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Research Paper

Association of age and gender distribution of patients undergoing class 2 composite restoration in molars.

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ABSTRACT:
Introduction : Composite restorations require minimally invasive or no preparation at all while replacing decayed or missing tissues, this quality of composite restorations gives thought to a new concept called Bio Esthetics. In contempt of all these positive outcomes composite resins do shrink during polymerization that leads to adhesive and cohesive failure. This shrinkage property of composite resins leads to several challenges during placement of resins and photocuring. Composite restoration placement techniques are universally acknowledged as a considerable factor in the modification of shrinkage stress. By maneuvering specific techniques in the composite restorations, shrinkage stress may be graded down. On the contrary it is not clear which restorative technique should be used to demolish shrinkage stress. Administering the composite in layers instead of using a bulk technique is highly recommended to reduce shrinkage stress.
Aim: The aim of this study is to assess association of age and gender distribution of patients undergoing class 2 composite restoration in molars.
Materials and Methods: The study was done in a hospital setting. The data was collected from the patient software system of Saveetha Dental College. The samples included patients who underwent class 2 composite restoration. The data were analyzed using the Chi-Square test.
Results: Patients of various age groups and both genders undergo class2 composite restorations. The most common group undergoing the class 2 restoration treatment are the males (56.2%). The most common people undergoing class 2 restoration treatment are from 31 to 40 years of age (30.29%). The mesio-occlusal class 2 restoration is the most common type of class 2 composite restoration found in people undergoing restorations (59.13%). Chi square test was done, $p=0.1$, p value found to be statistically not significant ($p>0.05$).
Conclusion: Within the limitations of our study, it is found that males of age 31 to 40 years of age have predominantly had restoration of class 2 mesio-occlusal composite restorations. The composite restoration, in terms of longevity, and aesthetics is superior to all other restorations.
KEY WORDS: *Composite restorations, class 2 restoration ,conservative, shrinkage, polymerisation.*

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I. INTRODUCTION :

Among the restorative materials composite resins today occupy a paramount position as they offer outstanding esthetic potential and acceptable longevity. Composite resins are at much lower cost than the equivalent ceramic restorations for treating both anterior and posterior teeth. (1) (2) (3) (4) . Composite restorations also require only minimally invasive or no preparation at all while replacing decayed or missing tissues, this quality of composite restorations gives thought to a new concept called Bio Esthetics. In contempt of all these positive outcomes composite resins do shrink during polymerization that leads to adhesive and cohesive failure. This shrinkage property of composite resins leads to several challenges during placement of resins and photocuring. (5) (6) (7) (8) (9) (10).

Composite restoration placement techniques are universally acknowledged as a considerable factor in the modification of shrinkage stress. By maneuvering specific techniques in the composite restorations, shrinkage stress may be graded down. On the contrary it is not clear which restorative technique should be used to demolish shrinkage stress. Administering the composite in layers instead of using a bulk technique is highly recommended to reduce shrinkage stress.(10). In most cases of proximal caries a class II restoration is usually done. The most difficult challenge to the clinicians in Class II composite restorations is achieving the perfect adaptation of resin composite to the internal walls and to the margins of the cavity and also in the prevention of overhangs at the cavosurface margin. Class II restorations are often known to be the Achilles' heel, since dentin bonding is often less predictable.

Pain in a tooth which is associated with mastication or it may also be associated with sensitivity to hot, cold, and sweet stimuli that occurs within 1 week or more after restoration is called the postoperative hypersensitivity.(11) A restoration in hyperocclusion may lead to pain only during clenching. However, pain during chewing is known as a form of postoperative hypersensitivity which is related to the polymerization shrinkage gaps that are formed between the restoration and dentin that fill with fluid. During mastication, the restoration and the tooth deform which leads to the flow of the accumulated fluid down the dentin tubules that leads to the hypersensitivity.(12) (13). With minimum drawbacks in composite resin restorations, these restorations satisfy the patients aesthetic demands. Hence composite resins are always the first choice of preference in class 2 restorations.

Our team has extensive knowledge and research experience that has translate into high quality publications (14–23),(24–27),(28–32) (33)

The aim of this study is to assess association of age and sensitivity distribution of patients undergoing class 2 composite restoration in maxillary molars.

II. MATERIALS AND METHODS:

The retrospective cross sectional study was done in a private dental institution, Chennai. This study was approved by the institutional ethical board. Two reviewers were involved in the study. For the data collection we reviewed patient records. The data was collected from the patients visiting saveetha dental college who were treated with class II composite restorations. The cases were included as per the requirement of the samples included patients with class II caries and their management of using class II composite restorations. The independent variables are patients PID, name, age and gender. Dependent variables are the class II caries that have been treated with composite restoration. The data collected were reviewed and cross verified. The data was tabulated and imported to SPSS software and the variables were defined. The data was statistically analysed. Chi square tests were run and the value was found to verify the significance of each variable considered in the study.

III. RESULTS AND DISCUSSION:

The data collected from the patient's management software were tabulated in SPSS, and the descriptive method statistics were obtained. Patients of various age groups and both genders undergo class2 composite restorations. The most common group undergoing the implant treatment are the males (56.2%). (Figure 1) .

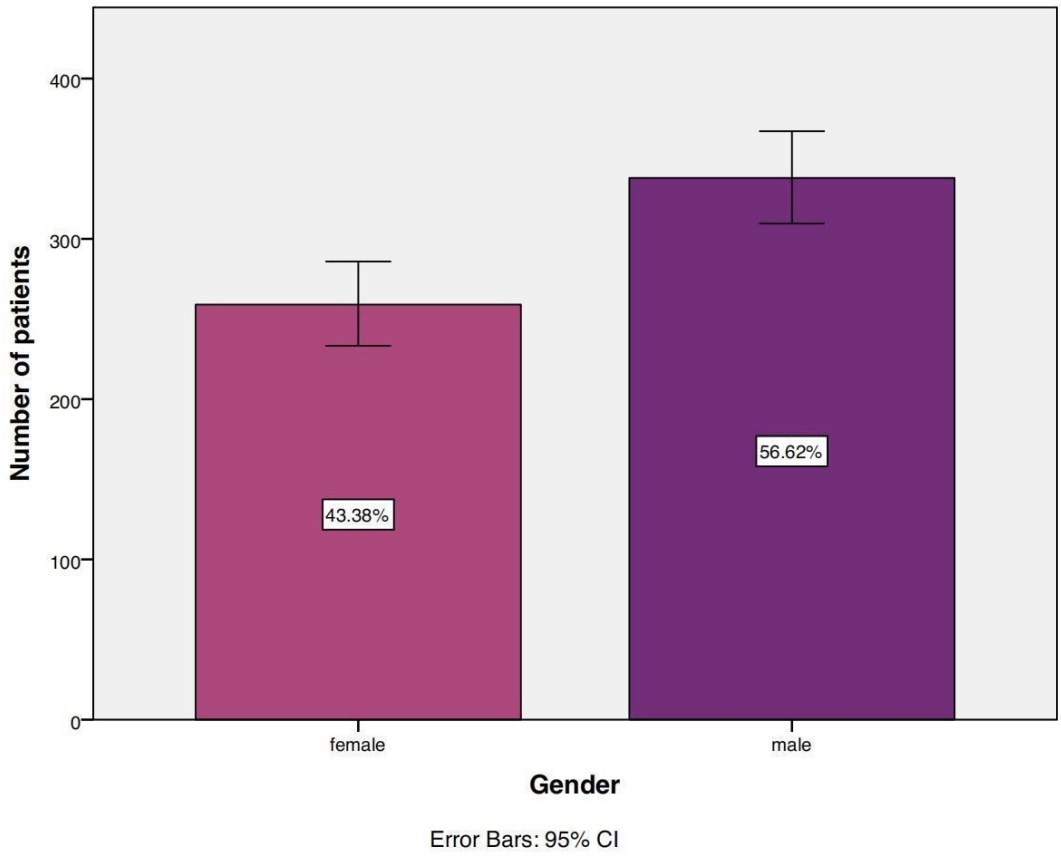

Figure 1: Bar chart representing the gender prevalence of patients who underwent class 2 composite restorations. Y- axis represents the number of patients and X- axis represents the gender of the patients who underwent class 2 composite restorations. 43.38% were females and 56.62 % were males.

The most common people undergoing implant treatment are from 31 to 40 years of age (30.29%) (Figure 2). The mesio-occlusal class 2 restoration is the most common type of class 2 composite restoration found in people undergoing restorations (59.13%). (Figure3).

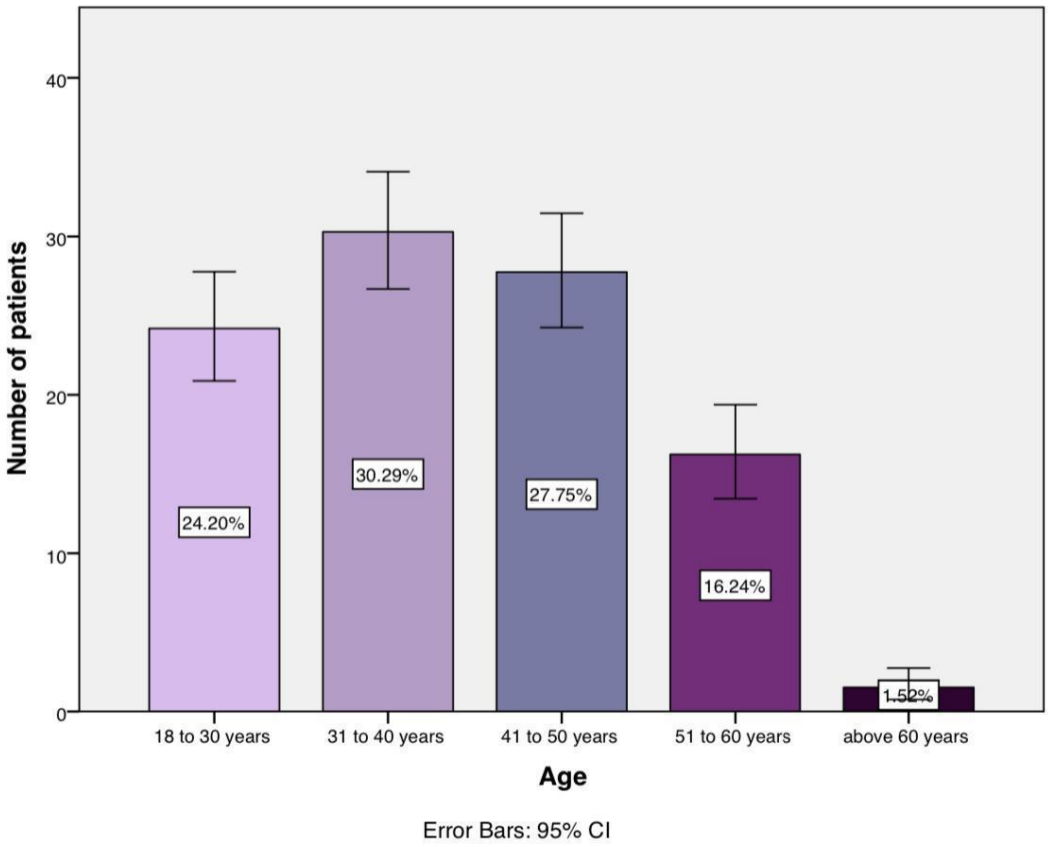

Figure 2: Bar chart representing the age prevalence of patients who underwent class 2 composite restorations. Y-axis represents the number of patients and X- axis represents the age of the patients who underwent class 2 composite restorations. 24.2% were of age 18 to 30 years, 30.29% were of age 31 to 40 years, 27.7% were of age 41 to 50 years, 16.24% were of 51 to 60 years and 1.52 % were of above 60 years of age

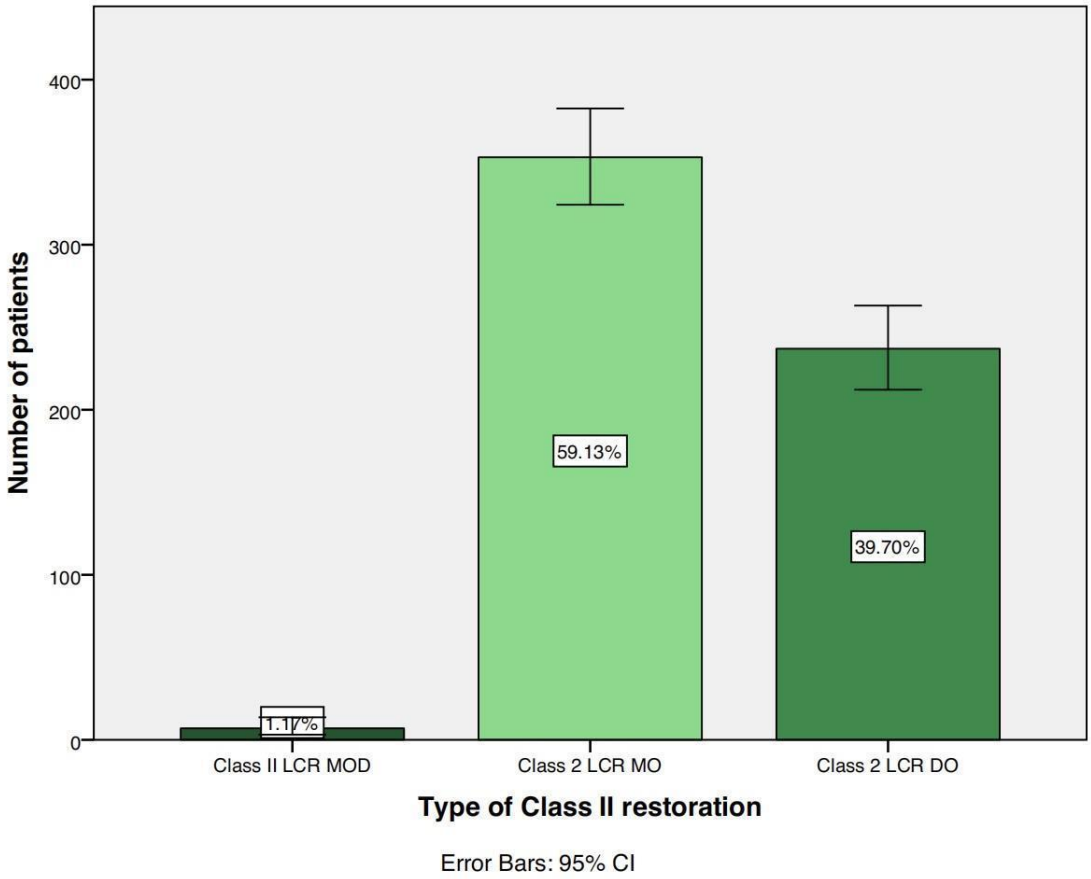

Figure 3:Bar chart representing the type of class 2 composite restoration based on surfaces. Y- axis represents the number of patients and X- axis represents the type of the class 2 composite restoration based on surfaces. 59.1% have undergone class II LCR MO restoration, 39.7% have undergone class II LCR DO restoration & 1.17% have undergone class II LCR MOD restoration.

In correlation with age & the type of class 2 restoration it is found that the class 2 mesio-occlusal restoration is the most common that is found highly in the age group 31 to 40 years of age (17.9%) (Figure 4). In correlation with gender it is found that the males are commonly undergoing class 2 mesio- occlusal composite restorations (33.16%) (Figure 5).

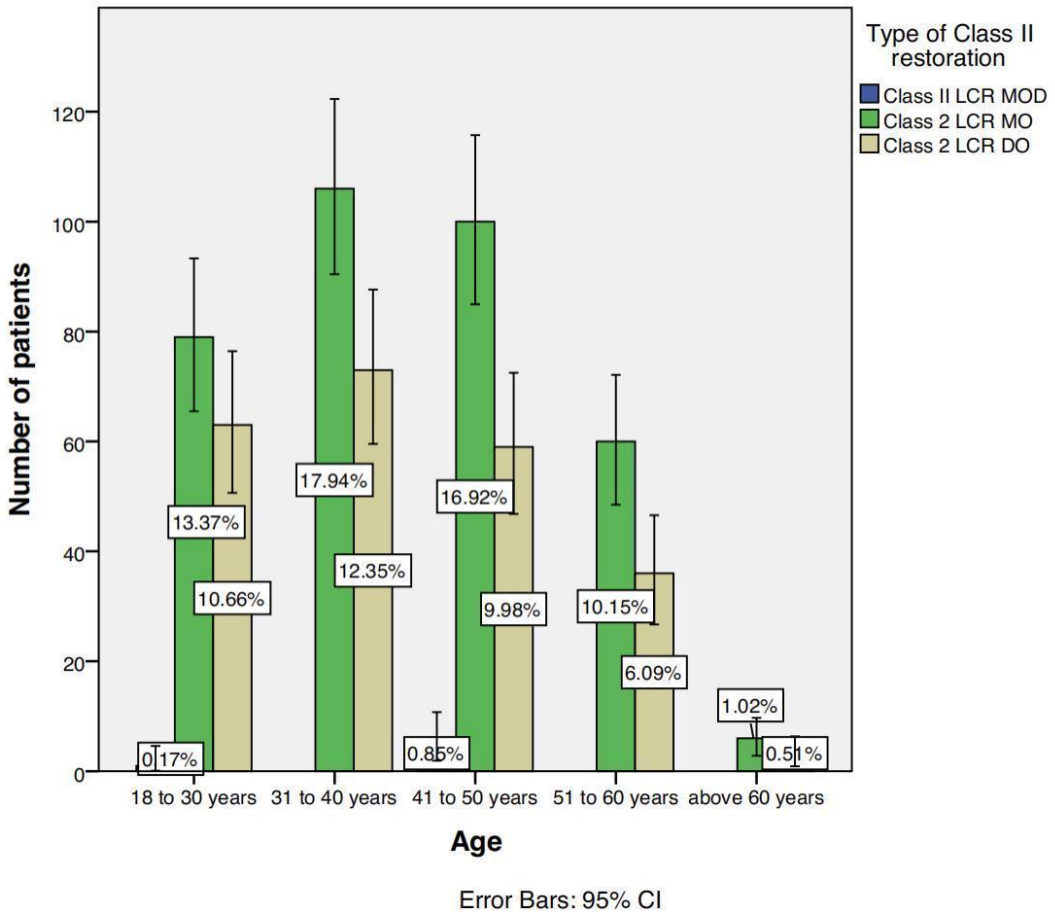

Figure 4: Bar chart representing the number distribution of the type of class II restoration done where X-axis denotes age of the patients and Y-axis denotes number of patients. Green color denotes patients who had class II MO restoration done, blue colour denotes patients who had class II MOD restoration done and yellow denotes patients who had class II DO restoration done. Among the age group 18 to 30 years, 13.37% have undergone class II LCR MO restoration, 10.6% have undergone class II LCR DO restoration & 0.7% have undergone class II LCR MOD restoration. Among age groups 31 to 40 years, 17.9% have undergone class II LCR MO restoration, 12.3% have undergone class II LCR DO restoration. Among the age groups 41 to 50 years 16.9% have undergone class II LCR MO restoration, 9.98% have undergone class II LCR DO restoration & 0.85% have undergone class II LCR MOD restoration.

Among the age groups 51 to 60 years, 10.15% have undergone class II LCR MO restoration, 6.09% have undergone class II LCR DO restoration. Among the age groups above 60 years, 1.02% have undergone class II LCR MO restoration, 0.5% have undergone class II LCR DO restoration. The graph shows that patients aged 31 to 40 years of age had a maximum number of class 2 MO restorations done. Chi square test was done, p value found to be statistically not significant ($p>0.05$).

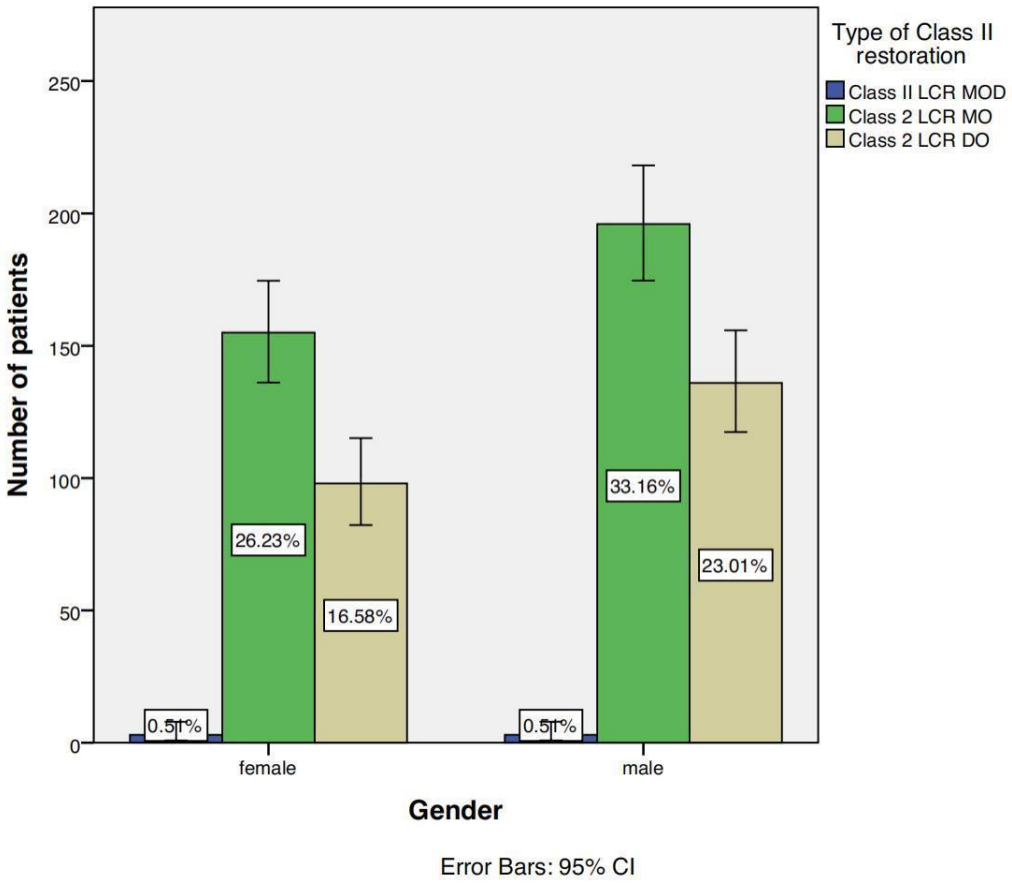

Figure 5: Bar chart representing the number distribution of the type of class II restoration done where X-axis denotes gender of the patients and Y-axis denotes number of patients. Green color denotes patients who had class II MO restoration done, blue colour denotes patients who had class II MOD restoration done and yellow denotes patients who had class II DO restoration done. Among the females 26.2% have undergone class II LCR MO restoration, 16.5% have undergone class II LCR DO restoration & 0.5% have undergone class II LCR MOD restoration. Among males 33.16% have undergone class II LCR MO restoration, 23.1% have undergone class II LCR DO restoration & 0.5 % have undergone class II LCR MOD restoration. The graph shows that males had a maximum number of class 2 MO restorations done. Chi square test was done, p value found to be statistically not significant ($p>0.05$).

In a study (34), they state that females are the highest group that have undergone class 2 restorations, which is in contradiction with the results of our study. But they also state that about 24% of their patients were from the age group 31 to 40 years of age which is in accordance with our study. They also state that the common restoration found is the disto-occlusal which is in contradiction with our study.

A study done by Husna et al (35), gender analysis shows that Males are more prevalent (71%) than females (28.9%). There is a significant difference in the incidence of gender. A study done by Aw et al does not support this finding and says that there is no difference in the incidence of cervical lesions in males and females (36). This was in concordance with a previous study done which says that the frequency of cervical lesions increased in a similar age group by 10 % as compared to other age groups (37).

Amalgam restorations are also likely to fail in the daily practice. According to Healy and Phillips, the failures can be attributed to the preparation of cavities (56%) and incorrect manipulation of the material, while only 4% of those failures have been associated with other factors. Thus it is better to choose composite restorations over amalgam restorations.

The limitations of this study include limited sample size and the time frame. The future scope of the study is to extend the data collection into a wider range of population and to analyze the frequency of composite restoration over other direct restorations and its survival analysis based on age and tooth surfaces.

IV. CONCLUSION:

Within the limitations of our study, it is found that males of age 31 to 40 years of age have predominantly had restoration of class 2 mesio-occlusal restoration and less frequently had Mesio-Occluso-Distal (MOD). The composite restoration, in terms of longevity, and aesthetics is superior to all other restorations. The composite restoration should always be given the first choice of preference as it does satisfy esthetics, longevity & excellent load-bearing capacity and reduced incidence of breakage and secondary caries formation.

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CONFLICTS OF INTEREST:

The authors declare that there were no conflicts of interest in the present study.

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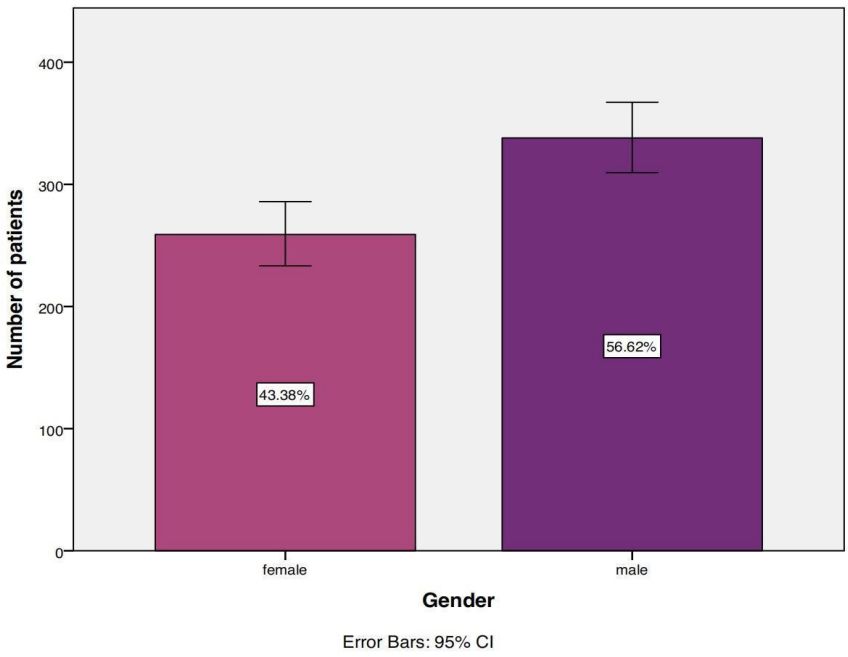

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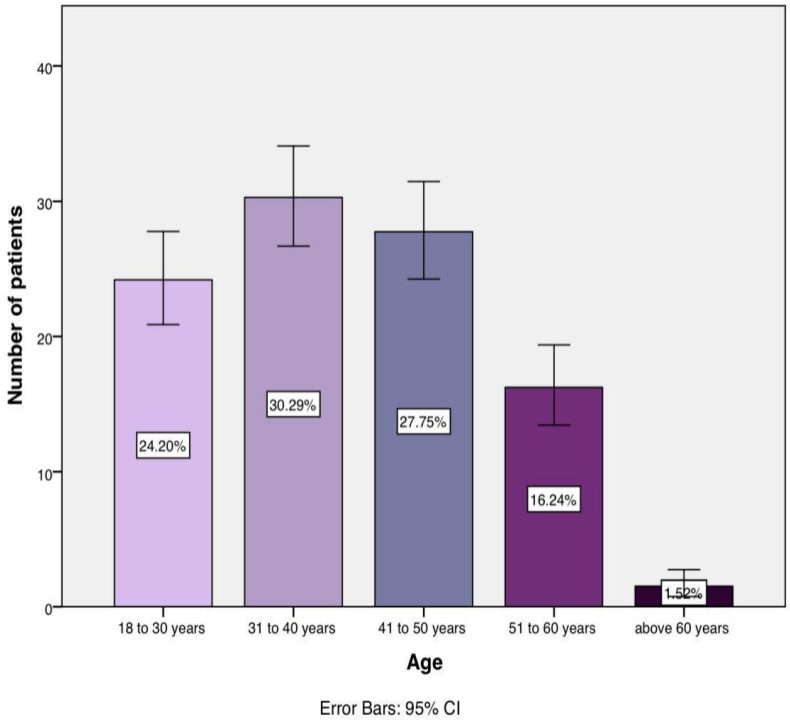

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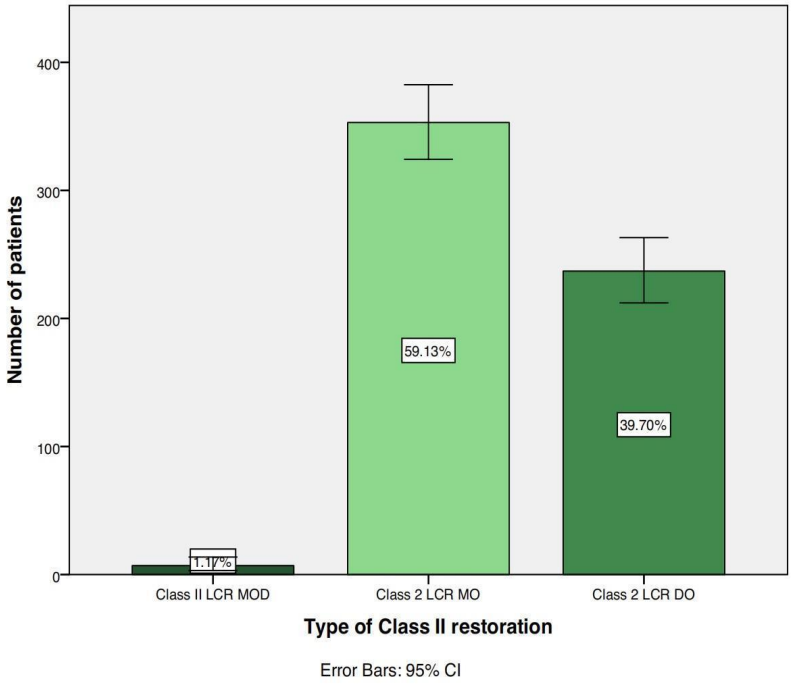

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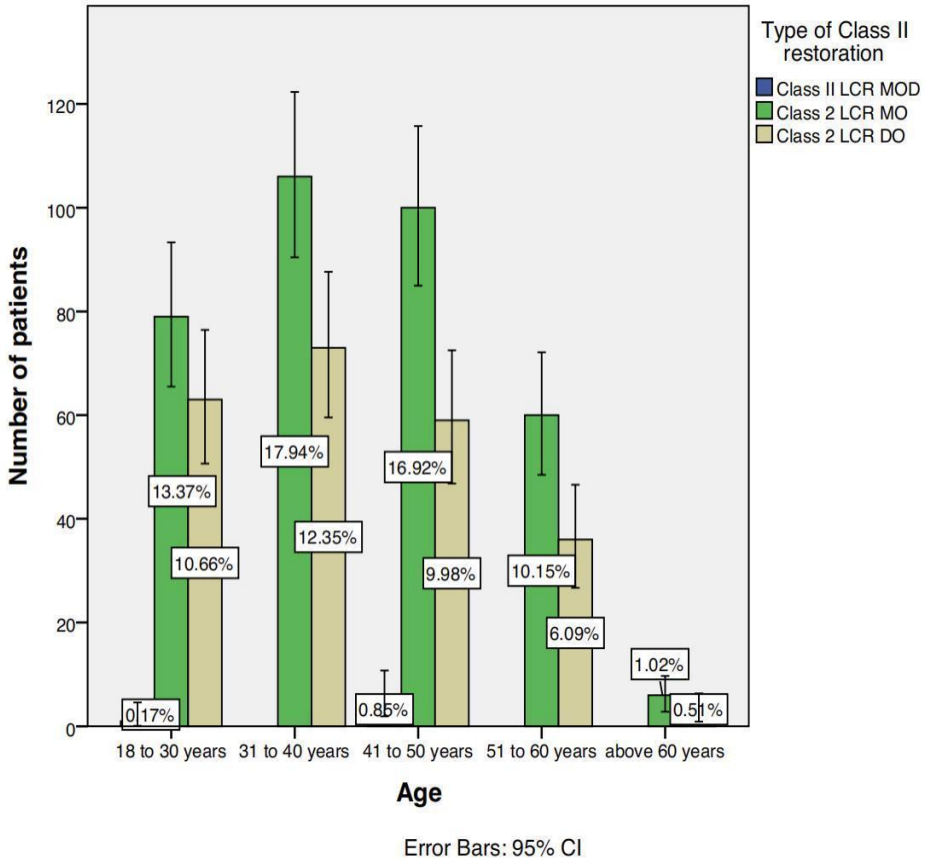

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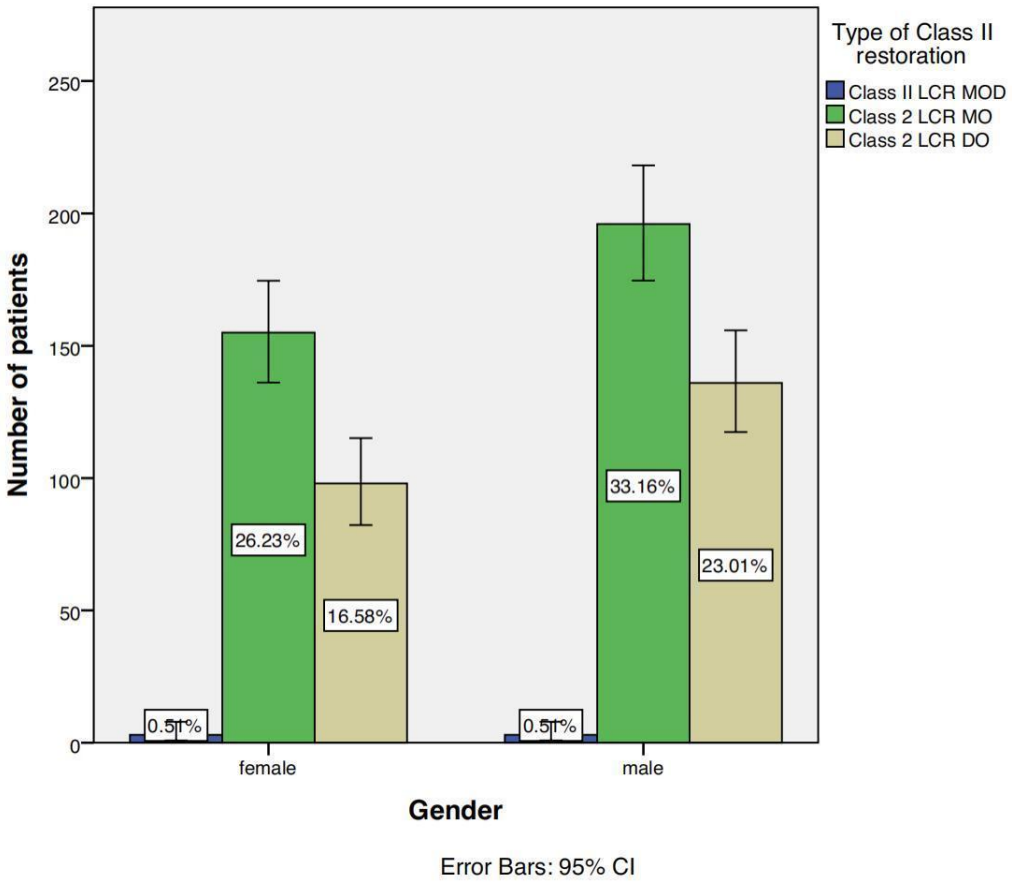

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