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Dentistry

THE DETERMINATION OF THE LIPS CORNER WIDTH AMONG MALAY AND CHINESE WOMEN FOR DENTAL AESTHETIC PURPOSES

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ABSTRACT A symmetrical smile is characteristic key element in contributing to dental and facial aesthetics. Many dental professionals have been significantly creating and restoring beautiful smile for their patients by considering multiple factors, one of them is the racial variations among facial parameters. The aim of this study is to determine the lips corner width among women from races of Malay and Chinese for achieving dental aesthetic. Method. This study was cross-sectional by using stratified random sampling technique where 55 participants consisted of 25 Malay and 30 Chinese women were asked to fulfill informed consent form prior to involve in measurement of their lips corner width during smiling. The data obtained was analyzed by using Mann Whitney and t-independent test. Result. the mean of the lips corner width among Malay women is higher compare to that of Chinese women, respectively 55,83 cm and 46,03 cm. The result of Mann Whitney test demonstrates asymp sig or p-value of 0,000 meaning that there is a significantly difference between Malay women lips corner width and Chinese's as well as t-independent test. Conclusion. The conclusion of this study is that the measurement of the lips corner width during smiling that can be used as the basis of dental esthetic determination planning, differ significantly between Malay and Chinese women.

KEYWORDS : lips corner width, Malay, Chinese, dental aesthetic

INTRODUCTION

At present, the lip has been continuously studied by many authors and researchers as aesthetic become increasingly important and is synonymous with a natural harmonious appearance[1]. The increasing demand from the society for an aesthetically pleasing form of appearance has further increase the need to possess a symmetrical smile. This characteristic of the face is the key element in contributing to dental and facial esthetics[2]. Due to this, dental professionals have been significantly creating and restoring beautiful smile for their patients. However, reconstructing or creating a beautiful smile is one of the most difficult tasks in aesthetic dental treatment as smile dynamics are complex and multiple factors must be considered when objectively evaluating a patient's smile. One of the problem is the racial variations among facial parameters as several authors have addressed[2].

Richardson who has stated that among ethnic and racial groups, there are components of the face closer to the alveolar and dental areas shows the most significant differences. There is also a report from Johnson who suggested that the knowledge of facial appearance based on race might guide dental practitioners to determine anterior dental aesthetics. These considerations of anatomical and racial variations should not be taken lightly as it might help in achieving better results in dental aesthetic[3]. Although esthetic smile has been well studied and published, these data have been nearly all derived from Caucasian samples except for a few data derived from Asian Countries[3]. A thorough understanding of these differences would lead to better dental aesthetics and treatment plans which would then be in harmony with the facial appearance for patients of different races. This is particularly useful as long as it establishes desirable characteristics features of smiles to help achieve optimum results in dental aesthetic among different populations of human races[3].

In a previous research on Chinese Han-nationality youths, 188 samples aged between 20 to 25 years were chosen. This research investigated participants' dynamic smiles by evaluating their spontaneous smile process. The result showed that the upper lip curvature and classification of smile among the participants were significantly differences between Chinese based on gender[3]. Hence, this study was conducted to determine lips corner width among Malay and Chinese women to understand their characteristic of their smile in order to establish the success of dental aesthetic professionally.

METHOD

This research was a descriptive study with cross-sectional method by using stratified random sampling technique comprising Malay and Chinese women came from at least two generations above with age from 18-35 years old. The criteria of respondents who participated in this study must be having a good general health, no craniofacial deformity and never had any face reconstruction. the respondents were asked to sign informed consent before the research started. The corner of the lips was measured by using vernier caliper while the respondents was saying phonetic "E" with mimic muscle relax until the six anterior teeth were exposed[4]. The data obtained was analyzed by using SPSS 20 version.

Ethical and legal considerations of the study.

The project was approved by Scientific Ethic Committee (No:378/UN6.C.1.2.3/KEPK/PN/2016), Faculty of Medicine, Universitas Padjadjaran in Bandung, Indonesia. All of research's subjects were required to sign an informed consent to comply with the ethical and legal aspects of the research.

RESULT

The study had involved 55 participants comprised 25 respondents of Malay women and 30 respondents are Chinese women, the result of data analysis is presented in the tables. The table-1 shows the description of data analysis of the lips corner width during smiling of Malay and Chinese women including the mean, standard deviation, maximum and minimum value indicating that the mean of the lips corner width among Malay women is higher compare to that of Chinese women, respectively 55,83 cm and 46,03 cm.

Normality test was conducted to confirm whether the data was distributed or not. The test used is Shapiro Wilk test and the data will be assumed to be normal if it had p-value > 0,05 and the result of this test can be seen in the table-2.

TABLE-1 THE LIPS CORNER WIDTH WHEN SMILING (cm)

Group	N	Mean	Std. Deviation	Mini mum	Maxi mum
Malay	25	55.83	3.26	51.12	61.41
Chinese	30	46.03	2.98	42.46	54.97
Total	55	50.48	5.81	42.46	61.41

TABLE-2 TESTS OF NORMALITY

	Group	Shapiro-Wilk Statistic	df	Sig.
The Width Corner of the Lips When Smiling (cm)	Malay	.940	25	.150
	Chinese	.867	30	.001

TABLE-3 TEST OF MANN WHITNEY

	The Width Corner of the Lips When Smiling (cm)
Mann-Whitney U	19.000
Wilcoxon W	484.000
Z	-6.018
Asymp. Sig. (2-tailed)	.000

TABLE-4 INDEPENDENT SAMPLES TEST

		Levene' Test for Equality of Variances		t-test for Equality of Means						
		F	Sig	t	df	Sig. (2-tailed)	Mean Dif.	Std. Err Dif.	95%Confidence Interval of the Diff	
									Lower	Upper
The Width Corner of the Lips When Smiling (cm)	Equal variances assumed	1.7	0.2	11.6	53.0	0.0	9.8	0.8	8.1	11.5
	Equal variances not assumed			11.5	49.3	0.0	9.8	0.8	8.1	11.5

The normality test result demonstrated that group of Malay women's data had normal distribution meanwhile the data of Chinese women's group had no normal distribution due to sig-value < 0,05 therefore the subsequent test should be carried out is non-parametric analysis by using Mann Whitney. Due to the assumption of normality of Chinese women group can be rejected, the test to be used is parametric test by using t-independent test.

The table-3 shows the result of Mann Whitney test demonstrating asymp sig or p-value of 0,000 which mean that there is a significantly difference between Malay women lips corner width and Chinese's. The table-4 exhibits t-independent test result which gave the result of p-value of 0,000. This result demonstrates that there is significantly difference between lips corner width among Malay and Chinese women.

DISCUSION

Smile is used to convey a sense of compassion and understanding to fellow human through expression which also indicating one's feature during pleased formation, kind or amused expression with turning up the corner of the mouth hence the front teeth are exposured[5]. Among a million distinctive smile, there are three basic smile pattern. The first is the commissure smile is that when the corner of the mouth is pulled up, followed by contracting of the upper lips levators until the upper front teeth are seen. The second pattern is known as the cuspid smile where the levator labii superior plays a dominant role. This muscle will contract first exposing the canine followed by contracting the corner of the mouth to pull the lips upward and outward. The last type of the smile is gummy smile or complex smile. This kind of smile will expose the entire coronary height is known an excessive gingival displays during smiling and it is considered unaesthetic if the gum is exposed of 4 mm[6].

The lips have been considered as a frame that shape the image of the smile, encompassing the teeth and gums. A big smile can be created by enhancing or correcting the shape, fullness and symmetry of the lips. For the ideal aesthetic, the facial features should line up to the teeth and lip lines. This can be formed through creating an imaginary line connected from one corner to other corner of the mouth thus the amount of anterior maxillary teeth revealed below this line. The normal shape of the lips varies with age and is influenced by ethnicity[7]. According to Zhuang, there is a statistically significant difference of lip width while resting among facial groups, usually lip width distinct between black and white[8]. Statistical analysis shows that African-Americans have different lip width from Caucasian, Hispanic and other race. African-American has a longer lip width is that 3,7 mm whereas the lip width of the Hispanic is 1,5 mm and the others have lip width of 0,1 mm[9].

One of the distinguish features of the face is the lips corner width that have diverse forms and sizes contributing greatly to one's distinctive identity. The lips corner width appears to be related to the geographic distribution which its size and shape significantly varies according to adaptation to certain climates[10]. There were many previous research regarding the lips corner width had been proven that there was a significant difference in lips corner width during resting between races. One among those research showed that lips corner width among Bahrain ethnic is greater than Saudi Arabian. The research compared the lips corner width among Europe, Turkey, North India had found that the European ethnic have the greatest lips corner width compared to the other and the smallest one is belong to the North Indians meanwhile a research done on Chinese, Caucasian and blacks showed that there is a difference of lips corner width among these ethnic groups[11].

This research was very much focused and emphasized on races of Malay which belong to Austroloid constitutes the Eastern branch of the negroid and Chinese that belong to Mongoloid. The majority of the mongoloids have smaller lips corner width meanwhile austroloid and negroid possesses larger lips corner width[12,13]. Thus, the result of this study in accordance with the previously mentioned statement that Malay participants of this study possess larger lips corner width than that of Chinese proved that measurement of lips corner width during smiling are influenced by ethnic that must truthfully be considered during establishing dental aesthetic.

CONCLUSION

According to the analyzed data, it can be concluded that the measurements of the lips corner width during smiling is significantly different between Malay women with an average value of 55,83 and Chinese women with an average value of 46,03. These measurements are recommended to be used in determining dental aesthetic among Malay and Chinese women.

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