Different Types Of Veneering Techniques Planned For Cases Requiring Smile Correction - A Retrospective Study.

Type of manuscript -Retrospective study
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Abstract:Background:Due to the increasing esthetic demands in today's world it becomes necessary to study various treatment options which enhance an overall aesthetics of an individual. One of the most important topics in contemporary dentistry is re-establishing a patient lost dental esthetic appearance. In cases where aesthetics plays an important role such as restoring the anterior teeth, clinicians mostly prefer a conservative yet aesthetic approach instead of restoring the teeth with full coverage crowns. In such situations direct and indirect veneers play an important role. So therefore, it becomes necessary to study direct and indirect veneers.Aim: To evaluate the prevalence of direct and indirect veneers used in smile correction.Materials and Methods:It is designed as a retrospective study. A total of 111 patient records where veneering with direct and indirect technique was planned were acquired. It was done by analysing records of 86000 patient data who were treated from March 2019- March 2020. Descriptive statistics were used to analyse the frequency and percentages of direct and indirect veneers . Chi square test was used to evaluate the association between age and gender with the type of veneering technique. SPSS version 20 software was used to perform statistics.Results: Out of the total cases evaluated, 78. 4 % of the cases were planned for indirect veneering and 21.6% of the cases were planned for direct veneering. There was a significant association between age of the patient and the type veneering technique planned p value 0.001 and no significant association between the type of veneering and gender of the patient p value 0.790Conclusion:Within the limitations of the study, Indirect veneering technique was found to be more convenient and it was performed much more as compared to that of direct veneering technique. There is a positive association between age of the patient and type of veneering technique planned for them.

Key words: direct veneers, indirect veneers, composite, ceramics, esthetics, age, gender.

1. INTRODUCTION

The word aesthetic implies beauty, a youthful and artful appearance of an individual .Esthetic dentistry not only helps in providing esthetic rehabilitation but also helps in functional rehabilitation . Because of the increasing esthetic demands and patient's awareness over the period of years , it is essential for the clinicians to inculcate various better treatment

modalities to deliver various high standard therapies using improved clinical procedure and new generation materials [1] , [2] , [3] .
Esthetic problems arise when there are any abnormalities in the colour , form, shape , structure and position of the anterior teeth . Previously in order to correct these abnormalities full coverage crowns which require extensive preparations were used [4] . Extensive preparations can result in weakening of the tooth and loss of healthy tooth structure . Also, during crown preparations pulpal and gingival damages are extensive. Therefore, in recent years veneer restorations can be a more conservative and a better esthetic option [5] , [6]
Veneer restorations are of two types: Direct veneers and Indirect veneers. Direct veneers do not include any laboratory procedures and are applied directly to the prepared tooth surface in a single sitting. The material most commonly used is the composite. The various advantages of direct veneers over indirect veneers are that it is of low cost, no necessity of additional tooth preparation, treatment is reversible, it does not require any additional adhesive cementing material, marginal adaptation is better and intraoral polishing is easy. However, the main disadvantages of direct veneers are low resistance to wear, discoloration and fractures. [6] , [7] , [8] . Tooth discolorations, rotated teeth, coronal fractures, congenital or acquired malformations, diastemas, discolored restorations, palatally positioned teeth, absence of lateral incisors, abrasions and erosions are the main indications for direct laminate veneer restorations [6], [7] .

Indirect veneers have high resistance against attrition and fractures and discolorations. However, it requires longer chair side time, it cannot be done in a single appointment as it involves laboratory work and it is expensive. It also depends on the additional adhesive cementing system for its retention. So therefore, here the type of luting cement also matters [6] .
Previously our team had carried out many studies which involved case reports [9] , surveys [10] , systematic reviews [11], [11,12], [13], literature reviews [14], [15], [15,16], [17], In Vivo studies, [18], [19], [20], In vitro studies [21], [22] and retrospective studies [23]. Currently we are focusing on epidemiological studies and retrospective studies. This study aims at evaluating the prevalence of direct and indirect veneers used in smile correction.

2. MATERIALS AND METHODS:

Study design was that of a retrospective type. The study was performed in a University setup in the southern part of India. Ethical approval was received from the Ethical research committee SIMATS Chennai.Data extraction was done by reviewing the patient data bases of 86000 cases performed between March 2019- March 2020. Out of these, 111 patient treatment plans included correction treatment direct and indirect veneering technique .
The prevalence of direct and indirect veneers among these cases was evaluated.
Descriptive statistics was used to evaluate the prevalence of direct and indirect veneer techniques used by the clinicians. The association between the age and gender was done with the type of veneering technique used.Statistics were carried out using SPSS version 20 software. Dependent variables were discoloured tooth, minor diastemas, Ellis type 1 cases etc. Independent variables were grossly destructed teeth, endodontically treated teeth, teeth requiring Porcelain jacket crowns.

3. RESULTS

Out of the total cases evaluated, 71.9 percent of cases were planned for direct veneering and 19.8 percent of the cases were planned for indirect veneering [Table 1]. There was a significant association between age and the type veneering technique planned and age of the

patient p value of 0.001 [Figure 2], whereas no significant association between the type of veneering technique planned and gender of the patient, p value 0.799 [Figure3] Maximum number of cases planned for direct veneering lied in the age groups of above 40 years, whereas indirect veneering was mainly planned for cases lying in the age group og below 40 years [Table 2], Maximum number of cases planned for males and females were of direct veneering . 79% males, 76.7% females .

4. DISCUSSION

In recent years, Veneers have proven to be a good substitution for crowns in for patients with esthetic problems. However, the type of veneer to be used depends upon various factors such as the time, economic and social status of the patient. According to Kurkut et al despite the various disadvantages of direct composite veneer restoration, with the development of new composites it can be one of the treatment options for patients having estheticproblems [7].
Shibata et al concluded that both the treatments [direct and indirect veneers] have advantages and disadvantages and can be used to successfully restore esthetics and function in patients with AmelogenesisImperfecta[24].
Meijering et al in 1998 compared the direct and indirect veneer restorations in terms of longevity. However, the results of thistrial should be viewed carefully because of its methodological weakness. Therefore there is no reliable evidence which compares the longevity of the direct and indirect veneers [25].
Taking the age into consideration veneers are mainly indicated for the population of the younger age groups. Older population groups normally are more satisfied with their smile and teeth appearance as compared to younger population [26], [27]. This explains why a higher proportion of patients lying below 40 years of age were planned to be treated with veneering treatment. Also this age group is more prone to dental trauma and anterior teeth damage which might lead to poor aesthetics.[28]Limitations of the study include.the sample size is small. Study is limited geographically as it is institutional base .The study is singly centered. Indirect composite veneers were not included in this study.
Long term extensive research should be encouraged in this field of interest. Awareness regarding the importance of esthetics and different types of veneering techniques must increase among the clinicians and patients .Surveys should be carried out with respect to patients satisfaction after cementation of veneers.

5. CONCLUSION

Within the limitations of the study, Indirect veneering technique was found to be more convenient and it was performed much more as compared to that of direct veneering technique. There is a positive association between age and type of veneering technique. More Extensive research should be carried out in the field of interest. New future techniques and innovations should be motivated. Latest advancement in the field of veneering should be found.

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Author contributions

Author 1- Harsh Kasabwala carried out the study by collecting the raw data handwriting the manuscript with the necessary statistical analysis. Author 2 -Dr Kiran Kumar helped in guiding the study and supervised the statistics.

Conflict of interest
There was no conflict of interest among the authors

7. REFERENCES

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	Frequency	Percent
direct veneering [composite]	87	78.38
indirect veneering [ceramic]	24	21.62
Total	111	100

Table [1]: shows the frequency and percentage of different type of veneering techniques planned for the study population. Majority of the cases [approximately 71.9 percent of the cases planned] were for direct veneering using composite whereas only 19.8% of the cases planned for indirect veneering.

Age	type of veneering technique	
	direct veneering [composite]	indirect veneering [ceramic]
11-20	25.0%	75.0%
21-30	79.7%	20.3%
31-40	77.8%	22.2%

51-60	100.0%	
61-70	100.0%	
Total	78.4%	21.6%

Table [2]: This table shows the different kinds of veneering techniques planned for patients lying in different age groups. Indirect veneering was mainly planned for patients lying in the age group of 11 to 20 years.direct veneering was mainly planned in patients lying in the age groups between 51 to 70 years. This suggests that indirect veneering was mainly preferred in patients lying in the older age groups.

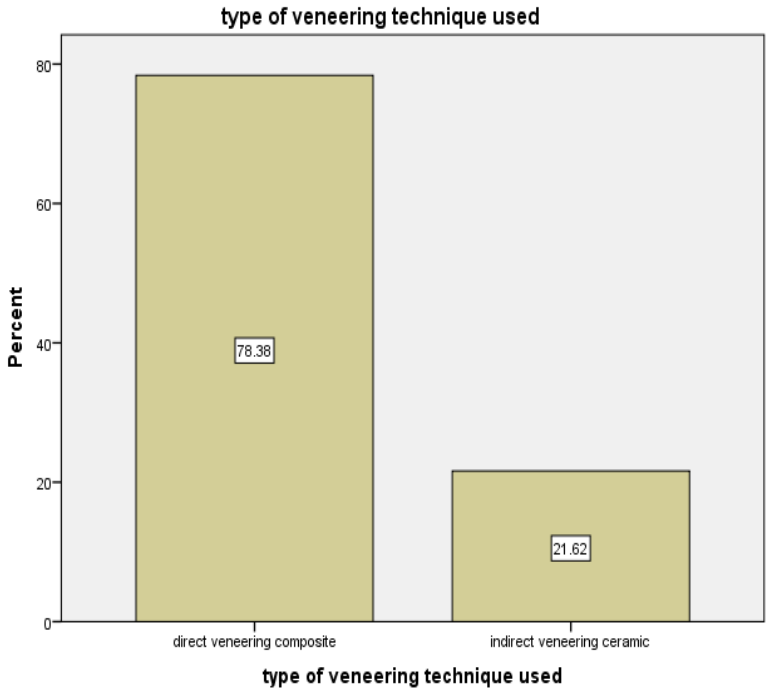

Figure [1]: Bar graph showing the distribution of different types of veneering techniques planned for the study population in percentage. X axis represents the type of veneering technique used and Y axis represents the percentage of occurrence. Majority of the cases [approximately 78.38 % of the cases planned] were for direct veneering using composite whereas only 21.62 % of the cases were planned for indirect veneering. This suggests that direct veneering was more preferred as compared to indirect veneering.

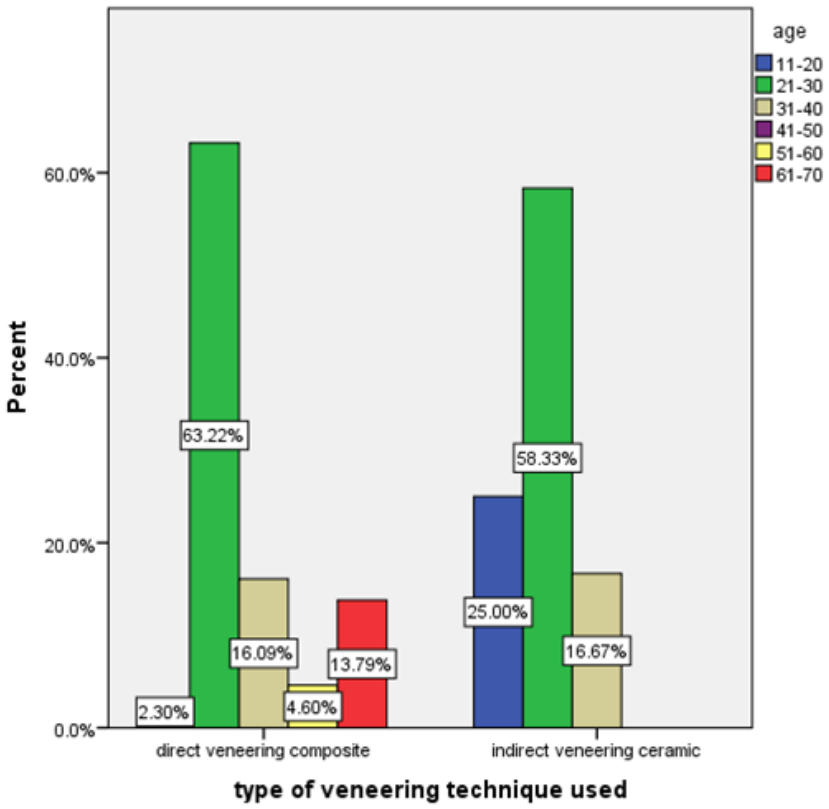

Figure [2]: This Bar chart shows the association of different types of veneering techniques used with patients of various age groups. The X axis shows the type of veneering technique used according to the different age groups, the y-axis shows the percentage of occurrence. The bars in blue signify age groups between 11 to 20 years, green colour signifies the age groups between 21 to 30 years, beige colour signifies the age group between 31 to 40 years, purple colour signifies the age group from 41 to 50 years, yellow colour signifies the age group from 51 to 60 years and red colour signifies the age group from 61 to 70 years. The figure suggests that direct veneering was planned mainly for patients lying in the age groups of 21 to 30 years similarly indirect veneering was also planned for the patients lying in the same age group. Additionally patients lying in the age group from 51-70 were planned for veneering only with direct veneering composites. There was a significant association between age and the type of veneering technique used (Chi square association test value- 0.001)

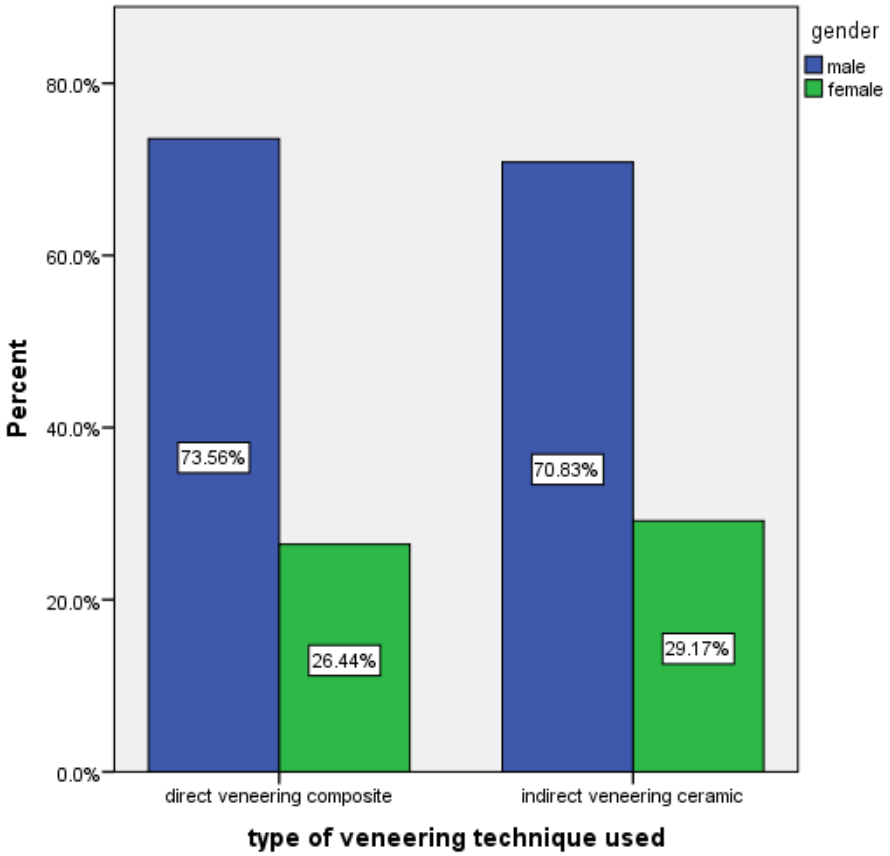

Figure [3]: This bar chart represents the association of different types of veneering techniques planned with the gender of the patients. The blue colour bars depict male gender whereas the green colour bars depict female gender. Around 73.5% of direct veneering cases were planned for males and 70.8% of the cases of indirect veneering were planned for males. This suggests that both the types of veneering cases were mainly planned for male patients. The association between gender and the type of veneering technique used was not statistically significant. (Chi square association test value- 0.488)

Variable	df	P VALUE
Age	4	.001
Gender	1	0.488.

Table [4]: This table shows the association between age and gender with the type of veneering technique planned. The P value obtained when age was correlated with the type of veneering technique planned was 0.001 [<0.05]. This suggests that age of the patient had a significant association with the type of veneering technique planned. On the other hand the p-value obtained when gender was correlated with the type of veneering technique planned was 0.488 [>0.05]. This suggests that gender had a significant difference with the type of veneering technique planned.