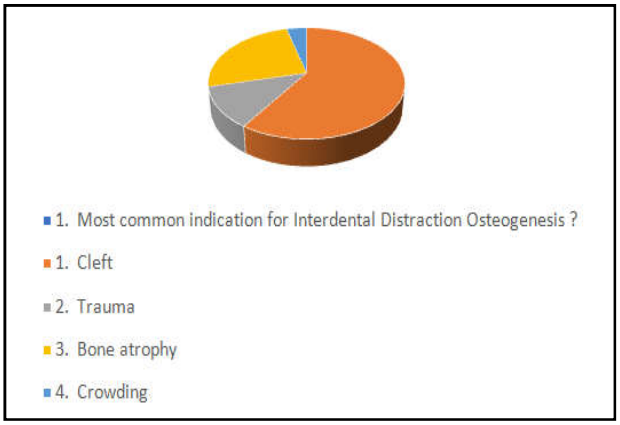



**Figure 2. Graphical analysis of table 4**

**Table 5. The tabulation of data for question 6**

| Column1 | No.of students |
|---|---|
| 1. Trauma | 84 |
| 2. Infections | 60 |
| 3. Tooth loss | 6 |

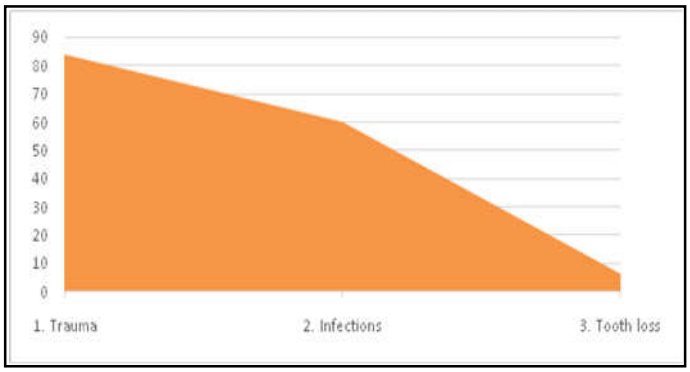



**Figure 3. Graphical analysis of table 5**

**Table 6. The tabulation of data for question 7**

| Column1 | No. of students |
|---|---|
| 1. 2.5mm | 18 |
| 2. 3mm | 12 |
| 3. 3.5mm | 96 |
| 4. 4mm | 25 |

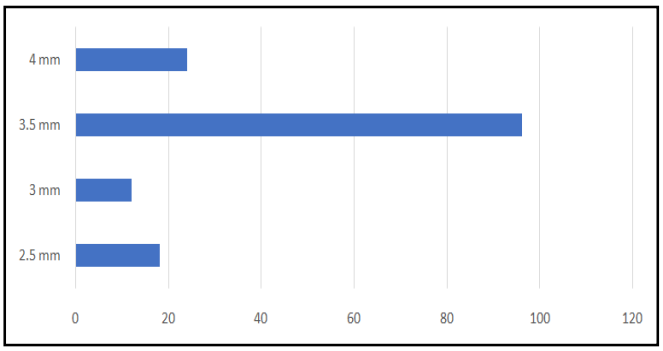



**Figure 4. Graphical analysis of table 6**

**Table 7. Tabulation of data from question 8**

| Column1 | No. of students |
|---|---|
| 1. 2.5-3mm | 48 |
| 2. 3.5-4mm | 30 |
| 4-5mm | 72 |

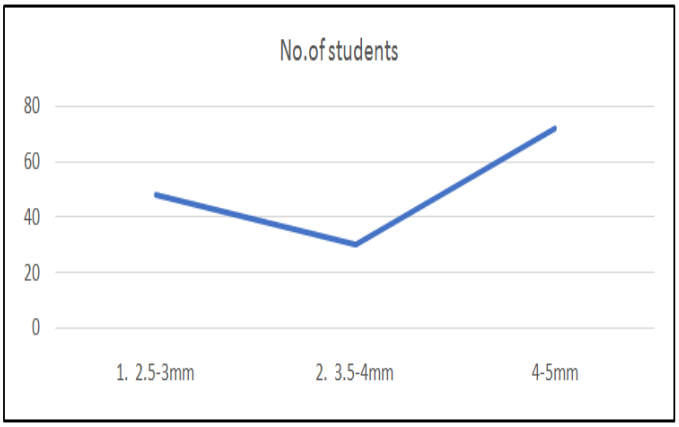



**Figure 5. Graphical analysis of table7**

**Table 8. The tabulation of data for question 9**

| Column1 | No. of students |
|---|---|
| 1. Sandwich bone augmentation | 24 |
| 2. Ridge split expansion | 36 |
| 3. On lay block graft | 12 |
| 4. Staged guided bone regeneration | 6 |
| 5. Both 1,4 | 72 |

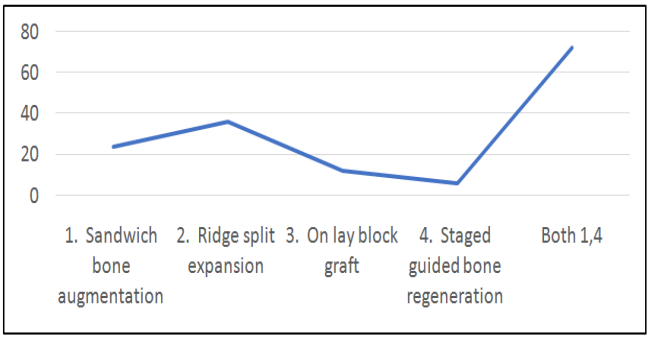



**Figure 6. Graphical analysis of table 8**

**Table 9. The tabulation of data for question 10**

| Column1 | No. of students |
|---|---|
| 1. resent buccolingual loss of tissue and normal apicocoronal ridge dimension | 12 |
| 2. apicocoronal loss of tissue and normal buccolingual ridge dimensions, | 36 |
| Combination of both width and length | 102 |

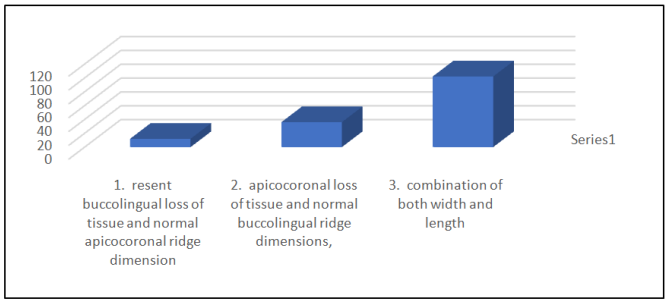



**Figure 7. Graphical analysis of table 9**

**Table 10. The tabulation of data from question 11**

| Column1 | No. of students |
|---|---|
| 1. <3mm | 30 |
| 2. 3-6mm | 30 |
| >6mm | 90 |

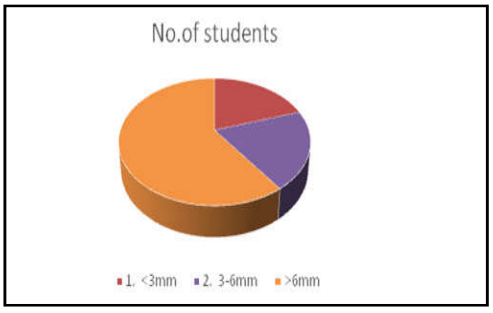



**Figure 8. Graphical analysis of Table 10**

## RESULTS

The extent to how much dental students and dental practitioners know about management of highly resorbed ridges progressively increases from dental practitioners to postgraduates then when compared to the final years. This can be attributed to increased experience and attainment of knowledge and exposure to different techniques for management of highly resorbed alveolar ridges and having treated many patients over the years.

**Table 11. The tabulation of data for question 12**

| Column1 | No. of students |
|---|---|
| Abundant, minor resorption alveolar ridge | 30 |
| 1. Barely sufficient Bone | 30 |
| 2. Compromised bone | 12 |
| 3. Deficient bone | 78 |

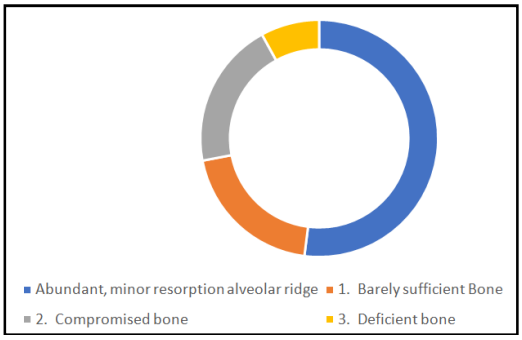



**Figure 9. Graphical analysis of table 11**

**Table 12. The tabulation of data for question 13**

| Column1 | No. of students |
|---|---|
| 1. 1 Day | 18 |
| 2. 2weeks | 6 |
| 3. 7days | 114 |
| 5days | 12 |

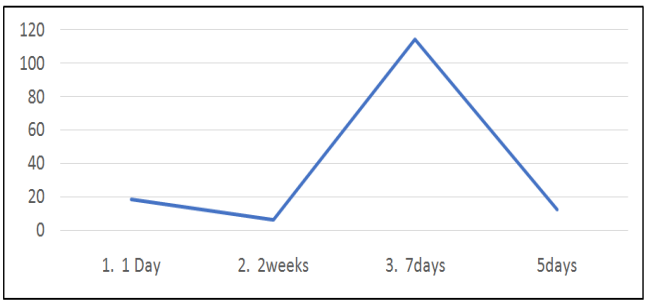



**Figure 10. Graphical analysis of table 12**

**Table 13. The tabulation of data for question 14**

| Column1 | No. of students |
|---|---|
| Yes | 144 |
| No | 6 |

**Table14. The tabulation of data for question 15**

| Column1 | No. of students |
|---|---|
| 1. As a part of your curriculum | 48 |
| 2. Came to know from workshops | 48 |
| 3. Attended separate courses and lectures | 24 |
| 4. Others | 30 |

## DISCUSSION

This cross sectional study was conducted to assess the competence efficiency of dental students and post graduates and dental practitioners on dealing with patients with highly

resorbed alveolar ridges about 150 dental students were interviewed with a structured questionnaire.

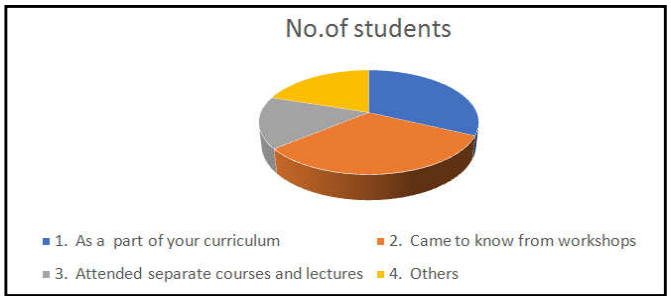



**Figure 11. Graphical analysis of table14**

This study discusses mainly about how important it is for a dental student or a post graduate or a dental practitioner to know how much of a role knowledge on different management techniques play a role in treating patients with severely resorbed alveolar ridges. Dentists or dental students must be well aware of how important it is for the patient to restore a proper denture to any patient with resorbed alveolar ridges and denture and mere implants will not be sufficient enough to a give a proper restorative dentition. In our study the main aim was to assess the knowledge among the final years, post graduates and dental practitioners. From the results we were able to analyse that the knowledge level was significantly more and statistically differed between the final years and post graduates and dental practitioners. The dental practitioners due to the increased exposure and hence more experience were able to answer the survey better and hence had more knowledge this was attributed to the increased patient exposure and consecutive steps they would have performed to treat them even while taking into regard that they had bleeding disorder.
Among the study conducted it has been found that about About 76% of the students post graduates, dental practitioners answered horizontal ridge augmentation as the most commonly used technique for ridge augmentation.

About 88% of the students and post graduates told the vertical Distraction osteogenesis as the most commonly used A.D.O. About 60% of the students, PG's and dental practitioners answered that a cleft was the most common indication for an I.D.O . We also see that about 56% encountered a patient with resorbed alveolar ridges caused due to trauma while the rest 40% had patients with resorbed alveolar ridges caused due to infections while only 6 of them had encountered patient's resorbed alveolar ridges caused due to tooth loss. Also about 64% who took the survey said correctly that 3.5mm was the sufficient buccolingual width needed for implant placement. About 48% of the students and post graduates said that 4-5mm was considered the division 3 or sever loss of buccolingual width and even relatively 48% of the students answered correctly that both sandwich bone augmentation and staged guided bone regeneration is used for diction 1 augmentation And about 68% of the students and post graduates thought that the combination of both width and length was considered as a class 3 hard tissue defect. About 60% of the students and post graduates thought that >6mm was considered as a sever ridge defect based on depth of deficiency in relation to adjacent alveolar level we also see that 52% of them answered correctly that abundant and minor resorbed alveolar ridge was the primary division in hard tissue defect. Finally when asked about the latency period about 76% answered saying that 7days was the latency period for Distraction osteogenesis and was needed for post operative healing.

There were two additional questions: one of them asked the students and practitioners to answer which was the most commonly treatise depart of the ridge in the maxilla and about 90% of those who took the survey were able to give the right answer while the rest were pretty not much experienced in the same and did not know. This could have been a reason due to very little exposure on the same. The other question that was included to ask the students was which was the most commonly traumatised part of the ridge in the mandible and only 45% of them were able to answer correctly. Also from figure 11 we see that the only way students get to learn is through their curricula, and workshops More over Since not much attention is being paid on the training of the students regarding the proper restorative and augmentative procedures of highly resorbed alveolar ridges , knowledge on this aspect should be emphasised in the Undergraduate and post graduate dental curriculum and it should be made mandatory to students to attend continuing dental educational courses regarding management of the patients with highly resorbed alveolar ridges.

## Conclusion

Although the awareness and knowledge among the students, post graduates and dental practitioners is sufficient and satisfactory which was assessed through this survey. It provides the need to educate the practitioners and post graduates to carry out the same and practice it in patients with severe residual alveolar ridges . Though according to our survey enough and sufficient knowledge has been provided along with their curriculum. Further seminars and workshops can be conducted on the same and also provide them with a hands on usage for the better training of the dentists.

## Abbreviations

A.D.O- Alveolar Distraction osteogenesis
I.D.O- Interdental Distraction osteogenesis

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