

# KNOWLEDGE, ATTITUDE AND PRACTICE ON SELECTIVE GRINDING IN COMPLETE DENTURES AMONG GENERAL PRACTITIONERS

**Type of Manuscript:** Original study

**Running title:** Assessment of knowledge on selective grinding in complete dentures among general practitioners

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**Abstract**

**Introduction:** Success of prosthodontic treatment in edentulous patients depends upon acceptable function and esthetics of complete dentures. Complete denture occlusion should satisfy the dynamic interrelationships between forces which stabilize and destabilize the denture, including freedom in centric, and the individual arrangement of denture teeth. A good occlusal philosophy combined with esthetics is paramount in the patient acceptance of a complete denture prosthesis.

**Materials and methods:** A survey was conducted in January 2020 among general dental practitioners. It was an online questionnaire-based study, conducted to assess the Knowledge, attitude, and practice on selective grinding in complete dentures among general dental practitioners. 100 general dental practitioners participated in this study. The data collection was done via google forms. A pretested, self-administered, closed-ended questionnaire comprising the following sections formed the survey instrument. A structured questionnaire containing 10 questions was framed. The goal of developing this questionnaire was to know Knowledge, attitude, and practice on selective grinding in complete dentures among general dental practitioners. The questions had to be answered with a Yes or No response. The data collected was entered into an Excel sheet and subjected to statistical analysis using SPSS version 20. A Chi-square test was done. The level of significance was set at  $p < 0.05$ .

**Results and Discussion:** Out of the total 100 general practitioners involved in the study it was observed that the highest number of clinical experience was for about 5-10 years ( $n=47;47%$ ) when compared to that practitioners with clinical experience of less than 5 years ( $n=32;32%$ ) and for more than 10 years ( $n=21;21%$ ) It was observed that most of the general practitioners were aware about selective grinding ( $n=83;83%$ ) and only about ( $n=17;17%$ ) were unaware about selective grinding. It was observed that most of the general practitioners were aware about the indications of selective grinding ( $n=83;83%$ ) and only about ( $n=17;17%$ ) were unaware about indications of selective grinding. It was observed that about ( $n=76;76%$ ) of the general practitioners were aware about the advantages of selective grinding and about ( $n=24;24%$ ) were unaware of the advantages of selective grinding. The study shows that all the general practitioners were aware about the functional and non functional cusps ( $n=100;100%$ ) The study shows that the majority of them were aware about an edentulous patient requiring balanced occlusion or not ( $n=51;51%$ ) and only about ( $n=49;49%$ ) were unaware about edentulous patient requiring balanced occlusion or not. The study shows that most of the practitioners with 5-10 years of experience had awareness on selective grinding. Pearson's Chi square value = 0.74 ; df = 1 ; p-value: 0.785 ( $p > 0.05$ ); hence statistically not significant) The study shows that most of the practitioners with 5-10 years of experience had awareness on indications of selective grinding. (Pearson's Chi square value = 0.74 ; df = 1 ; p-value: 0.785 ( $p > 0.05$ ); hence statistically not significant) The study

**CONCLUSION: It was observed that the General Dental practitioners had inappropriate KAP about some aspects of selective grinding in Complete Dentures. Need for relevant instructions, demonstrations and practical exposure of dental students and of the need for continuing educational programs for existing is advised.**

Keywords: Complete Dentures, Occlusion, Occlusal Interferences, Occlusal adjustments

## INTRODUCTION:

Occlusal adjustment, through selective grinding of the tooth surfaces, is one modality of improving the overall contact pattern of the teeth. It can be used as an adjunct to orthodontic, restorative or prosthetic and endodontic (emergency) treatment. (1)Occlusal adjustment may involve one or multiple, natural and or prosthetic teeth. This is ensured by appropriately designing the denture including its chewing or occlusal surface. These surfaces of the dentures influence the forces displacing them. The efficiency and comfort that a patient experiences with CDs depends on the harmonious occlusal relations. (2) Abnormal occlusal contacts during function, making dentures unstable, will cause discomfort, trauma and damage to the underlying tissues. It has also been established that occlusal interferences cause a variety of deleterious local, dental and masticatory system effects. Therefore, occlusion of the finished dentures must be free of interferences and if any, should be corrected by applying the related rules and concepts. (3)

Dental practitioners have lots of struggles to maintain the dental harmony of the patients during treatment procedures or even post treatment. One such challenge is to establish occlusal equilibrium, which can be attained by doing some occlusal adjustments. Occlusal adjustment can be defined as the removal of occlusal interferences, through selective tooth grinding or through the use of restorative materials and prosthesis. The use of occlusal adjustments in previous studies [2,3,4,5] focused on the correction of deranged occlusion which presents as Temporomandibular disorders, Myofascial pain, Neurological disorders, Inefficiency in mastication etc. (6,7,8,9,10,11)

Thus the aim of the study is to assess knowledge, attitude and practice related to selective grinding in complete dentures among general practitioners having different level of education and clinical experience in the field of complete dentures. This information will also act as a ground work for the need and appropriate designing of continued professional development educational programs in the area.

## MATERIALS AND METHODS

**Study design-** Awareness based survey

### Data collection

A survey was conducted in January 2020 among general dental practitioners. It was an online questionnaire-based study, conducted to assess the Knowledge, attitude, and practice on selective grinding in complete dentures among general dental practitioners. 100 general dental practitioners participated in this study. The data collection was done via google forms.

### Survey instrument

A pretested, self-administered, closed-ended questionnaire comprising the following sections formed the survey instrument. A structured questionnaire containing 10 questions was framed. The goal of developing this questionnaire was to know Knowledge, attitude, and practice on selective grinding in complete dentures among general dental practitioners. The questions had to be answered with a Yes or No response.

### Data analysis

The data collected was entered into an Excel sheet and subjected to statistical analysis using SPSS version 20. A Chi-square test was done. The level of significance was set at  $p < 0.05$ .

### A questionnaire given is as follows:

Clinicians Experience: Less than 5 years, 5-10 years, More than 10 years

Are you aware about selective grinding?

Are you aware about the indications of selective grinding?

Are you aware about the advantages of selective grinding?

How long have you been providing CD's per year to patients?

Do you give a proper instructions/prescription regarding the making of CD?

Are you aware about the functional and the non functional cusps?

Are you aware about the exact approaches for spot grinding of premature occlusal contacts?

Are you aware about the Exact approaches of obtaining even occlusal contacts?

Are you aware when an edentulous patient does not require balanced occlusion?

## RESULTS AND DISCUSSION:

Out of the total 100 general practitioners involved in the study it was observed that the highest number of clinical experience was for about 5-10 years ( $n=47;47%$ ) when compared to that practitioners with clinical experience of less than 5 years ( $n=32;32%$ ) and for more than 10 years ( $n=21;21%$ ) [Figure 1]. It was observed that most of the general practitioners were aware about selective grinding ( $n=83;83%$ ) and only about ( $n=17;17%$ ) were unaware about selective grinding. [Figure 2] It was observed that most of the general practitioners were aware about the indications of selective grinding ( $n=83;83%$ ) and only about ( $n=17;17%$ ) were unaware about indications of selective grinding. [Figure 3] It was observed that about ( $n=76;76%$ ) of the general practitioners were

aware about the advantages of selective grinding and about (n=24;24%) were unaware of the advantages of selective grinding. [Figure 4] The study shows that the majority of the practitioners who participated in this study were with 5-10 years of experience of providing complete dentures(n=49;49%) when compared with general practitioners having an experience of less than 5 years (n=30;30%) and greater than 10 years (n=21;21%) [Figure 5] The study shows that the majority of them gave proper introductions regarding the making of CD(n=57;57%) and about (n=43;43%) did not give proper instructions after CD insertion. [Figure 6] The study shows that all the general practitioners were aware about the functional and non functional cusps(n=100;100%) [Figure 7] The study shows that the majority of them were aware about the exact approaches for spot grinding of premature occlusal contacts(n=62;62%) and only about (n=38;38%) were unaware about the exact approaches for spot grinding of premature occlusal contacts. [Figure 8] The study shows that the majority of them were aware about the exact approaches for obtaining even occlusal contacts(n=73;73%) and only about (n=27;27%) were unaware about the exact approaches for obtaining even occlusal contacts. [Figure 9] The study shows that the majority of them were aware about an edentulous patient requiring balanced occlusion or not(n=51;51%) and only about (n=49;49%) were unaware about edentulous patient requiring balanced occlusion or not. [Figure 10] The study shows that most of the practitioners with 5-10 years of experience had awareness on selective grinding. Pearson's Chi square value=; 0.74 ; df =1 ;p-value: 0.785 (p>0.05); hence statistically not significant)[Figure 11] The study shows that most of the practitioners with 5-10 years of experience had awareness on indications of selective grinding.(Pearson's Chi square value=; 0.74 ; df =1 ;p-value: 0.785 (p>0.05); hence statistically not significant) [Figure 12] The study shows that most of the practitioners with less than 5 years of experience had awareness on about the exact approaches for spot grinding of premature occlusal contacts.(Pearson's Chi square value = 0.318 ;df =1 ;p-value: 0.573 (p>0.05); hence statistically not significant.[Figure 13]

### CONCLUSION:

**It was observed that the General Dental practitioners had inappropriate KAP about some aspects of selective grinding in Complete Dentures. Need for relevant instructions, demonstrations and practical exposure of dental students and of the need for continuing educational programs for existing is advised.**

### AUTHOR CONTRIBUTIONS

First author, Miloni Suresh Shah performed the data collection by reviewing patient details, filtering required data, analyzing and interpreting statistics, and contributed to manuscript writing. The second author, Dr. V Ashok contributed to the conception of study title, study design, analyzed the collected data, statistics, and interpretation and also critically revised the manuscript.

### ACKNOWLEDGEMENTS

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### CONFLICT OF INTEREST

There were no potential conflicts of interest as declared by authors.

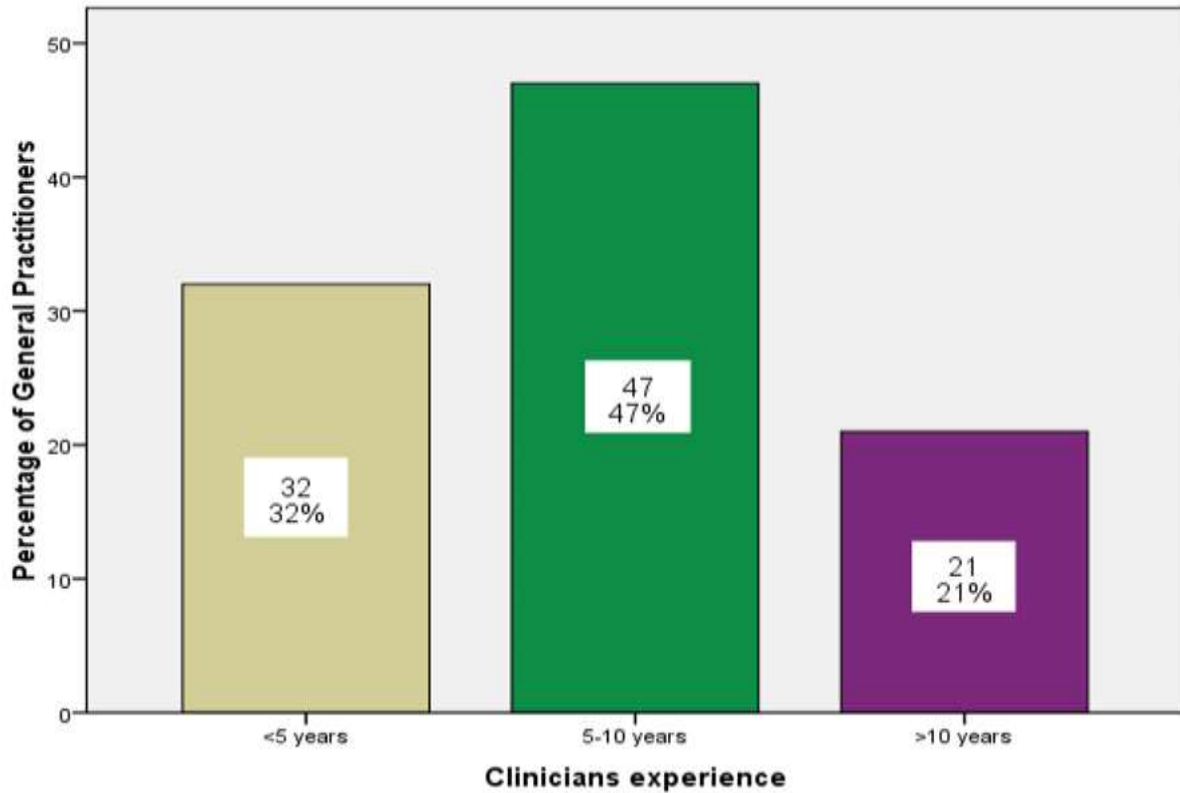


Figure1: Bar graph shows the distribution of general practitioners based on their clinical experience. The X-axis depicts the clinical experience among general practitioners. Y-axis represents the percentage of general practitioners. The clinical experience was color-coded as beige (less than 5 years), green (5-10 years experience), and purple (more than 10 years experience). The graph shows that the majority of the practitioners who participated in this study were with 5-10 years of experience.

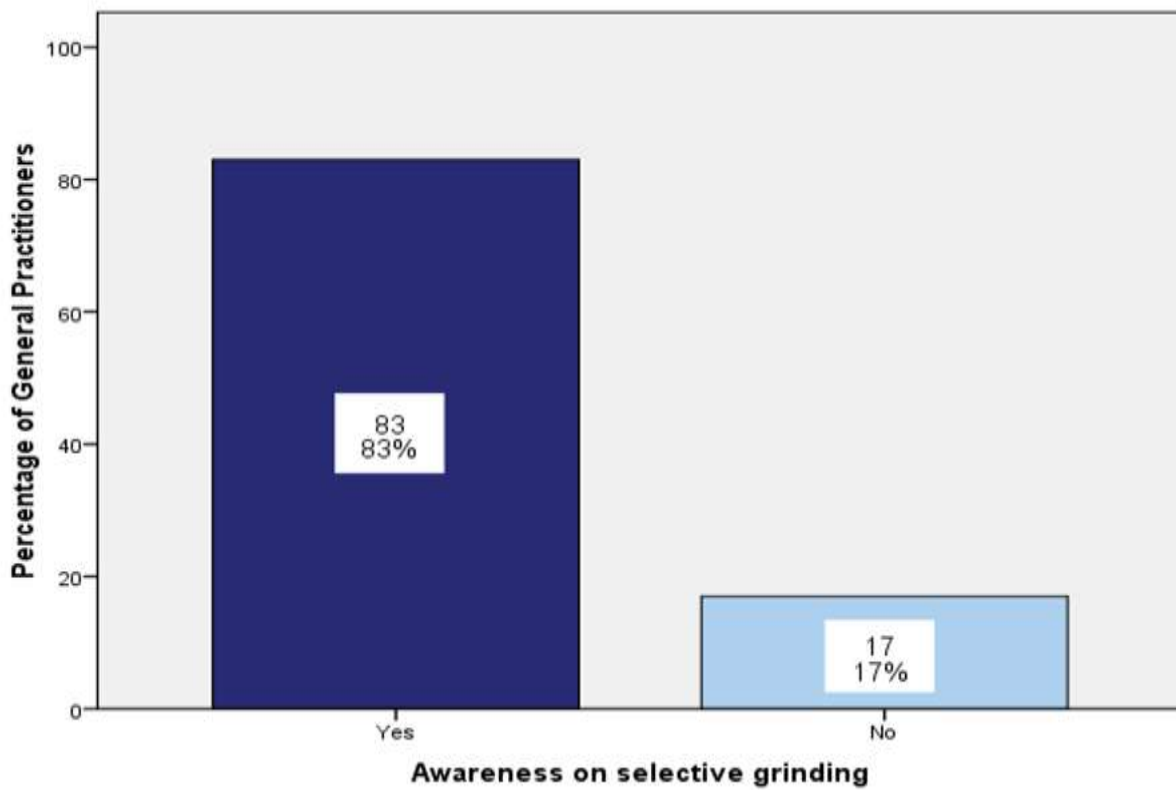


Figure 2: Bar graph representing the responses for the question, whether the general practitioners are aware of selective grinding. The X-axis represents the response options (No -Blue) (Yes-Dark blue), Y-axis represents the percentage of responses. The graph shows that the majority of them were aware of selective grinding.

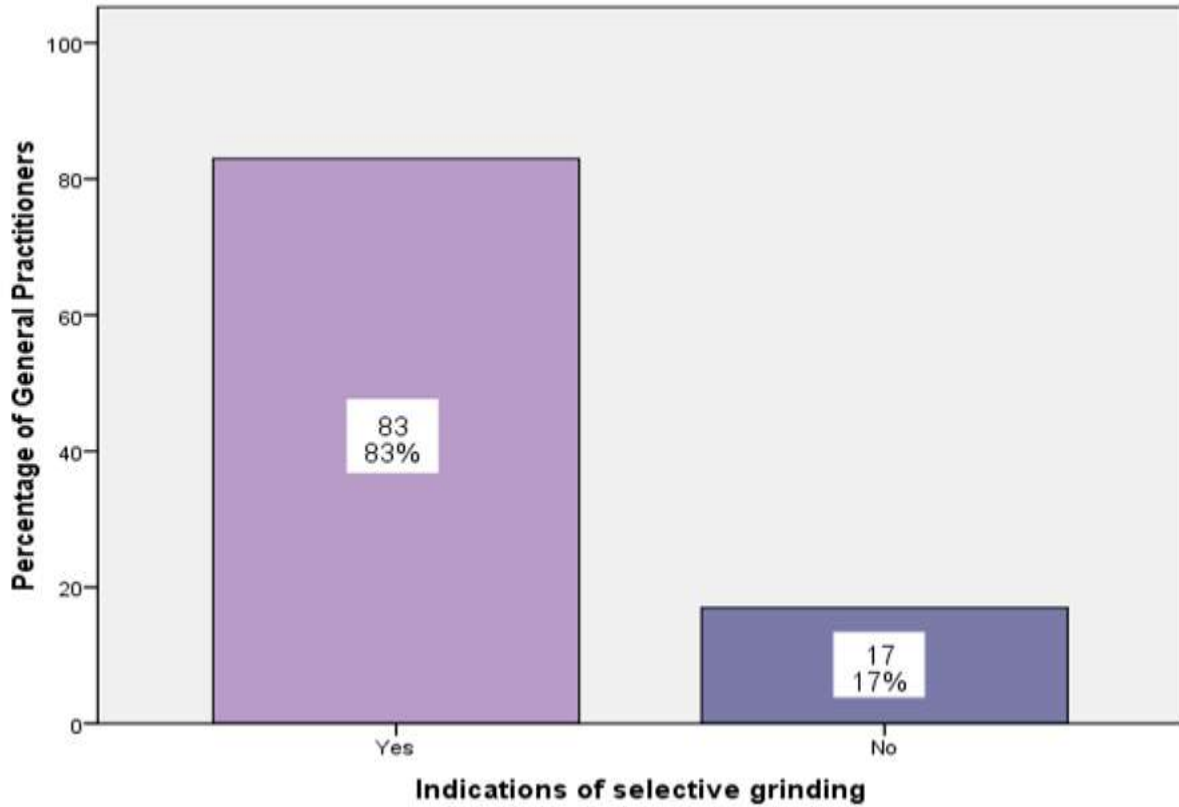


Figure 3: Bar graph representing the responses for the question, whether the general practitioners are aware about the indications of selective grinding. The X-axis represents the response options (No -Purple) (Yes-Violet), Y-axis represents the percentage of responses. The graph shows that the majority of them were aware about the indications of selective grinding.

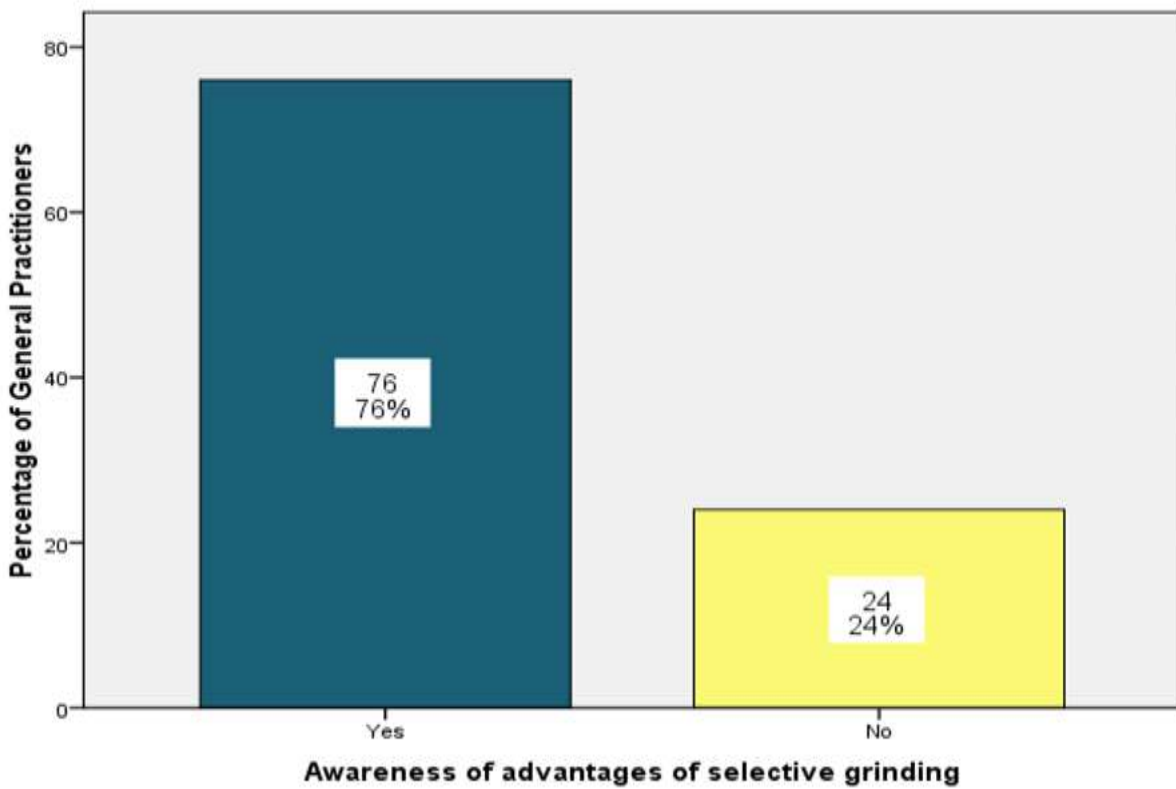


Figure 4: Bar graph representing the responses for the question, whether the general practitioners are aware about the advantages of selective grinding. The X-axis represents the response options (No-Yellow) (Yes-Blue), Y-axis represents the percentage of responses. The graph shows that the majority of them were aware about the advantages of selective grinding.

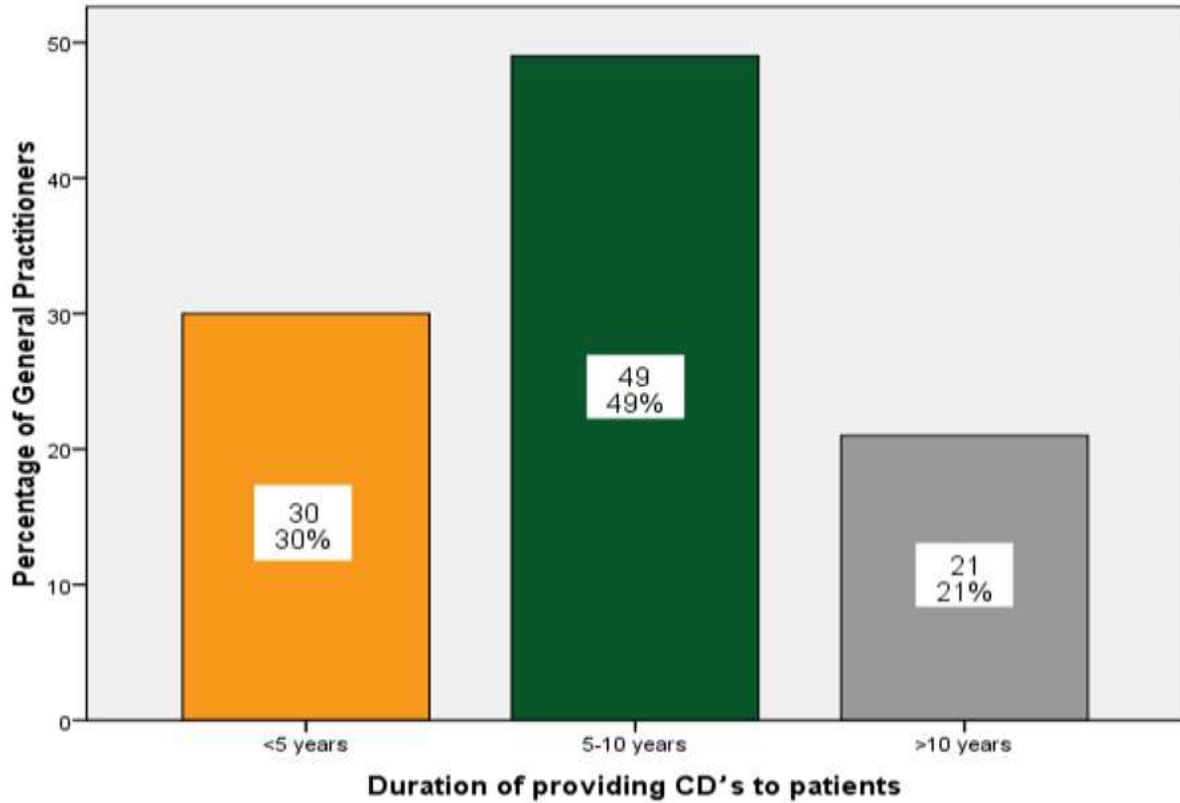


Figure 5: Bar graph shows the distribution of general practitioners based on their clinical experience. The X-axis depicts the clinical experience among general practitioners providing complete dentures. Y-axis represents the percentage of general practitioners. The clinical experience was color-coded as orange (less than 5 years), green (5-10 years experience), and grey (more than 10 years experience). The graph shows that the majority of the practitioners who participated in this study were with 5-10 years of experience of providing complete dentures.

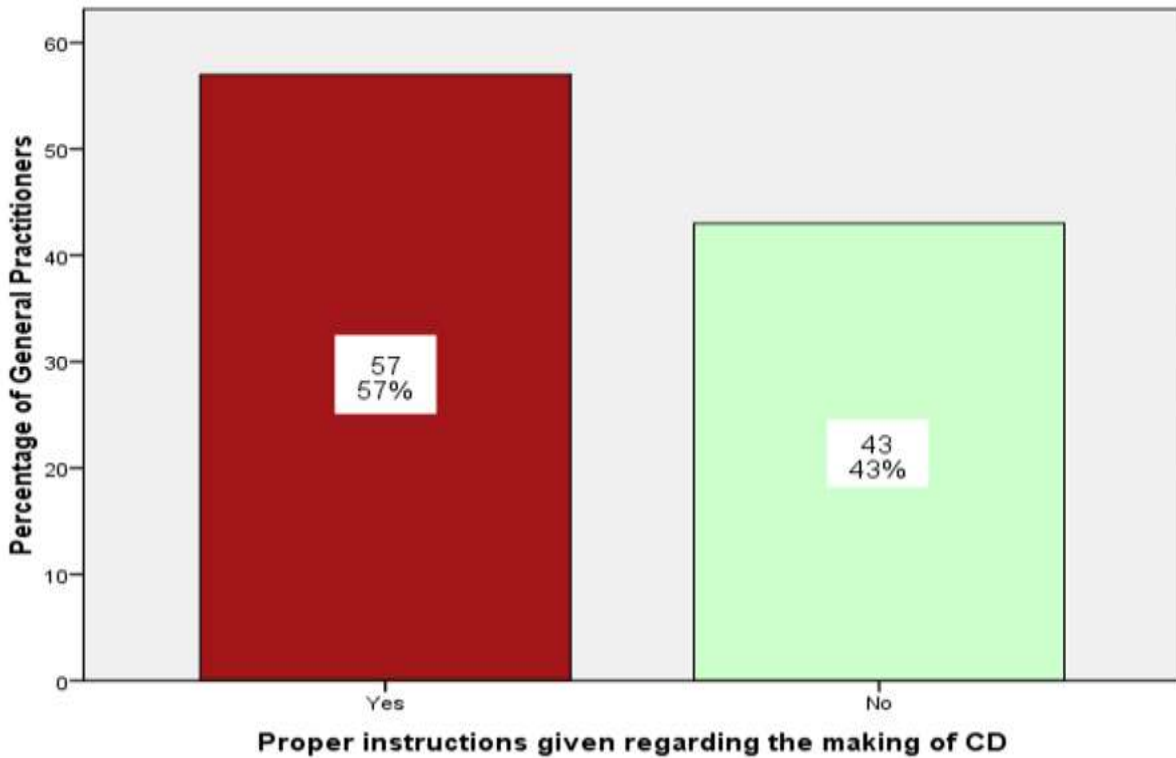


Figure 6: Bar graph representing the responses for the question, whether the general practitioners give proper introductions regarding the making of CD. The X-axis represents the response options (No-Green ) (Yes-Red), Y-axis represents the percentage of responses. The graph shows that the majority of them gave proper introductions regarding the making of CD.

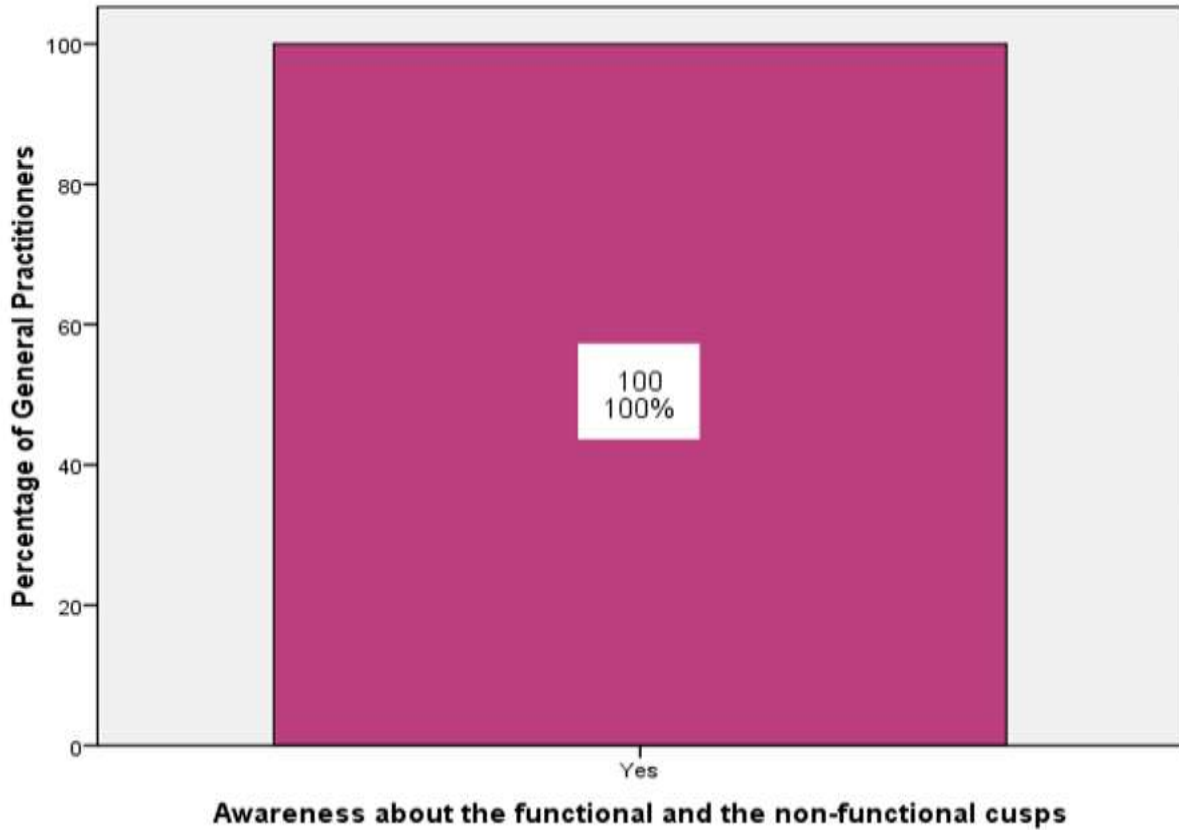


Figure 7: Bar graph representing the responses for the question, whether the general practitioners were aware about the functional and non functional cusps. The X-axis represents the response options (Yes-Pink), Y-axis represents the percentage of responses. The graph shows that all the general practitioners were aware about the functional and non functional cusps.

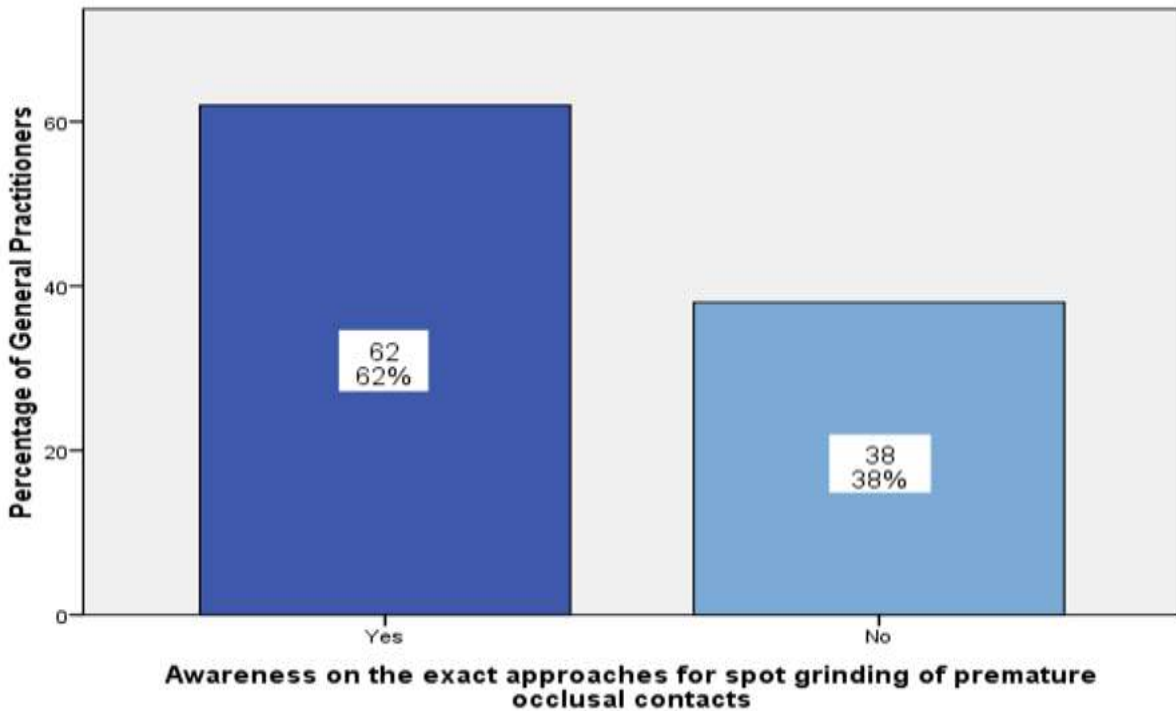


Figure 8: Bar graph representing the responses for the question, whether the general practitioners are aware about the exact approaches for spot grinding of premature occlusal contacts. The X-axis represents the response options (No-Blue) (Yes-Dark blue), Y-axis represents the percentage of responses. The graph shows that the majority of them were aware about the exact approaches for spot grinding of premature occlusal contacts.

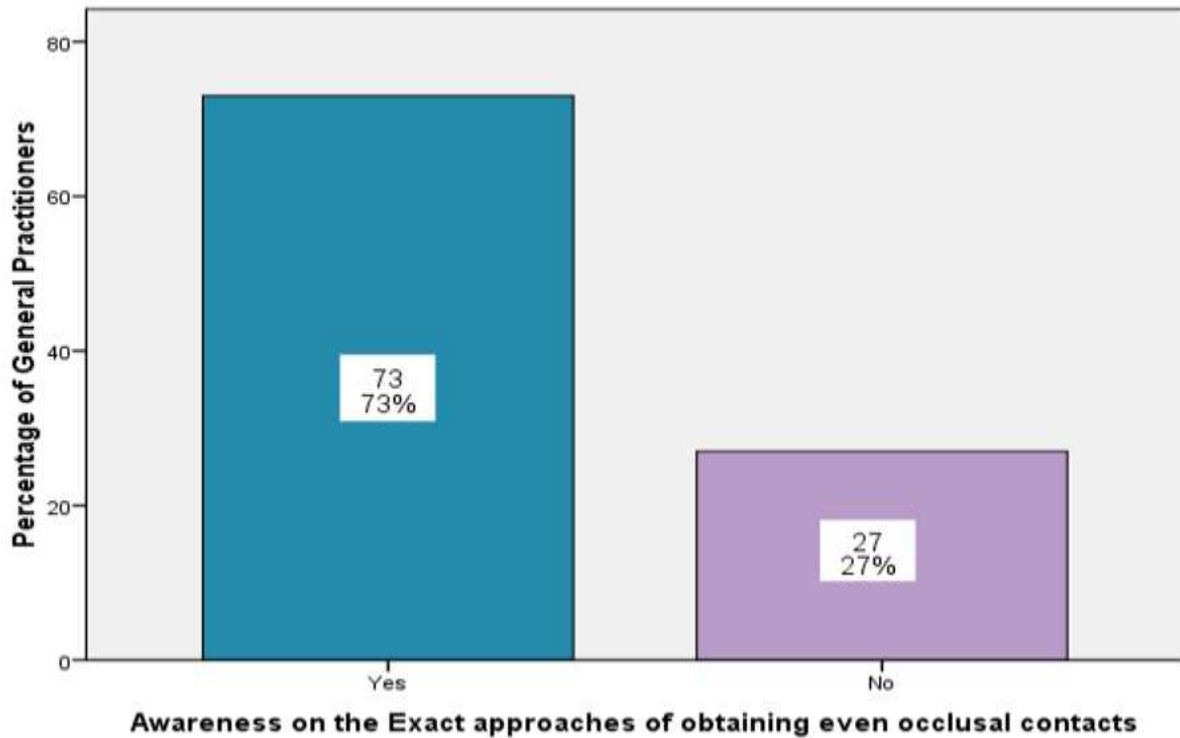


Figure 9: Bar graph representing the responses for the question, whether the general practitioners are aware about the exact approaches for obtaining even occlusal contacts. The X-axis represents the response options (No-Purple) (Yes-Blue), Y-axis represents the percentage of responses. The graph shows that the majority of them were aware about the exact approaches for obtaining even occlusal contacts.

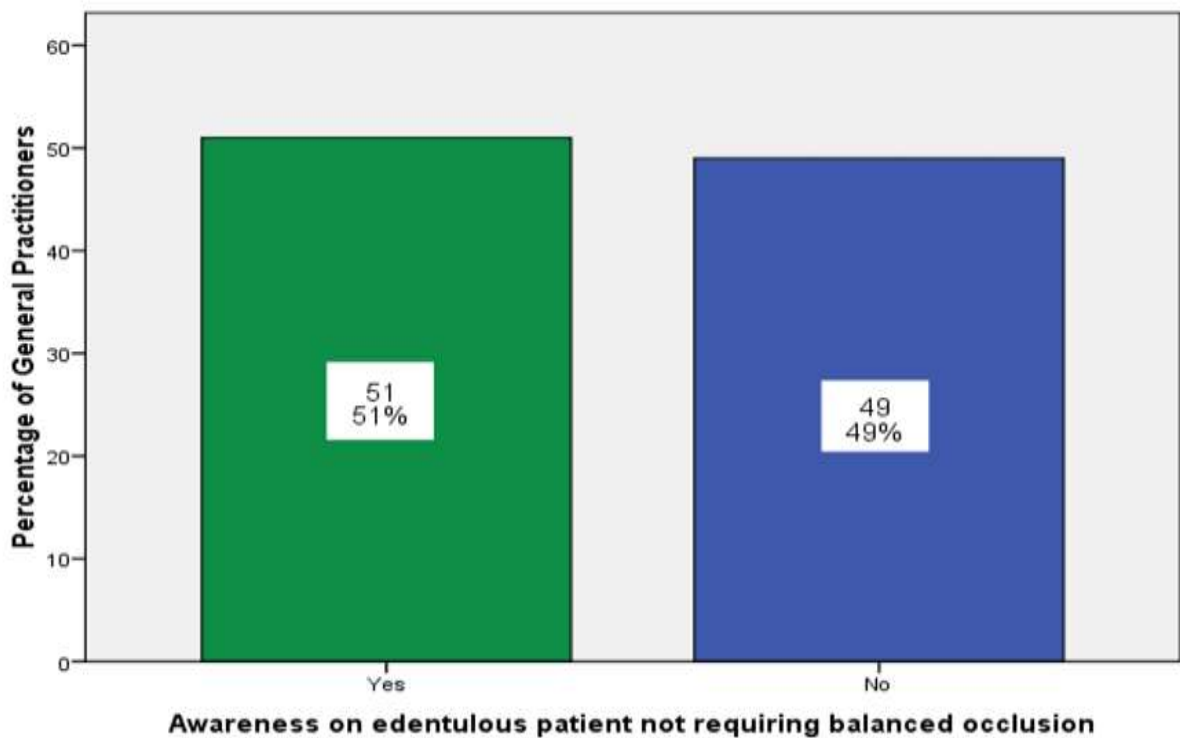


Figure 10: Bar graph representing the responses for the question, whether the general practitioners are aware about an edentulous patient requiring balanced occlusion. The X-axis represents the response options (No-Blue) (Yes-Green), Y-axis represents the percentage of responses. The graph shows that the majority of them were aware about an edentulous patient requiring balanced occlusion or not.



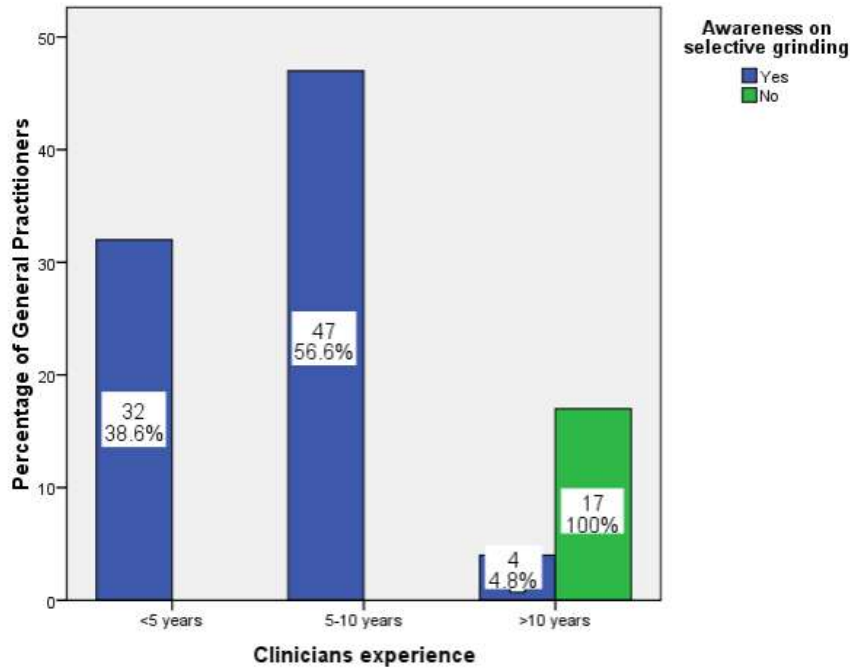


Figure 11: Bar graph shows the association between the general practitioners and their awareness on selective grinding. The X-axis depicts the clinical experience. Y-axis represents the number of general practitioners. The graph shows that most of the practitioners with 5-10 years of experience had awareness on selective grinding.(Green-No),(Blue-Yes). Chi-square test was done.Pearson's Chi square value=; 0.74 ; df =1 ;p-value: 0.785 (p>0.05); hence statistically not significant)

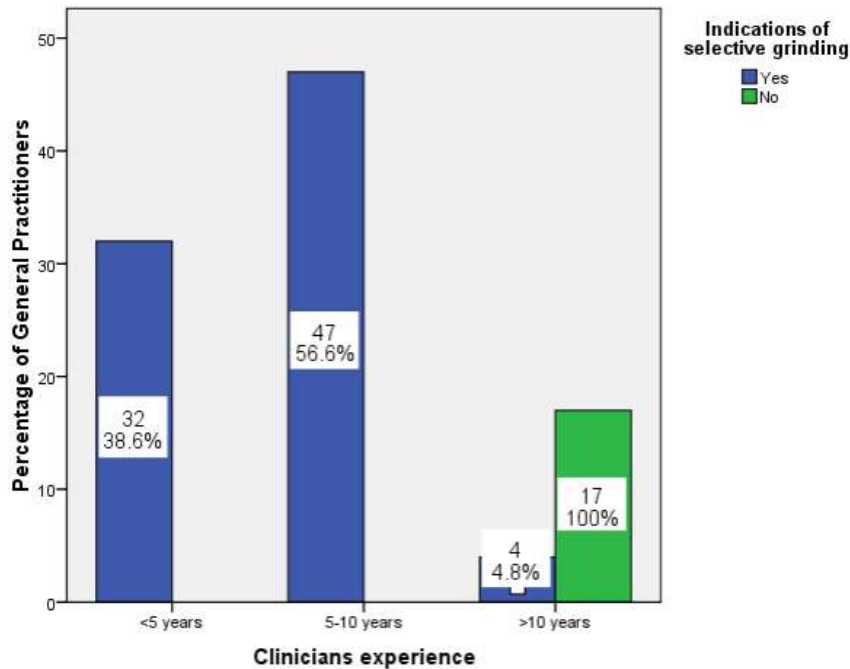


Figure 12: Bar graph shows the association between the general practitioners and their awareness on indications of selective grinding. The X-axis depicts the clinical experience. Y-axis represents the number of general practitioners. The graph shows that most of the practitioners with 5-10 years of experience had awareness on indications of selective grinding.(Green-No),(Blue-Yes). Chi-square test was done.Pearson's Chi square value=; 0.74 ; df =1 ;p-value: 0.785 (p>0.05); hence statistically not significant)

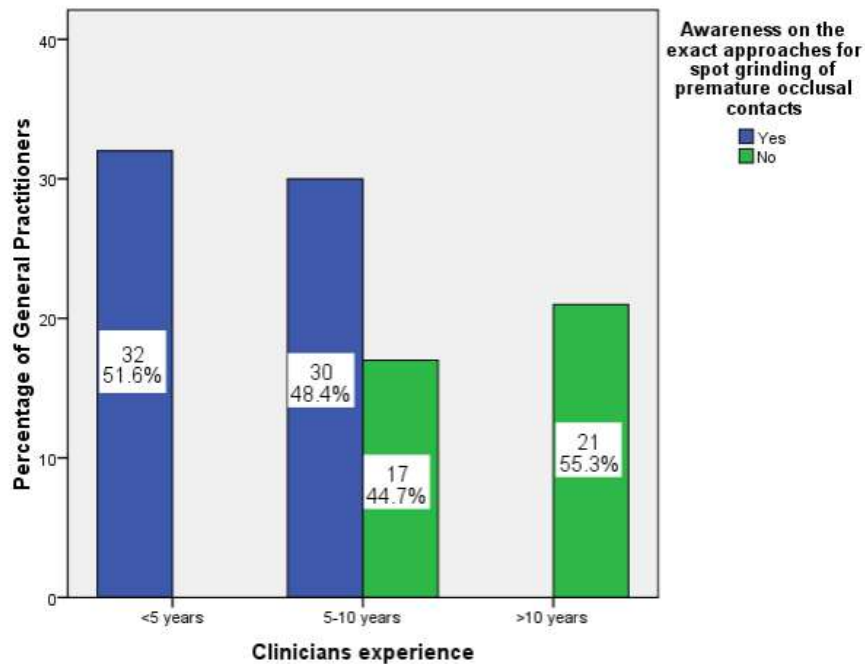


Figure 13: Bar graph shows the association between the general practitioners and their awareness on the exact approaches for spot grinding of premature occlusal contacts. The X-axis depicts the clinical experience. Y-axis represents the number of general practitioners. The graph shows that most of the practitioners with less than 5 years of experience had awareness on about the exact approaches for spot grinding of premature occlusal contacts. (Green-No), (Blue-Yes). Chi-square test was done. Pearson's Chi square value = 0.318 ;df =1 ;p-value: 0.573 ( $p > 0.05$ ); hence statistically not significant.

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