

Original Research**Knowledge and practices regarding occlusal adjustments among interns and dentists in Chennai****Divya G², Vinita Mary A¹, Kesavan R³, Ekambareswaran K², Esther Sabatini Rebekah W², Nishanthi L²**¹ Professor and Head, Department of Public Health Dentistry, Thai Moogambigai Dental College and Hospital, Chennai, India.² Junior Resident, Department of Public Health Dentistry, Thai Moogambigai Dental College and Hospital, Chennai, India.³ Professor, Department of Public Health Dentistry, Thai Moogambigai Dental College and Hospital, Chennai, India.

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ABSTRACT

Purpose: Occlusal adjustment is one of the challenging and regularly encountered procedure in dentistry. The knowledge of dental occlusion is considered as the foundation for achieving occlusal equilibrium. Moreover, achieving occlusal equilibrium by occlusal adjustments is an irreversible procedure and the dentist must study the patient's occlusion before the procedure. The aim of this study was to evaluate knowledge and practices of dental practitioners regarding occlusal adjustment.

Methods: A cross sectional study was conducted among interns and dentists in Chennai. The knowledge and attitude regarding occlusal adjustment was evaluated through self-explanatory questionnaire which were circulated to the study subjects in the form of google forms through social media platforms like whatsapp, Instagram and facebook and each participant could be able to submit their response only once.

Results: A total of 200 subjects participated in the study. The age of the study subjects ranged from 21-84 years with mean age being 29.39±10.20 and 124 (62%) were females and 76(38%) were males. About 107 study subjects (53.5%) faced difficulties after crown fixation; 173 (86.5%) study subjects had come across the term occlusal equilibrium and 171 (85.5%) preferred using articulating paper to check occlusal interference and 171(85.5%) study subjects accepted that occlusal imbalance can cause temporomandibular joint pain.

Conclusion: The survey concluded that the study subjects had basic theoretical knowledge about occlusal adjustments but their clinical implementation was questionable.

INTRODUCTION

Health is not only an absence of disease instead, it also extends to physical, mental and social well-being. A proper oral health care holds an important position not only in maintaining oral harmony, but also to provide a good general health. Sometimes oral harmony is not easy to attain.

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^[1]. The use of occlusal adjustments in previous studies^[2,3,4,5] focused on the correction of deranged occlusion which presents as Temporomandibular disorders, Myofacial pain, Neurological disorders, Inefficiency in mastication etc. Thus, considering both mechanical and biological factors when providing prosthodontic therapies to patients,

* Corresponding author: Dr. Divya G, Junior Resident, Department of Public Health Dentistry, Thai Moogambigai Dental College and Hospital, Chennai, India. Tell: 8838249608 Email: divyagunasekar97@gmail.com

ensure comfort, satisfaction as well as long term tissue health and service life to the prosthetic restoration [6]. Therefore, occlusion

must be free of occlusal interferences and if

FIGURES AND TABLES

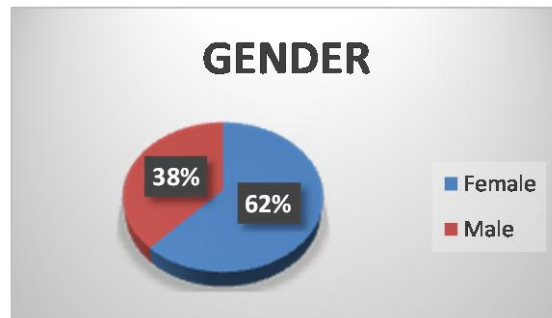


Figure: 1 Distribution of study subjects based on gender

Table: 1 Distribution of study subjects according to knowledge and practice of Occlusal adjustments

QUESTION	OPTIONS	FREQUENCY (N)	PERCENTAGE (%)
Have you come across the term Occlusal equilibrium	No	13	6.5
	Not sure	14	7.0
	Yes	173	86.5
Is it important to rectify high	Yes	193	96.5

points	No	2	1.0
	May be	5	2.5
To check if Occlusal interference is present	Ask for patient's proprioception	16	8.0
	Use articulating paper	171	85.5
	Use bite wax	13	6.5
Part of tooth that is grinded for Occlusal interference	Functional cusp	47	23.5
	Non-functional cusp	95	47.5
	Both	58	29.0
How to achieve occlusal equilibrium after permanent cementation	Adjusting the crown/bridge	122	61.0
	Adjusting the opposing natural teeth	15	7.5
	Both	63	31.5
Occlusal imbalance is also a	Yes	171	85.5

cause for TMJ pain	No	3	1.5
	Not sure	26	13.0
Part of cusp that is corrected	Cusp tips	33	16.5
	Slopes of cusp	104	52.0
	Both	63	31.5
To check for high points using articulating paper	Ask patient to bite in centric occlusion as well as side to side movement	101	50.5
	Protrusive movements alone	5	2.5
	Both	94	47.0
Orthodontic therapy helps in attaining occlusal equilibrium	Yes	125	62.5
	No	12	6.0
	Maybe	63	31.5

Does change in occlusal equilibrium affects the chewing efficiency of an individual	Yes	157	78.5
	No	9	4.5
	Maybe	34	17.0
Does permanent restoration over or around the cusps help in achieving occlusal equilibrium	Yes	100	50.0
	No	27	13.5
	Maybe	73	36.5
Has any of your patients reported discomfort after crown cementation	Yes	107	53.5
	No	66	33.0
	Maybe	27	13.5
Patients complains of jaw pain after crown/bridge cementation	Yes	50	25.0
	No	89	44.5
	Sometimes	61	30.5

Preference of temporary cementation of crown/bridge before permanent cementation	Yes	122	61.0
	No	16	8.0
	Sometimes	62	31.0
Patients asked to come for a recall visit after completion of prosthetic treatment	Always	123	61.5
	Never	7	3.5
	Sometimes	34	35.0

TABLE: 2 Comparison between Genders regarding occlusal adjustments and recall

QUESTION	OPTION	MALE		FEMALE		P-VALUE
		n	%	n	%	
Which part of	Both	19	9.5	44	22	0.045

the cusp is corrected	Cusp tips	9	4.5	24	12	
	Slopes of cusps	48	24	56	28	
Do you ask your patients to come for a recall visit	Always	47	23.5	76	38	0.023
	Never	6	3	1	0.5	
	Sometimes	23	11.5	47	23.5	

any, should be corrected by applying the related rules and concepts ^[7].

When orthodontic treatment is finished, the clinician should ensure that the criteria for optimal orthopedic stability in the masticatory system are fulfilled including occlusion ^[8]. The procedures such as selective grinding ^[3, 9, 10] can facilitate the 'no shift' situation. Selective grinding to produce occlusal adjustment has been described as a valid adjunct to orthodontic treatment for improving the overall contact patterns of the teeth ^[11, 12].

As mentioned by Dawson, there is nothing to fear about occlusal equilibrium if it is accurately performed on properly selected patients after proper analysis. If the importance of occlusion in dentistry were universally understood, no dentist would even consider practicing without a working knowledge of the

principles and skills required for successful occlusal equilibrium ^[13]. The aim of the present

study was to evaluate knowledge and practice regarding occlusal adjustment.

METHODS:

Study design, structure & materials: A cross-sectional study was conducted to assess the knowledge and practice of occlusal adjustments among compulsory rotatory residential internship students, post graduate students and staffs of various dental colleges and private practitioners in Chennai. A self-administered questionnaire was prepared on Google forms which was circulated to the participants through email and various social media platforms like Whatsapp, Instagram and Facebook. The first part of the survey form

explained the need of the study to the subjects and enquired about their willingness to participate in the study. They were further informed that the data collected will be kept confidential. The second part was the survey form comprised of two sections in which the first section assessed the demographic details of the participants and second section was a close ended questionnaire comprising of fifteen questions regarding occlusal adjustments.

The Google form limiter was enabled to collect a single response from each participant and 200 responses recorded. The data was collected from 26-05-2020 to 14-07-2020. The collected data were subjected to statistical analysis.

RESULTS:

A total of 200 responses were collected. The age of the study population ranged from 21-84 years with mean age being 29.39 ± 10.20 . Among the study subjects, 124 (62%) were females and 76(38%) were males. (Figure 1) Among the study subjects, 39.5% were interns, 26.5% staffs, 21% private practitioners and about 13% were postgraduates.

From (table 1), About 107 (53.5%) study subjects reported that patients had discomfort after crown fixation; 111 (55.5%) admitted that their patients complained of jaw pain after crown cementation; 173 (86.5%) study subjects had come across the term occlusal equilibrium and 171 (85.5%) preferred using articulating paper to check if occlusal interference was present and 171 (85.5%) study subjects agreed that occlusal imbalance can also be a cause for TMJ pain.

From (table 2), When the study subjects were asked which part of the cusp has to be ground to make corrections, it was observed that a greater number of female subjects had

answered correctly when compared to males and the difference was statistically significant ($p=0.045$). Also, it was observed that female dentists preferred recall visits more often than male dentists and the difference was statistically significant ($p=0.023$). The comparison for the rest of the findings was non-significant.

DISCUSSION:

Occlusal adjustment involves selective grinding of tooth surfaces with the goal of improving tooth contact patterns ^[14]. In the present study, even though the study subjects knew about occlusal equilibrium and importance to rectify highpoints and temporomandibular disorders, it was observed that most study subjects had difficulties after crown fixation especially those with post-cementation jaw pain. As majority of study subjects used articulating paper and some preferred using bite wax or rely on patient's proprioception which are the older ways for identification of occlusal interferences without much precision, by this we assume that may be most of the study subjects had no idea about using stereostethoscopy, dental pre-scale, photo occlusion and T-scan systems in their practices for identification of occlusal interferences. The study subjects preferred grinding even functional cusps and sometimes both functional and nonfunctional cusps on cusp tips and slopes, to relieve occlusal interference. And majority female dentist's prefer for recall visit as compared with males. Half of the study subjects strongly accepted the concept that permanent restoration over or around the cusps will help in achieving occlusal equilibrium. Many studies were conducted to evaluate occlusal interferences in relation to temporomandibular disorders ^[15-22]. In this

study, the study population strongly believed that occlusal imbalance was also a cause for temporomandibular joint pain which was similar to a study conducted by Le Bell et al. ^[15] in which they associated the presence or absence of temporomandibular joint disorders to occlusal adjustments.

The use of articulating paper for identification of occlusal surface errors was preferred by 83.3% subjects in a study conducted by Fazal Ghani et al. ^[23], which is similar to the present study (85.5%). About 61% study subjects preferred provisional restoration, which is similar to a study by Alhoumaidan et al. ^[24] (45.5%).

In our study, majority of the respondents felt the same as in a study by Gupta et al. ^[25] for an equilibrated occlusal function can be also achieved by dental prosthesis or orthodontic devices.

CONCLUSION:

Thus, from the study it was observed that, study subjects had some basic knowledge about occlusal equilibrium but their implementation in clinical practice was questionable. It is recommended that compulsory rotational residential interns have to get exposed to more clinical cases involving occlusal interferences, more hands-on, continuing dental education programs webinars and conferences should be conducted for dental practitioners which render extra importance for Occlusal equilibrium concept.

Conflict of interest

No potential conflict of interest relevant to this article was reported.

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