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Knowledge And Awareness Of Implant Thread Design Among Undergraduate Dental Students

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ABSTRACT:

INTRODUCTION:

At present, treatment techniques available for the replacement of missing teeth are various in number. The prime emphasis is to maintain speech, aesthetics, normal function and health of the patient. In the last few years, the treatment of missing teeth has changed many folds due to the frequent use of dental implants in rehabilitation of partially or completely edentulous patients. Implants are becoming an indispensable part of dentistry nowadays because of its success and predictability in esthetic, functional rehabilitation and long-term successful outcomes.

AIM: To determine and assess the knowledge and awareness of implant thread design among undergraduate dental.

MATERIALS AND METHODS:

The present study was conducted among 100 undergraduate dental students aged 17-25 years of both genders. A questionnaire was prepared consisting of 10 questions, and it was distributed to each of them, and they were evaluated individually. The results of the study were calculated statistically and analyzed both quantitatively and qualitatively.

RESULTS: The overall results of the study indicated that 72% (4th year) and 55% (3rd year) undergraduate students do have knowledge and are aware of implant thread designs when compared to 1st year and 2nd year who lack knowledge and awareness.

CONCLUSION:

From the above study, we can conclude that there is satisfactory knowledge and awareness of implant thread design among 3rd and 4th year students. Hence there is a need to increase the knowledge and awareness of implant by conducting more workshops and seminars about implant therapy to 1st and 2nd year. Awareness of dental implants is increasing among dental patients, which demands a higher level of competence for the clinician.

KEY WORDS: Implant thread Design, Knowledge, Awareness,Functionalrehabilitation,Innovativetechnology,innovation

INTRODUCTION:

At present, various treatment techniques are available for the replacement of missing teeth. The prime target is to maintain aesthetics, speech, normal function and health of the patient. Past years, the treatment of missing teeth has changed many folds due to the frequent use of dental implants in rehabilitation of partially or completely edentulous patients [1]. Implants are becoming used often in dentistry nowadays because of its success and predictability in esthetic, functional rehabilitation and long-term successful outcomes [2],[3,4] . Significant improvement in the quality of life related to oral health has been noticed in patients who preferred dental implants as a treatment modality for replacement of missing teeth over other techniques .

In the current scenario, dental implants are routinely used in dentistry for replacing missing teeth, but dental practitioners are still lacking the thorough knowledge about implants in dentistry. In spite of the excellent clinical outcomes of dental implants, the basic knowledge and information about fundamentals of dental implants is still missing among the first and second year dental students [5],[6,7]. Though dental implants as a modality of treatment for missing teeth is an optional one, patients must be provided with complete information about dental implants and their uses to give their consent about the treatment. The general population is educated by modern day healthcare providers about the latest treatment modalities in the complex field of dentistry/medicine. Awareness among the undergraduate dental students regarding any new update in their field will supplement the above said purpose. Our team has extensive knowledge and research experience that has translate into high quality publications[8–19].

The objective of the study is to determine and understand the knowledge and awareness of implant thread designs among undergraduate dental students.

MATERIALS AND METHODS:

The study was conducted among 100 undergraduate dental college students studying in India. A questionnaire was prepared consisting of 10 questions, and it was distributed through an online platform to everyone. Sample size of 100 was recorded, the results were collected and they were evaluated individually. The results of the study were calculated statistically and analyzed both quantitatively and qualitatively.

RESULTS AND DISCUSSION :

TOTAL - 100 Participants

Year of study	1st Year	2nd Year	3rd Year	4th Year
Percentage	18%	17%	30%	35%

QUESTIONNAIRE	Percentage	P value
1. Are you aware of different parts of dental Implants? A. Yes B. No	A. 68% B. 32%	0.01
2. Do you agree that Implant thread pattern plays a role in stress distribution ? A. Yes B. No	A. 69% B. 31%	0.01
3. Are you aware of V- Shaped threads ? A. Yes B. No	A. 57% B. 43%	0.01

4. Are you aware of square thread Implants ? A. Yes B. No	A. 56% B. 44%	0.01
5. Do you agree that the microthread configuration at the Implant neck may improve bone formation? A. Agree B. Disagree	A. 74% B. 26%	0.01
6. Are you aware of the Implant thread designs available in India ? A. Yes B. No	A. 75% B. 25%	0.01
7. Why do you think Implant threads are designed? A. Maximise initial contact B. Enhance surface area C. Cause compression of bone D. None of the above	A. 36% B. 30% C. 21% D. 13%	0.01
8. Do you agree that the thread design has influence over long term bone loss and Implant survival ? A. Agree B. Disagree	A. 86% B. 14%	0.01

9. Are you aware of the Implant thread designs available overseas ? A.Yes B.No	A. 77% B. 23%	0.01
10. Are you aware of the success and failure rate of implant placement? A. Yes B. No	A. 45% B. 26%	0.01

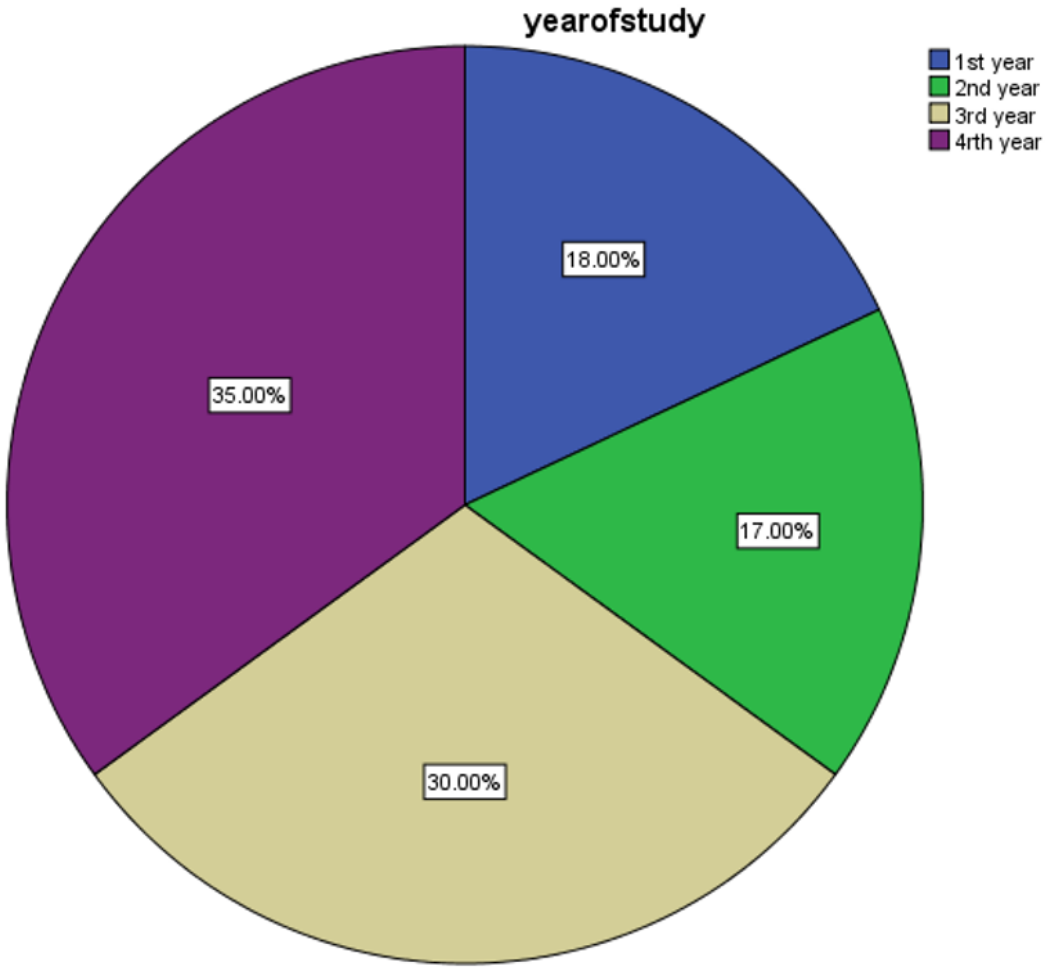

Figure 1 : The above chart represents the percentage distribution of participants based on the year of study involved in this research. Blue colour denotes 1st year with 18%. Green colour indicates 2nd year with 17%. Peach colour indicates 3rd year with 30% responses and purple colour denotes 4th year with 35%.

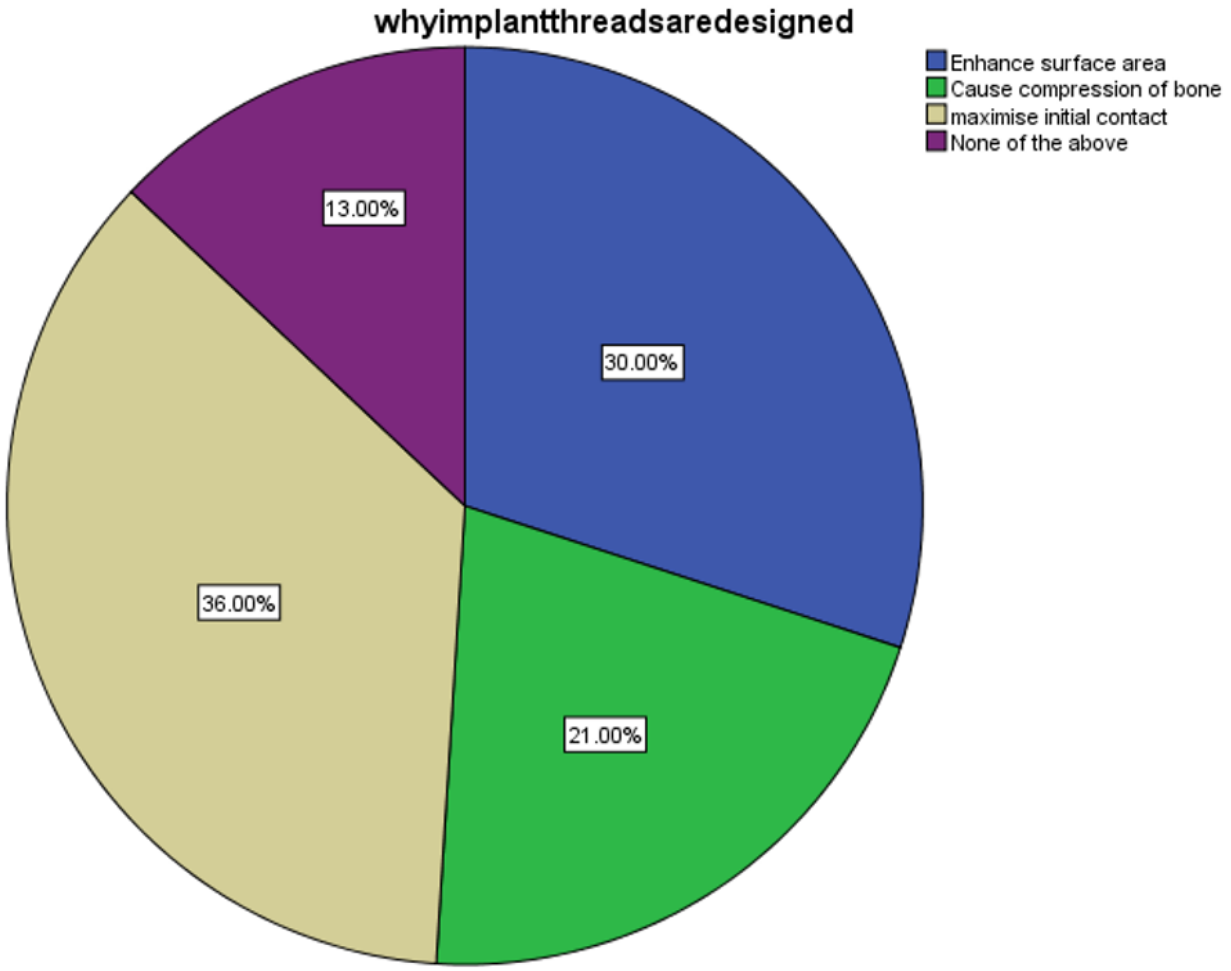

Figure 2: represent the percentage of why implant threads are designed. 30% responded that they are designed for enhancing surface area and 21% responded for cause of bone compression. 36 % responded to maximise initial contact. 13% responded to none of the above.

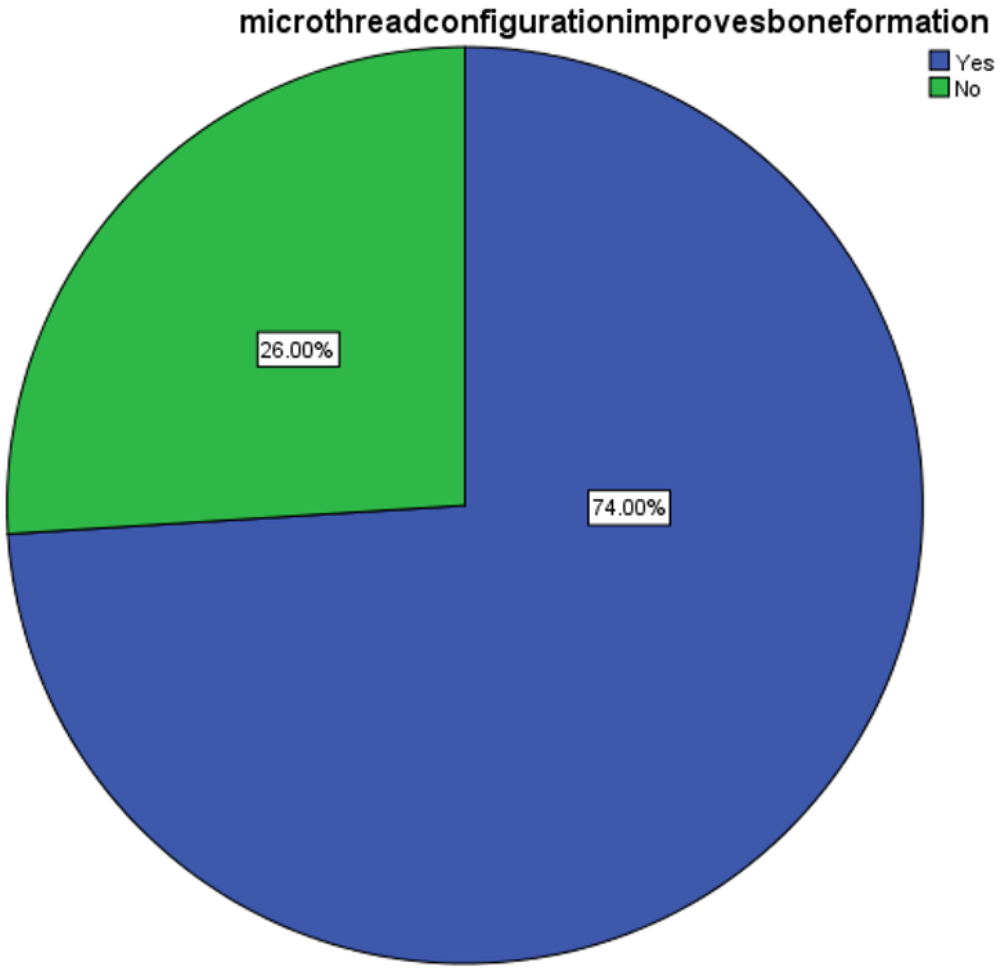

Figure 3: represents the percentage distribution of respondents who opted for yes (74%) that microthread configuration improves bone formation. 26% responded to no and don't believe that micro thread configuration improves bone formation.

Implant design can increase surface area of support. A threaded design implant has 30% to 200% greater surface area compared with a cylinder implant of the same size. Although more difficult to place, the threaded implant in poorer density bone is strongly encouraged. Biomechanical aspects of thread design also affect the total increase in the surface area (i.e., thread pitch, shape, and depth). Threaded implants could reduce both bone stress and implant bone sliding distance. Thus, potentially improving initial implant stability and long-term survival.

Secure primary stability is positively associated with successful long-term implant integration to ensure a successful clinical outcome. Initial implant stability is defined as biomechanical stability upon insertion, which is influenced by factors such as bone quantity and quality, geometry of the implant, surgical

technique, and insertion torque (IT) [20]. Differences in implant body pitch include an increase in spiral angle with increasing pitch, as represented by multi-threading, and in the pitch itself [21]. To date, however, no studies have used torque that actually reflect the effect of torsion angle and thread compactness on the stability of implants implanted into low bone density bone.

Optimal implant design is required for sufficient primary stability. For example, thread design is critically important to achieving primary stability. The relevant characteristics of the thread that determine its functional surface and distribute the biochemical load are as follows: depth, thickness, pitch, and face and lead angles [22]. Certain manufacturers have developed double- or triple-threaded implants. Compared with single-threaded implants, multiple-threaded implants can be inserted faster [23].

Since the introduction of the concept of osseointegration in dentistry, implant treatment has become quite popular for the replacement of the lost or missing teeth. In developed countries, dental implant therapy is becoming popular among patients and dentists with the help of various education and health related programs while the scenario is quite different in developing countries like India. Despite the success of implant therapy, the implant procedures are neglected in undergraduate dental curriculum, as a result of this, the dental students are lacking knowledge about dental implants.

CONCLUSION:

After conducting the present study, it is found that knowledge regarding dental implants in the course of undergraduate dentistry needs to be increased if we want the future dentists to be well informed and confident regarding dental implant therapy. This study suggested that there is a need for a more structured teaching program for the 1st and 2nd year of study about dental implants for treating missing teeth. As the 3rd and 4th year students have good knowledge and awareness about implant thread design.

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CONFLICT OF INTEREST

The author declares no conflict of interest.

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