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Gender and Age Predilection in Single Tooth Implants

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ABSTRACT

The ideal dentistry is not just to restore the function but also associated with esthetics and comfort of the patients is the reason why implants are gaining more popularity to replace the missing tooth. Implants work on the principle of bone healing, also called osseointegration that is a connection or a bond of the living bone with the implant both structurally and functionally. Implant placement can be affected by multiple reasons including the age, gender, Socioeconomic status, educational qualifications, health and knowledge about the treatment available. Thus, the present study evaluates the age and gender predilection for a single tooth implant placement. A total of about 260 patients with single tooth implants were assets, and the data were statistically analyzed using the SPSS software by IBM version 20. From the results obtained, it was observed that young adults of the age group 21-30 (36.2%) were the highest to undergo a single tooth implant. Male (65%) respondents were more when compared with the females (35%). Maximum single tooth replacement was done in mandibular posteriors mainly 36 (24.6%). From the above study, we could conclude that proper knowledge among the individuals is needed on the availability of the treatment. The treatment must be made more cost-efficient so that every individual in need for implants can access a better treatment of choice and lastly the prevalent group which are more prone for tooth loss must be screened and made aware of the future complications.

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INTRODUCTION

The ideal dentistry is not just to restore the function but also associated with the esthetic and comfort of the patients, the reason why implants are gaining more popularity to replace the missing tooth. Implants work on the principle of bone healing, also called osseointegration that is a connection or a bond of the living bone with the implant, both structurally and functionally (Mavrogenis *et al.*, 2009). Under histological sectioning, it was observed that osseointegration not because of a positive feedback mechanism but due to the lack of negative responses by the tissue which makes the bone bond with the

implant (Carlsson *et al.*, 1986).

Implants are in great demand in the present era, thus with increased demand, many advancements were done in the implant dentistry and the types of implants used. The surface texture of end-osseous implants has been modified with nano changes that increase the success rate of the implants (Gupta *et al.*, 2010; Pilliar, 1998). With increased advancement and newer implants, there are high chances of discretion, but the principle model to all implant systems stays to be the Brånemark end-osseous implants. Implants are recommended for their more esthetic and functional stability among the completely or partially edentulous patients. Edentulous status is shown to be associated with the age of the patients. Thus, age acts as an important factor for the replacement of the tooth (Montandon *et al.*, 2012; Cochran, 1999). Along with age, there are other factors which can influence the implant placement. The present study focuses on the age and gender predilection among the study population, which underwent a single tooth implant at Saveetha Dental College.

MATERIALS AND METHODS

The present cross-sectional study was done on about 260 single tooth implant patients. The study was performed in a university setting at Saveetha dental college and hospitals. The patients reported were of the same ethnicity. Ethical approval was obtained to use the data for the study by the Institution ethics board. Data collection was done from the month of June 2019-April 2020. The data was verified using photographs and two external reviewers, thus eliminating the sampling bias. Inclusion criteria for the study included patients who underwent single tooth implants placed within the study period. The archives of all the single-tooth implant placement done at Saveetha dental college was obtained from an online patient management software. Post data verification the non-specific data were all excluded from the study group. The patients were all treated at the Department of Implantology by the postgraduate under the guidance of an oral surgeon, periodontist and implantologist. The tabulated data were statistically analyzed using the SPSS software by IBM version 20. A correlation and association was established among the variables, and the results were represented using graphs and tables.

RESULTS AND DISCUSSION

Implants of the present era had a lot of advancements with nanoscale modification which makes tissue and bone response to the implant better and thus increased osseointegration and success rate (Chang *et al.*, 1999). A study was done on 29 implant placement surgery out of which 10 (cemented crowns) and 19 (screw-retained) showed a success rate of about 96.7% after 3.5 years of the surgery with minimal bone loss. With high success rates, implants are the treatment of choice among the younger generation for its treatment value (Augusti *et al.*, 2014).
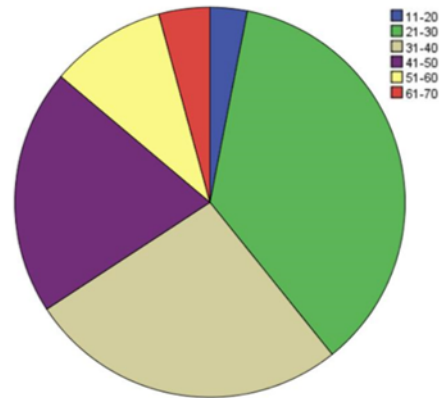

Figure 1: Represents the age distribution among the single tooth implant placed.

Aesthetics is the primary important factor why an individual undergoes replacement of the missing teeth, and with the advancements of implant dentistry, it's made it easier to meet the needs of the patients. Research analysis on patients with a single tooth implant showed that implant-supported crowns were more appreciated among the patients.
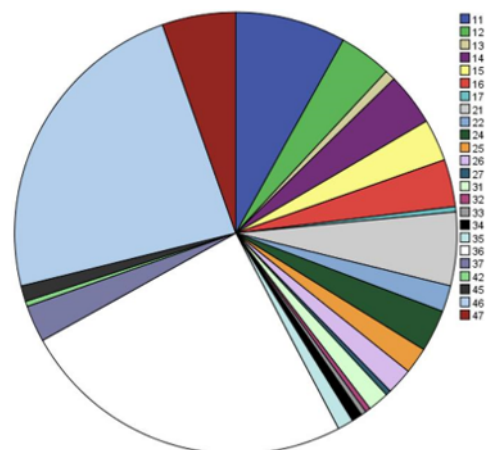

Figure 2: Represents the distribution of tooth being implanted.

But on the other hands, a clinician or a Prosthodontics specialist will be more concerned about minor esthetic details like the facio-lingual width, papilla, mucosa, the probing depth, bleeding on probing which is never a concern to a patient undergoing implant placement (Meijndert *et al.*, 2007). But

still, the fact that implants have the highest success rate and is considered best among all the prosthetic replacements possible can never be ignored. In the present era where implants are the treatment of choice, there are still factors which influence its treatment value. Factors like the age, gender, education qualification, knowledge about the treatment availability, treatment cost, socioeconomic status of the patient play a major role in choosing to implant as the treatment of choice (Garni *et al.*, 2012). Among the factors, the most influencing is the socioeconomic status of an individual. Investigation shows that more than half of the population with good socioeconomic status would choose implants over fixed partial dentures for the replacement of their lost teeth.
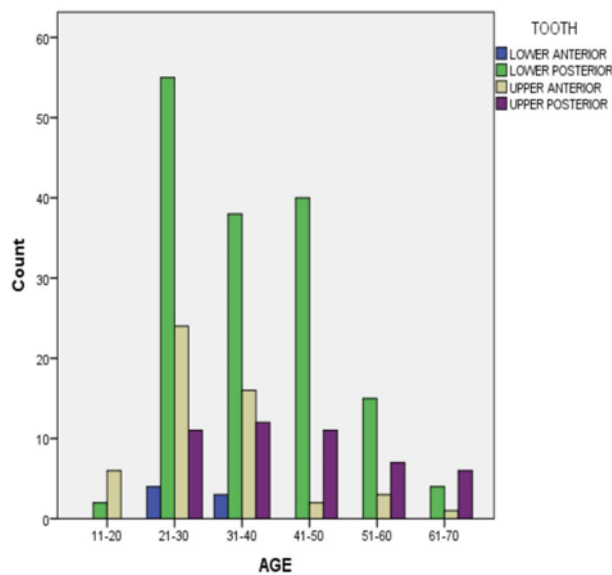

Figure 3: Chi-square results showing a positive correlation between age and tooth implanted with statistically significant value (p=0.000).

The poor income holds a patient from getting the best treatment, but this is not the only factor which influences, also the lack of knowledge about the treatment is another drawback to providing good treatment quality to a patient (Mathuriya and Agarwal, 2015). According to the present study results, it was observed that the young adults were the most to undergo single tooth implants. The maximum treatment was seen in the age groups of 21-30 (36.2%), which was followed by 31-40 (26.5%) and 41-50 (20.4%) as observed in Figure 1. This can be due to the possible reason that young patients prefer a more esthetic treatment which can restore their function back. Another way how age affects is the reason why younger individuals undergo more implant placement than the older population. This can be clearly explained that with increased age, the caries risk is reduced and most of the tooth loss is

due to periodontal diseases which cause multiple tooth loss. Caries primarily affected the age group <40 (60.7%); thus, there is a single tooth involved among younger patients (Al-Shammari *et al.*, 2006). Figure 2 shows that the lower posterior was the most replaced tooth 36 (24.6%) and 46 (23.5%). This is due to the increased caries risk in the lower posterior, mostly the premolars and molars.
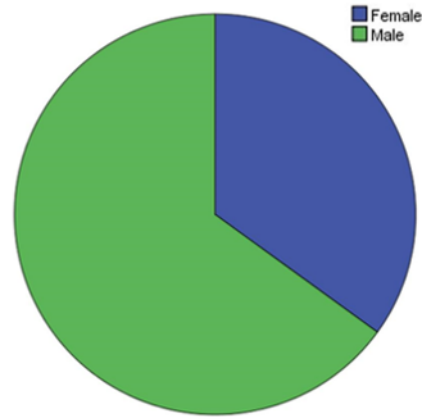

Figure 4: Represents the gender distribution among the single tooth implant patients.

Figure 3 represents a significant (p=0.000) positive correlation between tooth and age of the study population. It was observed that age had a strong correlation with the tooth being lost. The younger age group are more prevalent to tooth loss by caries. Periodontal disease was the main reason for the edentulous status among the older population, which led to multiple tooth loss at a time (Angelillo *et al.*, 1996).
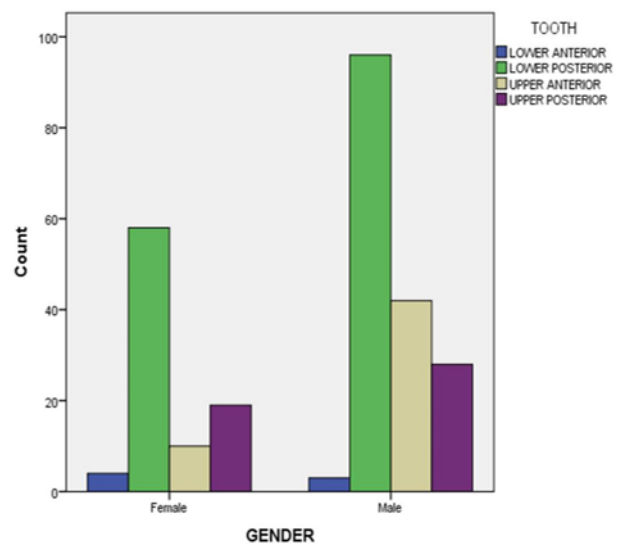

Figure 5: Chi-square results showing a positive correlation between gender and tooth implanted with statistically significant value (p=0.04).

It's also said that with increased age increases the risk of failure. Moreover, the Male with deleterious habits like smoking and tobacco can lead to failure of implants. It's mostly contradictory among the females either due to any hormonal issues or systemic illness; thus, even gender had a strong influence on the implant placement. Figure 4 shows that the male respondents were more when compared to female respondents, with a total ratio of 13:7. While talking about gender as observed earlier, lack of knowledge and lower-income can be a reason for a reduced female among the study population though females reportedly have increased tooth loss (Kashif et al., 2014).

According to Figure 5, a positive correlation between gender and tooth being replaced was observed with significant value (p=0.04). It was observed that most of the study population underwent lower posterior tooth replacement irrespective of their gender. The possible reason for this result can be due to reduced sample size and with maximum respondents from the younger age for treatment. The prosthetic and restorative outcomes can be influenced by many factors; systemic health of an individual is the primary reason. A healthy individual help for better treatment outcomes (Ganapathy et al., 2016). The limitations of the study include small sample size, geographically isolated location and single centered.

CONCLUSION

The present study results conclude that proper knowledge among the individuals is needed on the availability of the treatment. The treatment must be made more cost-efficient so that every individual in need for implants can access a better treatment of choice and lastly the prevalent group which are more prone for tooth loss must be screened and made aware of the future complications.

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Conflict of interest

The authors declare that they have no conflict of interest for this study.

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