ORIGINAL RESEARCH PAPER

Volume-7 | Issue-9 | September-2018 | PRINT ISSN No 2277 - 8179

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

MORPHOMETRIC ANALYSIS OF UPPER LIP IN NORMAL YOUNG ADULT OF NORTH INDIA

Anatomy

Dr Nowsheeba Khurshid Senior Resident Dept. Of Anatomy SKIMS Medical College Bemina

Dr. Nidhi Puri* Professor and HOD Dept. of Anatomy , MMIMSR *Corresponding Author

Dr Archana Goel Associate Professor, MMIMSR

ABSTRACT

Introduction: The study comprises upper lip morphometry of 300 North Indian Adults (150 males and 150 females).

Aims and Objectives : To create a baseline data of various linear & vertical measurements of upper lip ,this standard serves as a guideline for sexual dimorphism, racial dimorphism as well as restoration or enhancement of esthetic and plastic surgeries of lips .

Materials and Method : Digital Vernial Calliper was used . Rt chelion-Labiale superius (chr-ls), Lt chelion-Labiale superius (chl-ls), Vertical height of cutaneous upper lip (sn-ls), height of upper vermilion (ls-sto).The measurements were statistically analysed using 't test' by SPSS.

Results : All the upper lip parameters showed sexual dimorphism and were higher in males. Height of cutaneous upper lip is more than the height of upper vermilion.

Conclusion: The analysis shows sexual dimorphism in most of the parameters of upper lips being greater in males .Racial dimorphism was seen.

KEYWORDS

North Indian , Upper Lip , Sexual Dimorphism

INTRODUCTION:

Lips are considered as most beautiful aspects of the face [1]. The Lips are the key features of the lower third of the face and are discrete from the surrounding skin [2]. The anthropometry of Lip- Nose complex at different ages provides measurements which serve as guidelines for reconstruction of various deformities of these structures [3-6]. Although various methods have been used to assess lip size for reconstructive or esthetic surgeries however these methods either require softwares or sophisticated medical gadgets, therefore a database of lip size (lip area and lip volume) can be of great help to reconstructive and esthetic surgeons.

MATERIAL AND METHOD :

The present study was conducted in MMIMSR, Mullana (Ambala) on 300 subjects[150 females and 150 males] aged 18 to30 year. Subjects were chosen on simple random basis. Prior informed consent for this study was obtained from the subject. Apparently healthy individuals without any Lip Abnormalities, Surgical Scars were included. Following somatometric landmarks were included:

- SUBNASALE(sn)-It is point where the lower margin of nasal septum meets the cutaneous part upper lip .This point should be sought where the tangent drawn to the nasal septum meets the upper lip.
- CHEILION(ch)-It is the point on the mouth opening where the lateral margins of upper and lower lips meet i.e. corners of lips.
- LABIALE SUPERIOR (ls)- It is the point on the upper margin of upper lip in mid sagital plane cut by a tangent drawn at the highest elevation of the upper margin of the integumental lip.
- STOMION (sto)-It is the point where the slit of mouth with close lips cut the mid sagital plane

SOMATOMETERIC MEASUREMENTS

- Mouth width (chr-chl) :
  It measures the straight distance between the chelion i.e. corners of mouth . Caliper kept horizontal
- Rt. Cheilion-Labiale superius (chr-ls):
  It measures the distance between the right chelion to labialis superior .
- Lt. Cheilion-labiale superius (chl-ls):
  It measures the distance between the left chelion to labialis superior .
- Medial vertical height of cutaneous upper lip (sn-ls) :
  It measures the straight distance between subnasale and labiale superior .
- Height of upper vermilion (ls-sto) :
- It measures the straight distance between labialie superior and stomion .

RESULTS:

The present study establishes the basal values for various parameters of upper lip amongst the north Indian population . The results obtained from present study are given in table 1

TABLE1 :various Upper Lip Parameters Of Lip Morphometry

S.No	Parameters	Female(n=150) Mean (cm)±S.D	Male(n=150) Mean (cm)±S.D	p-Value
1	chr-ls	2.79 ± 0.24	2.97 ± 0.26	<0.0001***
2	chl-ls	2.84 ± 0.21	2.99 ± 0.25	<0.0001***
3	sn-ls	1.16 ± 0.16	1.28± 0.2	<0.0001***
4	ls-sto	0.78± 0.09	0.86 ± 0.14	<0.0001***

Table depicts mean of 4 upper lip parameters of lip morphometry i.e Right chelion- Labiale Superior, Left chelion- Labiale Superior , Vertical height of cutaneous upper lip ,Vertical height of upper vermilion lip . All parameters are higher in males than females and the differences are statistically significant

DISCUSSION:

The three dimensional system in present study uses representation of soft tissue landmarks. The present study was initiated with the aim of establishing and comparing lip anthropometric parameters between males and females of North Indian origin. It is based on a sample size of 150 adult males and 150 adult females. Data collected was subjected to statistical computation

Results of present study for various upper lip parameters i.e. Mean vertical height of cutaneous upper lip (sn-ls), Mean vertical height of vermilion upper lip (ls-sto) are given in tables below:

TABLE 2- comparison Of Upper Lip Parameters Of Males Of Present Study With Previous Studies

S.No	Parameters	Population	No. of subjects	Mean (cm)±S.D	p-Value
1	(sn-ls)	Present Study	150	1.28±0.2	
		American	50	1.67±0.22	<0.0001***
		Malay	50	1.31±0.17	Insignificant
		Malaysian Indian	50	1.29±0.25	Insignificant
		Chinese	51	1.54±0.24	<0.0001***
		North Indian	300	1.25±0.2	Insignificant
		Indian Americans	100	1.29±0.25	Insignificant

2	ls-sto	Present Study	150	0.86±0.14	
		American	50	0.74±0.17	<0.0001***
		Malay	50	0.98±0.11	<0.0001***
		Malaysian Indian	50	0.92±0.13	0.008**
		Chinese	51	1.02±0.18	<0.0001***
		North Indian	300	0.88±0.15	Insignificant
		Indian Americans	100	0.77±0.17	<0.0001***

TABLE 3-comparison Of Upper Lip Parameters Of Females Of Present Study With Previous Studies

S.No	Parameters	Population	No. of subjects	Mean (cm)±S.D	p-Value
1	sn-ls	Present Study	150	1.16±0.16	
		American	39	1.33±0.21	<0.0001***
		Malay	50	1.22±0.18	0.02*
		Malaysian Indian	50	1.11±0.16	Insignificant
		Chinese	52	1.43±0.2	<0.0001***
		North Indian	300	1.11±0.18	0.004**
		Indian Americans	100	1.1±0.26	Insignificant
2	ls-sto	Present Study	150	0.78±0.09	
		American	39	0.77±0.11	Insignificant
		Malay	50	0.91±0.1	<0.0001***
		Malaysian Indian	50	0.86±0.9	Insignificant
		Chinese	52	0.9±0.16	<0.0001***
		North Indian	300	0.8±0.11	Insignificant
		Indian Americans	100	0.74±0.14	0.006**

The mean vertical height of cutaneous upper lip was statistically higher in males (table 2),which agreed with the previous studies done on Americans , Malays , Malaysian Indians , Chinese , North Indians and Indian Americans , which implies males have longer cutaneous upper lip .[7,8,9,10,11] Although the mean vertical height of cutaneous upper lip of present study was similar to those found in the previous studies done on Malays, Malaysian Indians, North Indian and Indian American (Table 2,3) ,however this parameter was significantly lower in female subjects of present study when compared with Malay females.[8,9,10,11] Another study from North Indian population reported significantly lower mean vertical height of cutaneous upper lip as compared to present study which may be due to difference in age group as the age group in the said study was 18-40 years while in present study age group was 18-30 years , it is reported that as the age progresses the upper red lip thins out ,hence leading to larger cutaneous upper lip and difference in number of subjects of our study with that studies . The mean vertical height of cutaneous upper lip has been found to be less than Americans and Chinese ,thus showing Caucasians and Mongolians have larger cutaneous upper lip .In case of Chinese stereophotographic method is used which differs from the present study method.[5]

The mean vertical height of vermilion upper lip was statistically higher in males in the present study (Table 2) .Although similar sexual dimorphism has been observed in the previous studies done on Malays , Malaysian Indians , Chinese , North Indians and Indian Americans however mean vertical height of vermilion upper lip was observed to be higher in American females. Which implies that males have larger upper vermilion when compared to females . This parameter of the present study was similar to another study done on North Indian population . In case of females the values were also similar to the data from Americans and Malaysian Indians. It was higher in Malays and Chinese population (table 2,3) which implies Austronesians and Mongols have larger upper lip vermilion when compared to North Indians .The parameter was lesser in Americans and Indian Americans , this implies Caucasians have thinner upper lip vermilion when compared to North Indians and also upper lip vermilion height is affected by environmental changes .

CONCLUSION :

1. All the upper lip parameters are higher in males when compared to female
2. Female upper lips are thinner and slender .
3. North Indians have thinner upper lips in comparison to Chinese populations

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