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Factors which determine implant selection: Dentist's perspective

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Abstract: Purpose: To determine the selection criteria for dental implant systems used by implantologists in the Mumbai and Navi Mumbai area, as well as to assess their knowledge, attitudes, and comprehension of these criteria.

Material and Methods: A Google form (online questionnaire) was designed for this purpose. A personal WhatsApp account was used to send the questionnaire. A total of 19 questions made up the survey. Each question was composed of attributes of the implant system that the dentist would rate on a linear scale. One of these 19 questions included 12 distinct parameters that might help with implant system selection. Incomplete questionnaires were not considered. All valid responses were statistically evaluated.

Result: The questionnaire was sent to 810 participants, of which 403 responded (response rate 50.2%). Due to insufficient data, 3 responses were disregarded. Our study revealed that 62.7% were specialists and 20.3% were general dentists (periodontists (20.3%), prosthodontists (16.3%), oral surgeons (16.3%), and others 10.8%). The prosthetic and surgical parts of implants were practised by 67.82% of respondents. The majority of respondents (68%) rated scientific evidence supporting implants as the most crucial factor in choosing an implant system. This was followed by implant geometry (67.3%), connections between implants and abutments (66%) and ease of prosthetic procedures (65.8%). Platform Switching (78.8%), aesthetics in the anterior region (69.3%), and prosthesis type (screw retained) were identified to be the additional parameters that were most crucial for implant selection.

Conclusion: Study results showed that scientific evidence supporting implants was the most important criterion followed by implant geometry, implant-abutment connection, and simplicity of prosthetic procedure. Other major selection criteria included Platform Switching, aesthetics in the anterior region, and type of prosthesis (screw retained).

Keywords: Implant-abutment, platform switching, implant geometry.

1. Introduction

For restoring lost teeth, dental implant therapy is among the finest options. The development of more recent methods for increasing osseointegration has made implants a more popular therapy option than they were 30 years ago. Since the invention of cutting-edge radiography tools like CBCT, implant dentistry has made significant advancements. According to several studies, a well-integrated implant with the right biomechanical load can have a long-term survival rate of 92%-98% between 5-10 years in the presence of healthy tissue.

Numerous implant systems have been designed to address the demands of restoring lost teeth. Around 200 different brands of implants were already marketed globally, according to 1999 research by Brunski JB. With almost 1 million implants being placed in patients globally each year, implant awareness is growing nowadays.

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Dentists are faced with the challenge of selecting an implant from a large number of options from numerous implant systems since many novel types of implants are entering the market.

Dental implant systems are governed by a number of regulatory agencies, who also provide the basic criteria for their clinical adoption. However, the final decision to employ an implant system rests with the dentist. There is still disagreement among dentists on choosing a single efficient implant system due to the lack of unanimity and randomised control studies. Dentists, particularly those new to the field of implantology, are unsure of what standards they should adhere to when selecting implants. Dentists may base their decision on variety of variables, including scientific data, the cost of the implant, and specific aspects like implant design, success, survival, healing time and other patient-related factors. Additionally, taken into account are manufacturer-related considerations like technical support, marketing, and implant warranty.

This study intends to assess dentists' knowledge, awareness, and attitudes regarding the factors that should be taken into consideration when choosing an implant system. This study will assist aspiring implantologists in developing a framework of criteria for selecting implant systems.

2. Materials and Methods:

There are no predetermined guidelines or standards that may be utilised as a model for choosing an implant system. A questionnaire-based study was conducted at a dental school in Navi Mumbai, India, to address this question. 810 dentists who specialised in implantology in the Mumbai and Navi Mumbai areas received the questionnaire. The subjects' identities were kept confidential. The questionnaire was sent to the subjects via WhatsApp as Google Form. The questions were unambiguous and simple. This was done in order to make the questionnaire clear and comprehensible.

2.1 Questionnaire

A questionnaire with 19 questions was generated. One of these 19 questions included 12 distinct parameters that might help with implant system selection. On a scale of 1 to 5, each of these standards was scored. Number 1 indicates the highest level of agreement with the implant criteria, and number 5 indicates the lowest level of agreement. The following were the criteria:
Implant- abutment connection
Scientific based evidence available on chosen implant
Simplicity of prosthetic step
Implant geometry
Availability of stock product and technical support by dealer
Warranty provided by manufacturer or dealer
Price of implant
Shorter healing period of implant placement
Request/desire of referring dentist
Type of prosthesis required (screw/cement retained)
Training provided by manufacturer or dealer
Popularity of implant system among other dentist

Other inquiries focused on typical aspects of implants, including surface treatment, implant-abutment type, immediate or delayed loading, length of the implant, its diameter, and shape, implant prosthesis type, favoured quality control system, aesthetic and oral hygiene considerations, use of CBCT, and stents for implant placement.

2.2 Statistical analysis

The data was extracted from google forms and transferred into a Microsoft Excel file and evaluated statistically. Statistical software IBM SPSS software was used for the analysis of data (IBM Corporation Armonknn, NY, USA)

3. Results:

The questionnaire was sent to 810 participants and 403 individuals responded, indicating a response rate of 50.2%. Due to insufficient data, 3 responses were disregarded. Male respondents made up the bulk of the sample (53%), as did general practitioners (37.3%). The other professionals who practised dental implantology were periodontists (20.3%), prosthodontists (15.5%), and oral surgeons (16.3%) (Graph 1). The majority of

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responders (38%) had a minimum of 10-year expertise in implant practice. The sociodemographic details of the respondents are shown in Table 1.

Table 2 lists the factors that all respondents considered while choosing an implant system. The most crucial factor in choosing an implant system was determined to be evidence-based scientific data of the selected implant (68%) (Graph 2), followed by implant geometry (67.3%), implant/abutment connections (66%) and ease of prosthetic steps (65.8%).

The questionnaire also included 14 questions based on aspects of implants that are often used, such as surface treatment, the kind of implant-abutment connection, immediate vs. delayed loading, the length, diameter and shape of the implant etc. According to 78.7% of the respondents, the "platform switching" option would impact their choice of implant purchase as opposed to a single-piece implant (Table 3). Internal hex connections were the most favoured implant-abutment connection (62%). The survey's findings revealed that 58.3% of respondents preferred sandblasted large gritted acid etch (SLA) implant while the calcium-coated surface was the least preferred (Table 4) (Graph 3). The majority of participants (60%) chose to install their implants using the delayed loading approach (Table 5). The majority of individuals (62.7%) chose screw-retained over cement-retained prosthesis (Table 6). Most of the respondents preferred longer (52.5%) and tapered implants (39.8 %) with a preferable width of 4.5mm (39.8%) (Table 6).

Almost all subjects considered aesthetics and oral hygiene important during implant therapy (Table 7). 339.3% of respondents reported using an FDA-approved implant system. For implant treatment therapy, cone beam computerized tomography (CBCT) has been invaluable, and our study also found that most dentists prefer to use CBCT in every implant procedure. Most dentists did not, however, favour the use of surgical stents.

4. Discussion

In accordance with the literature, implant surface design, surface roughness, bone-implant interface, implant geometry such as length, diameter and shape, properties of the surgical site, and supporting bone play an important role in load transfer and implant-bone response. (Shalabi, 2006; Cicciu, 2014). The process of choosing a dental implant system is intricate. Dentists may base their decision on different variables, including data from scientific studies, cost concerns, implant-related factors, and manufacturer-related considerations.

This study was conducted on a group of dentists practicing implantology in Mumbai and Navi Mumbai region. An online questionnaire was designed and sent as google forms through WhatsApp to 810 dentists, and 403 had replied, showing a response rate of 50%.

The most significant selection criterion reported by all survey respondents was the availability of scientific-based evidence on the selected implant system. Evidence-based treatment refers to the intentional application of current research as a treatment guideline. A wide range of implant systems are readily available to dentists today. Therefore, the scientific data supporting each system should be taken into careful consideration while selecting an implant. The choice of a suitable implant is influenced by the data on success, failure, and challenges presented by each implant system, loading mechanism, surgical method, prosthesis, etc. The design of implants, surgical techniques, success and failure rates, and challenges related to implant insertion have all been extensively studied in experimental investigations and clinical trials. From a patient's perspective and psychosocial point of view, scientific facts aid to analyse and comparing implant therapy to other treatment options. Studies on implant sizes, lengths, morphologies, implant surface alterations, and advancements in macro design can be utilized to choose the most case-appropriate implant system (Mesquida, 2014).

The implant geometry emerged as the second most important criterion. In contrast to short implants, majority of responders (52%) have utilised long implants (between 11-13 mm). Kim's study (2017) found that longer implants had superior post-surgical stability than shorter implants. However, with short dental implants, it is feasible to design a predictable treatment strategy and avoid the risks and expenses of any augmentation procedures (Lemos, 2016; Pabst et al., 2015). The present notion, however, implies that the clinician's choice of implant length is based on factors like scientific data, surgical expertise and experience of the clinician, and the needs of the patient (Thoma, 2017).

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Narrow-diameter dental implants (> 4.5 mm) have been utilised by most of the participants. Narrow implants offer numerous benefits including a lesser-invasive surgery, the need for minimal augmentations procedures, and less postoperative discomfort. The impact of implant diameter on the long-term survival of dental implants, however, is secondary. Javed (2015) claims that a well-designed surgical procedure, attaining enough primary stability during implant placement, and maintaining pre- and postsurgical oral hygiene are important aspects that affect the long-term life of dental implants.

Over 60% of respondents favoured tapered dental implants. This may be related to the fact that tapered implants closely resemble the form of a natural tooth root. Implants with tapered designs and surface alterations can boost implant stability as a result of the significant bone compression created during insertion and the high-contact osteogenesis (Atieh, 2018). However, the findings of the systematic review by Alshehri (2016) suggest that threaded implants with rough surfaces can osseointegrate and continue to be functionally stable regardless of the design of the implant body.

In accordance with the findings of Ahed Al-Wahadni (2017), the implant/abutment connection was deemed as a crucial selection criterion by all respondents. The junction between the implant fixture and the abutment is called the implant/abutment connection. According to Carr AB (1996), it is a crucial factor in determining the stability and strength of an implant-supported restoration. Frequent loosening and breakage of the screw may be brought on by the presence of an unsteady implant/abutment relationship. Additionally, it results in plaque build-up, poor soft tissue response, and subsequently, osseointegration failure (Binon PP, 1996).

Simplicity of prosthetic steps. the type of prosthesis, warranty and technical support provided by the manufacturer/dealer and shorter healing period were preferred by majority of the respondents.

Platform switching is the placement of a small-diameter abutment on a wide-diameter implant collar. Aesthetic and osseous alterations near the implants might be minimised by this. Platform switching has been proven to have the potential to maintain soft tissue levels and inter-implant bone height (Wagenberg, 2010; Gupta, 2019). According to research by Atieh MA (2010), the magnitude of implant-abutment incompatibility has been demonstrated to be inversely associated with the extent of marginal bone resorption. Most implant manufacturers now frequently employ platform switching to preserve peri-implant bone levels. The majority of survey participants (78.8%) preferred platform-switched implants to one-piece implants, as evidenced by this conclusion.

60% of those surveyed favoured implants with delayed loading. Delayed loading is done to prevent micro-movement on the implant, which might affect its primary stability and healing. Immediate loading has numerous benefits, including preserving the height of the peri-implant soft tissues and improving the density of the peri-implant bone. It is also linked with reduced patient discomfort and chair time (Al-Sawai, 2016). Scientific evidence, however, indicates a marginally greater risk of implant failure compared to traditional loading (Sanz-Sanchez, 2015; Zhang, 2017).

62.7% of survey participants preferred screw-retained prostheses. Wittneben (2017) claims that in the aesthetic zones and when retrievability is needed, screw-retained prostheses may be advised. They also avoid the additional risk associated with the use of cement and the likelihood of residual cement. The benefit of cement retention is that it can compensate for incorrectly angled implants, the absence of a screw access hole, and the consequent preservation of the occlusal table. Cement retention poses a challenge in removing residual cement, which has been linked to the emergence of peri-implant diseases (Gapski, 2008; Linkevicius, 2013).

Surface modification is employed to alter the surface topography and surface energy (Rosales-Leal, 2010 Goyal, 2012). This leads to enhanced wettability, cell proliferation, and more rapid osseointegration. Most of the responders selected Sand Blasted Large (SLA)Gritted Acid Etch Implants as their preferred surface treatment. To promote surface roughness and osseointegration, this treatment progressively uses blasting, large-grit sand particles followed by acid etching to create macro and micro pits (Jemat, 2015). Cho and Jung in 2003 noticed that the sand-blasted surfaces had wide cavities (ranging in diameter from 5μm to 20μm) and micro pits (ranging in diameter from 0.5μm to 3μm). This increased the surface area and roughness which was beneficial for enhancing tissue integration and cell growth.

5. Conclusion

The success of dental implants is multifaceted and influenced by a variety of elements, including quality and

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quantity of bone, surgical and prosthetic procedures, implant and prosthetic design, and the type of functional stress exerted on the implants. This questionnaire study was intended to assess dentists' awareness, attitudes, and knowledge regarding the selection criteria of implants in their practice. Within the constraints of this cross-sectional questionnaire study, it was determined that scientific evidence on implants was the most important criterion followed by implant geometry, implant-abutment connection, and simplicity of prosthetic procedure. The majority of responders preferred SLA-treated implants. Most dentists used long, tapered, narrow diameter implants and favoured delayed loading over immediate loading. Nearly all of the participants agreed that oral hygiene and aesthetics were crucial during implant therapy. The selection criteria can however, still alter, depending on the speciality of practice, level of training and experience, and the preferences they have for certain factors.

References

1. Al-Sawai, A. A., & Labib, H. (2016). Success of immediate loading implants compared to conventionally-loaded implants: a literature review. *Journal of investigative and clinical dentistry*, *7*(3), 217-224.
2. Alshehri, M., & Alshehri, F. (2016). Influence of implant shape (tapered vs cylindrical) on the survival of dental implants placed in the posterior maxilla: a systematic review. *Implant Dentistry*, *25*(6), 855-860.
3. Al-Wahadni, A., Barakat, M. S., Abu Afifeh, K., & Khader, Y. (2018). Dentists' most common practices when selecting an implant system. *Journal of Prosthodontics*, *27*(3), 250-259.
4. Atieh, M. A., Alsabeeha, N., & Duncan, W. J. (2018). Stability of tapered and parallel-walled dental implants: a systematic review and meta-analysis. *Clinical implant dentistry and related research*, *20*(4), 634-645.
5. Atieh, M. A., Ibrahim, H. M., & Atieh, A. H. (2010). Platform switching for marginal bone preservation around dental implants: a systematic review and meta-analysis. *Journal of periodontology*, *81*(10), 1350-1366.
6. Binon, P. P. (1996). The effect of implant/abutment hexagonal misfit on screw joint stability. *International Journal of Prosthodontics*, *9*(2).
7. Brunski, J. B. (1999). In vivo bone response to biomechanical loading at the bone/dental-implant interface. *Advances in dental research*, *13*(1), 99-119.
8. Carr, A. B., Brunski, J. B., & Hurley, E. (1996). Effects of Fabrication, Finishing, and Polishing Procedures on Preload in Prostheses Using Conventional'Gold'and Plastic Cylinders. *International Journal of Oral & Maxillofacial Implants*, *11*(5).
9. Cho, S. A., & Jung, S. K. (2003). A removal torque of the laser-treated titanium implants in rabbit tibia. *Biomaterials*, *24*(26), 4859-4863.
10. CICCIÜ, M., Beretta, M., Risitano, G., & Maiorana, C. (2008). an investigation on 1939 dental implants. *Minerva stomatologica*.
11. Cicciu, M., Bramanti, E., Matacena, G., Guglielmino, E., & Risitano, G. (2014). FEM evaluation of cemented-retained versus screw-retained dental implant single-tooth crown prosthesis. *International Journal of Clinical and Experimental Medicine*, *7*(4), 817.
12. Gapski, R., Neugeboren, N., Pomeranz, A. Z., & Reissner, M. W. (2008). Endosseous implant failure influenced by crown cementation: a clinical case report. *International Journal of Oral & Maxillofacial Implants*, *23*(5).
13. Goyal, N., & Kaur, R. (2012). Effect Of Various Implant Surface Treatments On Osseointegration-A Literature Review. *Indian Journal of Dental Sciences*, *4*(1).
14. Gupta, S., Sabharwal, R., Nazeer, J., Taneja, L., Choudhury, B. K., & Sahu, S. (2019). Platform switching technique and crestal bone loss around the dental implants: a systematic review. *Annals of African medicine*, *18*(1), 1.
15. Javed, F., & Romanos, G. E. (2015). Role of implant diameter on long-term survival of dental implants placed in posterior maxilla: a systematic review. *Clinical oral investigations*, *19*, 1-10.
16. Jemat, A., Ghazali, M. J., Razali, M., & Otsuka, Y. (2015). Surface modifications and their effects on titanium dental implants. *BioMed research international*, *2015*.
17. Kim, Y. H., Choi, N. R., & Kim, Y. D. (2017). The factors that influence postoperative stability of the dental implants in posterior edentulous maxilla. *Maxillofacial Plastic and Reconstructive Surgery*, *39*(1), 1-6.
18. Lemos CAA, Ferro-Alves ML, Okamoto R, Mendonça MR, Pellizzer EP (2016) Short dental implants versus standard dental implants placed in the posterior jaws: a systematic review and meta-analysis. J Dent 47:8–17

DOI: 10.105515/JBE.40.3.7

19. Linkevicius, T., Puisys, A., Vindasiute, E., Linkeviciene, L., & Apse, P. (2013). Does residual cement around implant-supported restorations cause peri-implant disease? A retrospective case analysis. *Clinical oral implants research*, *24*(11), 1179-1184.
20. Mesquida, J., Lozada, J. L., Al-Ardah, A., Sun, C. X., & Goodacre, C. J. (2014). The Relevance of Scientific Evidence in the Decision-Making Process: Treatment Outcomes in Single Implant Therapy. In *Principles and Practice of Single Implant and Restorations* (pp. 171-187). WB Saunders.
21. Pabst AM, Walter C, Ehbauer S, Zwiener I, Ziebart T, Al-Nawas B et al (2015) Analysis of implant-failure predictors in the posterior maxilla: a retrospective study of 1395 implants. J Craniomaxillofac Surg 43:414–420
22. Rodrıguez-Ciurana, X., & Vela-Nebot, X. (2009). Segala-Torres M, Calvo-Guirado JL, Cambra J, Méndez-Blanco V, et al. The effect of interimplant distance on the height of the interimplant bone crest when using platform-switched implants. *Int J Periodontics Restorative Dent*, *29*, 141-51.
23. Rosales-Leal, J. I., Rodríguez-Valverde, M. A., Mazzaglia, G., Ramón-Torregrosa, P. J., Díaz-Rodríguez, L., García-Martínez, O., ... & Cabrerizo-Vílchez, M. A. (2010). Effect of roughness, wettability and morphology of engineered titanium surfaces on osteoblast-like cell adhesion. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, *365*(1-3), 222-229.
24. Sadaqah, N., Al-Wahadni, A., & Alhija, E. A. (2010). Implant abutment types: a literature review–Part 1. *J Implant Adv Clin Dent*, *2*(3), 93-99.
25. Sanz-Sanchez I, Sanz-Martin I, Figuero E, Sanz M (2015) Clinical efficacy of immediate implant loading protocols compared to conventional loading depending on the type of the restoration: a systematic review. Clin Oral Implants Res 26:964–982
26. Shalabi, M. M., Gortemaker, A., Hof, M. V. T., Jansen, J. A., & Creugers, N. H. J. (2006). Implant surface roughness and bone healing: a systematic review. *Journal of dental research*, *85*(6), 496-500.
27. Thoma, D. S., Cha, J. K., & Jung, U. W. (2017). Treatment concepts for the posterior maxilla and mandible: short implants versus long implants in augmented bone. *Journal of Periodontal & Implant Science*, *47*(1), 2-12.
28. Zhang S, Wang S, Song Y (2017) Immediate loading for implant restoration compared with early or conventional loading: a meta-analysis. J Craniomaxillofac Surg 45:793–803
29. Wagenberg, B., & Froum, S. J. (2010). Prospective study of 94 platform-switched implants observed from 1992 to 2006. *Int J Periodontics Restorative Dent*, *30*(1), 9-17.
30. Wittneben, J. G., Joda, T., Weber, H. P., & Brägger, U. (2017). Screw retained vs. cement retained implant-supported fixed dental prosthesis. *Periodontology 2000*, *73*(1), 141-151.

TABLES

Table 1: socio-demographic characteristics of respondents (N= 400)

	Frequency	Percentage
Gender		
Male	212	53.0%
Female	188	47.0%
Age		
<=45	349	87.3%
>45	50	12.5%
Speciality		
General practitioners	149	37.3%
Prosthodontists	62	15.5%
Periodontists	81	20.3%
Oral surgeons	65	16.3%
Others	43	10.6%
Experience of participant		
Less than 5 years	107	26.8%
More than 5 years	138	34.5%
More than 10 Years	155	38.8%

Table 2: Implant system selection criteria reported by all respondents (N=400)

Criteria	Frequency*	Percent
Implant- abutment connection	264	66.0

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Scientific based evidence available on chosen implant	272	68.0
Simplicity of prosthetic step	263	65.8
Implant geometry	269	67.3
Availability of stock product and technical support by dealer	253	63.3
Warranty provided by manufacturer or dealer	247	61.8
Price of implant	234	58.5
Shorter healing period of implant placement	246	61.6
Request/desire of referring dentist	227	56.8
Type of prosthesis required (screw/cement retained)	262	65.5
Training provided by manufacturer or dealer	234	58.6
Popularity of implant system among other dentist	250	62.5

* Frequency based on the sum of respondents who strongly and moderately agreed to each criteria

Table 3: Characteristics of the chosen implant system reported by respondents- Implant Abutment Connection Type (N= 400)

Implant Abutment Connection Type	Frequency	Percent
Platform Switched Implant	315	78.8
One Piece Implant	85	21.3

Table 4: Characteristics of the chosen implant system reported by respondents- preferred surface treatment (N= 400)

Surface treatment	Frequency	Percent
Sand Blasted Large Gritted Acid Etch Implant(SLA)	233	58.3
Titanium Plasma Spray(TPS) Coated Implant	78	19.5
Hydroxyapatite Coated (HA) Implant	45	11.3
Acid Etched Implant	24	6.0
Calcium Coated Implant	20	5.0

Table 5: Characteristics of the chosen implant system reported by respondents- loading protocol and implant prosthesis (N= 400)

Criteria	Frequency	Percent
Loading protocol		
Immediate loading	69	17.3
Delayed loading	240	60.0
Immediate non-function loading	91	22.8
Implant prosthesis		
Cement retained prosthesis	149	37.3
Screw retained prosthesis	251	62.7

Table 6: Characteristics of the chosen implant system reported by respondents- implant geometry (N= 400)

Criteria	Frequency	Percent

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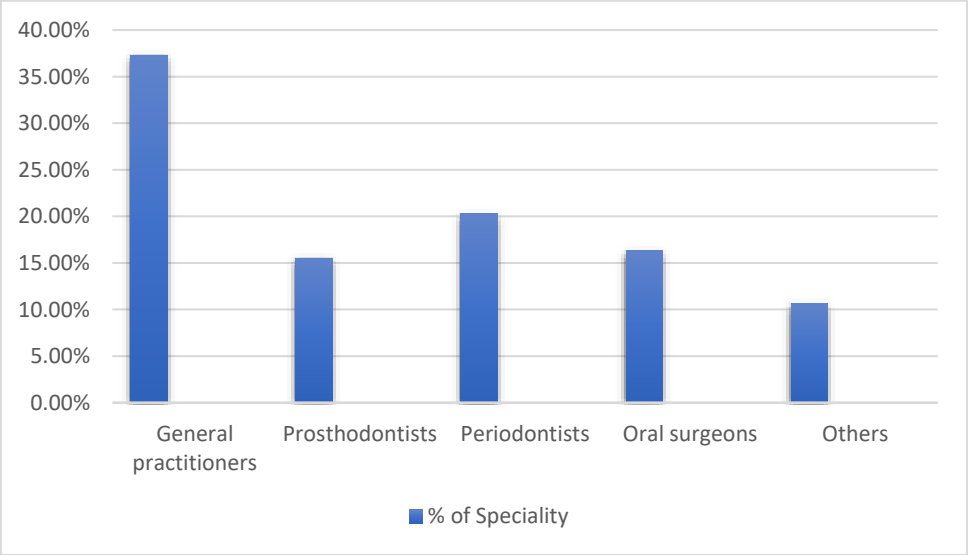
Implant length		
< 8 mm	53	13.3
8-11 mm	116	29.0
11-13 mm	210	52.5
> 13 mm	21	5.3
Implant diameter		
< 3.5 mm	62	15.5
> 4.5 mm	159	39.8
> 5 mm	31	7.8
Case related	148	37.0
Implant shape		
Tapered	247	61.8
Parallel walled	94	23.5

Table 6: Characteristics of the chosen implant system reported by respondents- Esthetics in the anterior region (N= 400)

Criteria	Frequency	Percent
Esthetics in the anterior region		
most important	107	26.8
important	170	42.5
can be compromised insome cases	97	24.3
not important	26	6.5
Total	**400**	**100%**



Graph 1: percentage of respondents in Speciality of Practice

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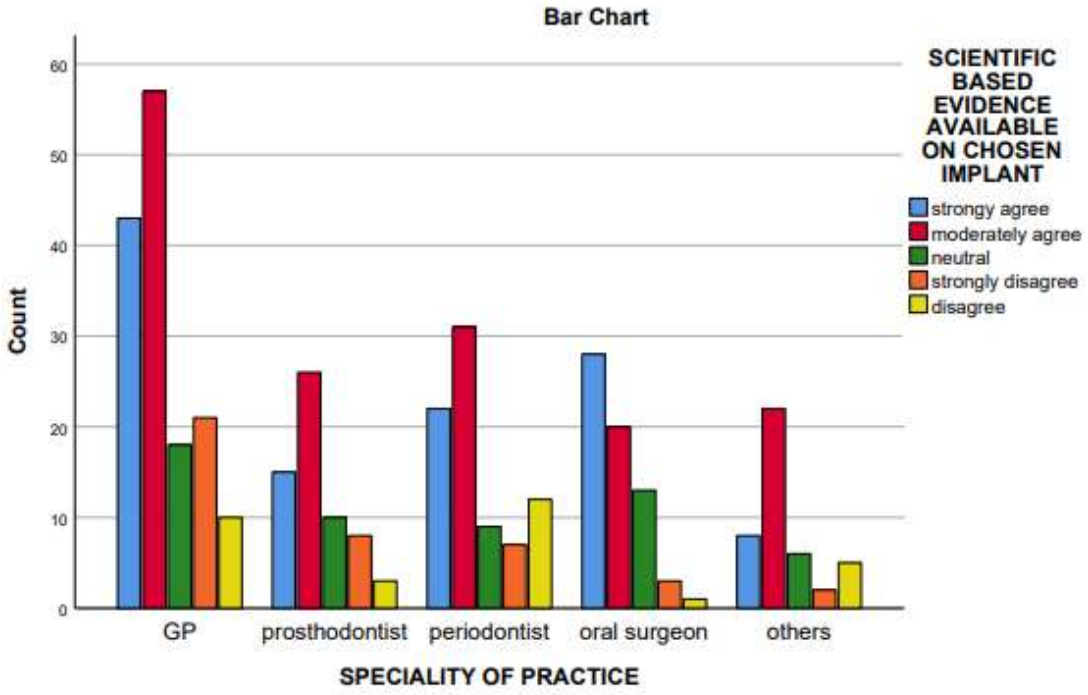
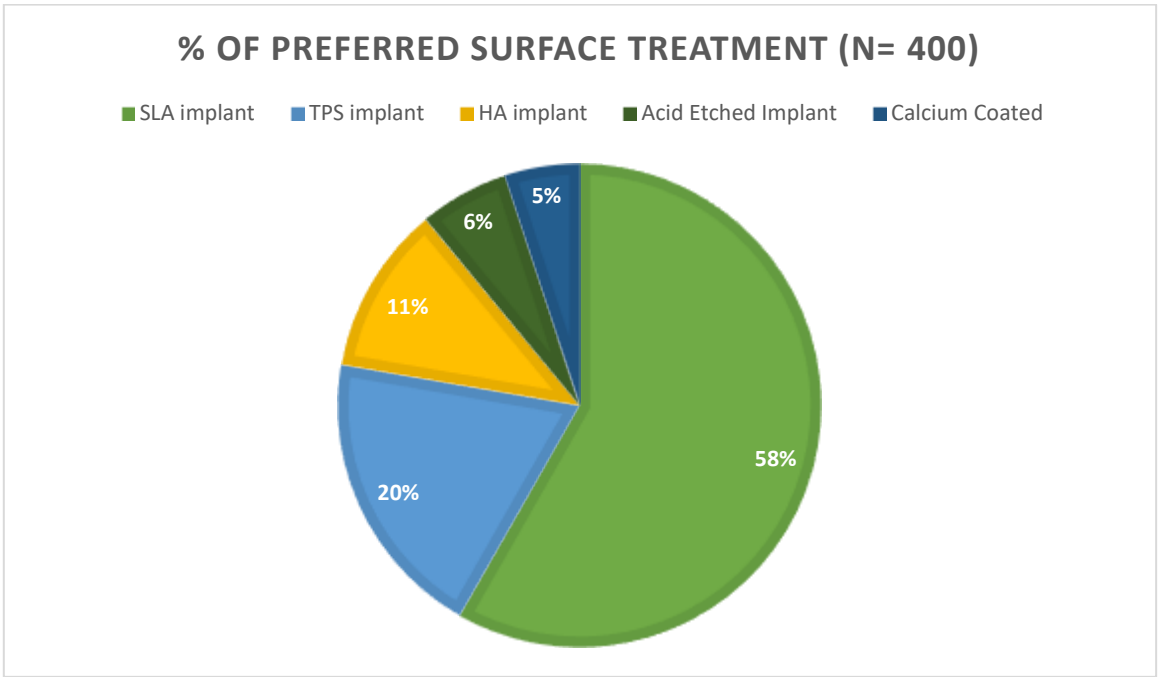


Graph 2: Implant system selection based on Scientific evidence by different speciality



Graph 3: Preference of Implant surface treatment by the respondents

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