MEAN VERTICAL LENGTH OF LABIAL SURFACE DISPLAY OF WAX RIM WITH RESTING LIP AND DURING POSED SMILE IN EDENTULOUS PATIENTS WITH DIFFERENT LENGTHS OF MAXILLARY LIP IN RELATION TO GENDER

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ABSTRACT

Objective: *To determine mean vertical length of labial surface display of wax rim with resting lip and during posed smile.*

Materials and Methods: *Subjects fulfilling the inclusion and exclusion criteria were invited to take part in the study. The purpose, procedures, risk and benefits of the study were explained to them. The mentioned measurement for the vertical display of the labial surface of the occlusal rim was performed by predefined technique. All measurements were repeated 3 times and mean value deduced for entry in the data collection proforma. Data was analyzed using SPSS version 17.*

Results: *Out of total 221 participants, mean age was 60± 6.64 yers. with male to female ratio of 1:1.15. Females shows shorter lip lengths while males had long lip lengths. Subjects with shorter upper lips display more maxillary rim than subjects with longer upper lips both at smile and at rest.*

Conclusion: *It was found that males shows high proportion of long and medium upper lip while female shows high proportion of short upper lip , this can be considered as a feminine feature, as well as this also explains why conspicuous maxillary central incisors are associated with the females. It was founded a high significant differences between males and females regarding upper lip length.*

Keywords: *Maxillary lip length, Wax occlusal rim, occlusal show at rest, occlusal show at smile.*

INTRODUCTION

Smile is a person's capability to express a range of emotions[1] with the structure and movement of teeth and lips, can often define how well a person can function in society.[2] The presence of maxillary anterior teeth plays an important role in facial esthetics.[3] The extent to which the anterior teeth are displayed when the lips are at rest and during facial expressions, such as smiling, may influence our perception of facial attractiveness.[4] Present day construction of an esthetic dental prosthesis has wide range of prosthesis utilizing combinations of metals and ceramics or metal free ceramics.[5,6,7] For any of these prosthesis to be successful, several factors have to be considered.[6,8] Failure to expose the upper teeth gives unnatural look to the smile. Exposure of the teeth alone produces a mediocre smile. When teeth and gingiva are exposed a pleasant, natural,

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attractive smile is produced. Esthetics was the factor most responsible for complete denture success.[6] For edentulous patients with a normal lip the occlusion rim extend just below the resting lip with variations for short or long lips. Also, the visible amount of anterior teeth can be one of the helpful guidelines for determining the appropriate vertical dimension of occlusion.[9,10] Upper lip length has a direct effect on dentogingival exposure at rest and during maximum smile positions.[11] In a study 30 patients were taken both male and female.[6] Polyvinyl Siloxane bite rims were fabricated and incisal distance from lower border of rim is measured. For incisal edge to upper lip length, the mean measurement at measured occlusal vertical dimension was 8.20 ± 2.22mm.[12]

This study will provide an excellent start for vertical positioning of anterior teeth during fabrication of complete dentures that can be modified as necessary according to clinical situations. To determine mean vertical length of labial surface display of wax rim with resting lip and during posed smile.

MATERIALS AND METHODS

The study was conducted after approval from hospital ethical committee. Edentulous patients requiring complete denture reporting to department of Prosthodontics at tertiary care hospital were included in this study. Informed consent was obtained verbally from every patient before being enrolled into the study. The purpose, procedures, risk and benefits of the study was explained to them. The mentioned measurement for the vertical display of the labial surface of the occlusal rim was measured from the inciso-apical (vertical) length of the maxillary anterior teeth (central and lateral incisor and canine teeth), the cases where there is no show at rest shall be recorded zero. This shall be measured in mm using a vernier caliper during the following conditions:

a. Display during resting lip position: when the lip position is because of facial muscles remaining in equilibrium with no tension contractions in these the patients as well as their muscles remaining very relaxed.

b. Display during posed smile: with the adjusted occlusal wax rim in mouth the patient is asked to pose a smile by asking them to show the top teeth and hold the lip at that position and do measurement of the distance between incisal edge of the rim and the lip posture with the labial surface of the rim.

Maxillary lip length shall be the distance between base of the nose (subnasale) and inferior part of the upper lip (stomion). The subject lip length shall be categorized as normal when ranging between 18 – 24mm. Shorter or longer when having lip length value less or more than the lower or upper range values given for normal lip length respectively.

Statistical analysis of the data shall be done using the software Statistical Package for Social Sciences (SPSS version 23.0). Frequency and percentages was be calculated for categorical variable like gender and lip length. Mean ± SD was be calculated for numerical variables like age and display of wax rim. Mean vertical length of labial surface display was stratified among age, gender and lip length. Post stratification was done through chi square test keeping P value ≤ 0.05 as significant. All the results were presented in the form of tables.

RESULTS

Data from 211 patients having complete edentulism were collected over a period of 25 months. The mean age of the patients was 60 ± 6.64 (SD) yrs. Out of 211 patients males were 98 (46.4%) and females 113 (53.6%). Male to female ratio was 1.15:1. The mean maxillary lip in our sample was 20.17±4.837 mm, means vertical length of labial surface display of wax at rest was 1.13±1.078 mm and at smile was 10.09±3.593 mm. Table 1

The mean value of labial surface display of wax rim at rest was almost similar in both males and females. The difference was not statistically significant (P>0.05). The details are shown in the Table 2.

The mean value of labial surface display of wax rim at smile was 9.352±3.364 mm in males and 10.73±3.674 mm in females. The difference between genders was statistically significant (P<0.05). The details are depicted in the Table 3.

The long lips (n=33) were more in males than female (n=31). The short lips (n=48) were more in females than male (n=24). The normal lips were more in males (n=41) than females (n=34). The difference was statistically significant (P<0.05). Table 4

DISCUSSION

Total of 211 subjects were studied in which 98 were males and rest 113 were female. There are

Table 1: Descriptive statistics of vertical maxillary lip length, vertical length of labial surface display of wax at rest and at smile

Variable	N	Mean± SD
vertical maxillary lip length	211	20.17±4.837
Vertical length of labial surface display of wax at rest	211	1.13±1.078
Vertical length of labial surface display of wax at smile	211	10.09±3.593

Table 2: Comparison of labial surface display of wax rim at rest between genders

Gender	N	Mean ± SD	p-value*
Male	98	1.015±1.05	0.141
Female	113	1.235±1.08	

*Independent t test, P≤0.05 significant level

Table 3: Comparison of labial surface display of wax rim at smile between Genders

Gender	N	Mean ± SD (mm)	p-value*
Male	98	9.352±3.364	0.005
Female	113	10.73±3.674	

*Independent t test, P≤0.05 significant level

Table 4: Comparison of maxillary lip length categories between genders

Gender	Maxillary lip length categories			Total	P value*
	Normal	Short	Long		
Male	41	24	33	98	0.021
Female	34	48	31	113	
Total	75	72	64	211	

*chi-square test

non-significant differences in the visible amounts of anterior wax rim with lips at rest were founded between genders as in another study by Abdul FM.[10]

And significant difference between genders on smiling with females showing more wax rim than males as in other study by Al Hababeh.[9]

Statistically the differences between groups and upper lip lengths were significant which were in agreement with other study by Roe P. With females had more shorter lip lengths while males had more long lips.[11]

It was found that males shows high proportion of long and medium upper lip while female shows high proportion of short upper lip , this can be considered as a feminine feature, as well as this also explains why conspicuous maxillary central incisors are associated with the females

. It was founded a high significant differences between males and females regarding upper lip length. We can see that people with short upper lips display more maxillary wax rim than subjects with longer lip lengths as in other studies by Abdul FM and Roe P.[10,11] The amount of visible maxillary wax rim was significantly affected by lip length.

The present study had recommended guidelines for arranging anterior teeth based on gender differences as seen more incisal show in females than in males in accordance to lip length.

CONCLUSIONS

Our study conducted that females were more of maxillary anteriors than males. while those with shorter upper lips displayed more of maxillary anteriors structure than those with longer upper lips. The amount of visible portions of anterior teeth is determined by muscle positions that vary from person to another. Females showed more of short upper lip while medium and long upper lips were associated more with males.

LIMITATIONS

Limitations of this study are:

Variations in lip length in relation to gender can be possible due to regional differences

Measurements during maxilla mandibular relationship stage of complete denture fabrication can vary from person to person and depends on multiple other factors like emotional state of the patient and neurological conditions.

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