Nasolabial Esthetic Evaluation in Young Adults with Unilateral Cleft Lip and Palate Comparing among Patients, Laypersons, and Healthcare Professionals

Supamas Parisanyodom DDS*,
Jutharat Chimruang DDS, PhD*, Saran Worasakwutiphong MD, FRCST**,
Bowornsilp Chowchuen MD, MBA, FRCST***, Ratchawan Tansalarak DDS, MSc, FRCDT*

** Department of Preventive Dentistry, Faculty of Dentistry, Naresuan University, Phitsanulok, Thailand*
*** Department of Surgery, Faculty of Medicine, Naresuan University, Phitsanulok, Thailand*
**** Department of Surgery, Faculty of Medicine, Khon Kaen University, Khon Kaen, Thailand*

Objective: *To compare esthetic rating of nasolabial appearance among young adult patients with cleft lip and palate (CLP), young adult laypersons, and healthcare professionals.*
Material and Method: *Frontal and cleft side profile facial pictures of a 19-year-old patient with unilateral cleft lip and palate (UCLP) were adjusted (frontal view: incremental 2 degrees per picture to simulate 10 pictures for nasal tip deviation and 14 pictures for alar base asymmetry; profile view: with incremental 3 degrees per picture to simulate 14 pictures for nasolabial angle). Fifty-seven examiners were randomly selected and grouped into three, namely patients with CLP, young adult laypersons, and healthcare professionals to assess nasolabial esthetics using a 5-point scale. Intra- and inter-examiner reliability tests showed good agreement. The Kruskal-Wallis test and Pearson's Chi-square test were used.*
Results: *No significant differences were found among the three groups of examiners in esthetic rating of nasal tip deviation, alar base asymmetry and nasolabial angle pictures which had 10 to 21 degrees difference from reference pictures.*
Conclusion: *There is no difference in esthetic perception of nasolabial appearance among the young adult patients with CLP, young adult laypersons, and healthcare professionals. Nasal tip deviation might be considered as the main factor in assessment of frontal nasolabial appearance of UCLP patients.*

Keywords: *Cleft lip, Cleft palate, Esthetics, Nasolabial appearance*

J Med Assoc Thai 2017; 100 (Suppl. 6): S84-S93
Full text. e-Journal: *http://www.jmatonline.com*

Esthetics of nasolabial region are usually evaluated to decide the need of surgical treatment in cleft lip and palate (CLP) patients[1], especially in young adults aged 18 to 29 years[2]. Nasal tip deviation and alar base asymmetry have been more currently used in the evaluation[3] because a primary concern of treatment was asymmetry of nasal and lip appearance[4]. In profile view, nasolabial angle was one of the mostly used aspects to evaluate the esthetics by the healthcare professionals[5] since deviation of soft-tissue, such as columella and nasal tip, would affect esthetics of the nose[6].

Previous research found that most examiners evaluated nasolabial esthetics of CLP patients in different ways[7-9]. Individual perception to nasolabial esthetics may depend on predisposing factors of examiners such as experience in treatment of cleft, age and gender[10-12]. Understanding of esthetic attitudes of multiple examiners was necessary for treatment processes, clinical outcomes, and the patient's quality of life[13].

In Thailand, there was only one previous study exploring perception of nasolabial esthetics of unilateral cleft lip and palate (UCLP) patients. Thittiwong et al compared patient-satisfaction in their facial appearance using professional ratings[12]. However, self-assessments may limit the accuracy of rating from over-or under-estimate their own appearance[7], and attitudes to nasolabial esthetics from laypersons could also affect patients' confidence[8]. The aim of this study was to compare esthetic rating of nasolabial appearance (regarding nasal tip deviation, alar base asymmetry, and nasolabial angle) among multiple examiners.

Correspondence to:
Tansalarak R, Department of Preventive Dentistry, Faculty of Dentistry, Naresuan University, Phitsanulok 65000, Thailand.
Phone: +66-55-966062; Fax: +66-55-966059
E-mail: ratchawanortho@gmail.com

Material and Method

Ethical approval was granted for this present study by the Naresuan University ethical committee (IRB No. 808/58). Informed consent was obtained from each subject who participated in the study.

Preparation of pictures

Facial photos in frontal and cleft side profile views (right side) were taken (Digital, single-lens reflex, AF/AE camera with built-in flash, Valid Pixels 18 MP; Lens: 35 mm, f/3.5-5.6) in standardized conditions from a 19-year-old Thai female patient with right side UCLP. In ideal esthetics of nasolabial appearance, the position of nasal tip should be at the median sagittal plane. A line which connects through both sides of alar base should be perpendicular to the median sagittal plane. In profile view, an ideal nasolabial angle is based on average faces which have been considered attractively[14]. This patient had no deviated nasal tip or asymmetry of alar bases. Nasolabial angle of this patient was 92° which was in a normal range of Thai female population (91±7.98)[15]. Therefore, her facial pictures could be used as reference pictures to present ideal nasolabial esthetics.

Adobe Photoshop CS6 software (Adobe System Inc., San Jose, CA, USA) was used to adjust pictures. A frontal reference picture was adjusted for a picture set of nasal tip deviation and alar base asymmetry in vertical dimension. Ten pictures of a nasal tip deviation set were simulated by rotating the nose tip in 2° increments per picture to 10° around the midpoint of the inter-pupillary line in both clockwise (CW) and counter clockwise (CC) directions (Fig. 1A). The extent in change of degree is based on a work of Lindsay and Farkas, who reported greater nasal tip deviation up to ten degrees for individuals with clefts[16]. Fourteen pictures of alar base asymmetry set were simulated by rotating the nose in 2° increments per picture to 14° around the point, which was intersected between inter-pupillary line and a horizontal line connecting both sides of alar bases in both CW and CC directions (Fig. 1B). A profile reference picture was adjusted for fourteen pictures of nasolabial angle set which were simulated by rotating the columella tangent line in 3° increments per picture to 21° around the subnasale in both CW and CC directions (Fig. 2).

The number of pictures for alar base asymmetry and nasolabial angle set were selected not to fatigue examiners by presenting too many pictures in the evaluation. Changes of incremental degree for nasal tip deviation and alar base asymmetry were based on the study of Kwak et al which were measured from the degree of recognition for nose deviation and eye canting[17]. Changes of incremental degree for nasolabial angle were based on a study of Naini et al which were measured from the degree of recognition for nasolabial angle changing[18].

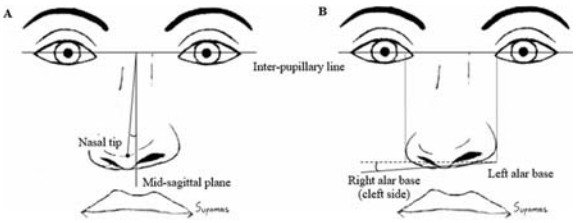

Fig. 1 Angle of nasal tip deviation: the angle between the line drawn through nasal tip to the midpoint of inter-pupillary and mid-sagittal plane (A). Angle of alar base asymmetry: the angle between the inter-pupillary line and the line drawn through both sides of alar bases (B).

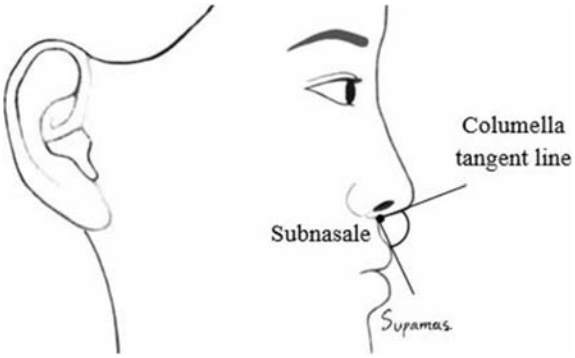

Fig. 2 Nasolabial angle: the angle between the columella tangent line and the line from the subnasale to the labrae superius.

According to the study of Asher-McDade et al, all of reference and simulated pictures were cropped to show only the nose and the lip to eliminate the influence of surrounding facial features unrelated to cleft itself[19]. Each picture set consists of a reference picture, simulated pictures, and a duplicated picture, in which was randomly selected from their set to assess intra-examiner reliability. Each picture was presented on one-color printed page and identified by randomly assigned two alphabets in the top right corner of picture for blind analyses. The picture size was approximate the human face's size.

Examiners

All examiners were randomly selected and divided into three groups as the selection criteria were

described in Table 1. Based on power calculation (G*power 3.1; alpha = 0.05, power of test = 0.8, large effect size (f) = 0.4 to 0.8[20]), fifty-seven examiners were recruited for this study.

Evaluation

The examiners evaluated each picture and answered the question "How do you think with esthetics of nasolabial appearance?" by rating on a 5-point Likert scale as according to a study of Asher-McDade[19]. The scales comprised: 1 = very good appearance; 2 = good appearance; 3 = fair appearance; 4 = poor appearance; and 5 = very poor appearance. Before the assessments, training was provided to standardize the examiners with 3 random pictures. Definitions of all parameters were given in Thai description. The assessments had 3 periods for each picture set (12 pictures of nasal tip deviation set for the first period and 16 pictures of alar base asymmetry and nasolabial angle sets for the second and third periods). All pictures in each set were randomly presented to each examiner for 10 seconds per picture. The examiners had a break for 5 minutes between each period. The viewing time for each picture were controlled by one investigator (S.P.). Overall, each examiner completed the assessment in 20 minutes.

Statistical analyses

Index of item-objective congruence (IOC) was used to evaluate the validity of questions and descriptions of the 5-point scale in esthetic rating by 3 experienced professionals. The reliability test was analyzed from mean of nasolabial esthetic rating. Cronbach's alpha coefficient by Schmitt[21] and Intra-class Correlation Coefficients (ICC) at confidence interval 95% were calculated for each nasolabial complex parameter to test intra- and inter-examiner reliability agreements. ICC values were classified as follow: 0.75 to 1.0 indicated excellent agreement; 0.40 to 0.74 indicated fair agreement, and less than 0.39 indicated poor agreement[22]. The incremental degree of each nasolabial complex parameter among examiner groups was analyzed by mean and range. The Kruskal-Wallis test and Pearson's Chi-square were used to compare esthetic rating of nasolabial appearance among multiple examiners. A p-value <0.05 was considered significant for all analyses. Statistical Package for the Social Sciences, version 17.0 (SPSS, Chicago, IL, USA) was used.

Results

The participating examiners consisted of patients with CLP (mean age: 20.1±1.8), young adult laypersons (mean age: 22.8±3.5), and healthcare professionals (mean age: 39.1±5.6). The examiners were females predominantly (23 males (40.35%) and 34 females (59.60%)). Table 2 displays characteristics of the participating examiners.

Table 1. Selection criteria for the examiners as divided into three panels

Panel	Criteria
Cleft patients	Thai young adult CLP (age range 18-29 years), non-syndromal cleft patient, received proper correction following treatment protocol but had no any surgery for esthetic during 6 months before participation
Healthcare professionals	Healthcare professionals who had more than one year of experience in the treatment of cleft patients after acquisition of the specialty title; consist of qualified plastic surgeons, qualified maxillofacial surgeons and qualified orthodontists from the royal colleges of Thailand
Laypersons	Thai young adults (age range 18-29 years) who were not qualified in a treatment of esthetics or being cleft professions, and had no specific knowledge in this subject or any relationship with CLP patients

Table 2. Characteristics of the participating examiners

Variables	Cleft patients	Laypersons	Healthcare professionals
Examiners (n = 57), n	19	19	19
Age in years (n = 57)			
Mean±SD	20.1±1.8	22.8±3.5	39.1±5.6
Range	18-24	18-28	29-52
Males, n (%)	8 (42.1)	3 (15.8)	12 (63.2)
Females, n (%)	11 (57.9)	16 (84.2)	7 (36.8)

In reliability test of a pilot study (n = 15), the value of Cronbach's alpha showed high agreement for all parameters ($0.75<\alpha<0.91$). An overview of the reliability in true field study was given in Table 3. For all parameters, the value of Cronbach's alpha and the value of ICC showed high reliability and very good coherence of nasolabial esthetic scores from individuals and among the examiners.

The average rating scores of nasolabial esthetics, standard deviation and the value of Kruskal-Wallis test were used to compare the assessment among the examiner groups, in which were divided by nasolabial parameters as shown in Tables 4-6. The average scores of nasolabial esthetics for all pictures in the nasal tip deviation set given by the patients with CLP, young adult laypersons, and healthcare professionals were 3.42, 3.56, and 3.80, respectively. For alar base asymmetry, the average scores of nasolabial esthetics for all pictures by the patients with CLP, young adult laypersons, and professionals were 3.31, 3.48, and 3.75, respectively. For nasolabial angle, the average scores of nasolabial esthetics for all pictures by the patients with CLP, young adult laypersons, and healthcare professionals were 2.66, 2.56, and 2.82, respectively. In no parameter, were there any significant differences in the average scores of all pictures among the examiner groups. At CC8 degree picture of nasal tip deviation set, the average rating score was significantly different among the examiners ($p = 0.044$). The patients with CLP rated the lowest average score (3.95), followed by young adult laypersons (4.20) and healthcare professionals (4.60), respectively.

There were no significant differences in the average rating scores at each picture of alar base asymmetry and nasolabial angle picture sets between the examiner groups. All examiner groups rated the

Table 3. Intra- and inter-examiner reliability for esthetic rating of nasolabial complex parameters

Reliability	Parameters	Cronbach's alpha	ICC
Intra-examiner	Nasal tip deviation	0.86	0.85
	Alar base asymmetry	0.77	0.77
	Nasolabial angle	0.69	0.64
Inter-examiner	Nasal tip deviation	0.78	0.70
	Alar base asymmetry	-0.66	-0.79
	Nasolabial angle	0.91	0.87

n = 57; ICC = intra-class correlation coefficient

Table 4. Comparisons the average rating scores of nasolabial esthetic appearance by nasal tip deviation parameters among cleft lip and palate patients, laypersons, and healthcare professionals

Direction of rotation (degree)	Mean ± SD			Chi-square	*p*-value
	CLP patients	Young adult laypersons	Healthcare professionals		
CW (10)	4.30±0.86	4.25±0.71	4.75±0.44	5.94	0.051
CW (8)	3.95±1.09	3.85±0.93	4.45±0.60	4.21	0.122
CW (6)	3.85±1.04	3.90±1.21	4.55±0.51	5.72	0.057
CW (4)	2.60±0.99	2.80±1.10	2.60±0.82	0.39	0.820
CW (2)	2.35±1.04	2.90±0.85	2.35±0.81	5.28	0.071
Reference (0)	2.65±1.13	2.65±0.98	2.35±0.87	1.16	0.558
CC (2)	3.05±0.94	2.90±1.07	3.30±0.86	1.58	0.453
CC (4)	2.90±1.16	3.40±0.82	3.70±0.86	5.73	0.057
CC (6)	3.35±1.08	3.60±0.82	3.90±0.71	3.30	0.192
CC (8)	3.95±0.88	4.20±0.76	4.60±0.50	6.23	0.044*
CC (10)	4.35±0.87	4.30±0.73	4.70±0.47	3.29	0.192
CW&CC (±10)	3.42±0.80	3.56±0.75	3.80±0.43	2.47	0.290

* Statistically significant at $p<0.05$; CW = clockwise rotation; CC = counterclockwise rotation

Table 5. Comparisons the average rating scores of nasolabial esthetic appearance by alar base asymmetry parameters among cleft lip and palate patients, laypersons, and healthcare professionals

Direction of rotation (degree)	Mean ± SD			Chi-square	*p*-value
	CLP patients	Young adult laypersons	Healthcare professionals		
CW (14)	4.30±0.73	4.40±0.59	4.60±0.50	1.88	0.390
CW (12)	3.90±0.91	4.20±0.76	4.55±0.60	5.94	0.051
CW (10)	3.90±1.11	4.05±0.75	4.40±0.59	2.73	0.255
CW (8)	3.80±0.89	3.95±0.75	4.25±0.71	3.04	0.218
CW (6)	2.80±1.15	2.80±1.00	3.35±0.74	3.05	0.217
CW (4)	2.80±1.24	2.80±0.83	3.40±1.23	4.11	0.128
CW (2)	1.95±1.09	2.50±0.82	2.35±1.08	3.37	0.185
Reference (0)	2.30±1.21	2.55±0.99	2.50±0.94	1.16	0.558
CC (2)	2.35±1.13	2.30±0.97	2.45±0.88	0.27	0.872
CC (4)	2.25±0.96	2.50±1.05	3.00±0.97	5.17	0.075
CC (6)	2.70±1.17	3.15±0.81	3.30±1.03	2.91	0.232
CC (8)	3.45±1.05	3.50±1.05	4.05±0.75	4.51	0.105
CC (10)	3.95±1.05	4.25±0.78	4.30±0.73	1.10	0.575
CC (12)	3.90±0.91	4.15±0.74	4.50±0.60	5.18	0.075
CC (14)	4.35±0.81	4.35±0.74	4.65±0.58	2.12	0.346
CW&CC (±14)	3.31±0.76	3.48±0.63	3.75±0.45	4.64	0.098

CW = clockwise rotation; CC = counterclockwise rotation

Table 6. Comparisons the average rating scores of nasolabial esthetic appearance by nasolabial angle parameters among cleft lip and palate patients, laypersons, and healthcare professionals

Direction of rotation (degree)	Mean±SD			Chi-square	*p*-value
	CLP patients	Young adult laypersons	Healthcare professionals		
CW (21)	3.00±0.91	3.00±1.07	3.05±0.94	0.11	0.945
CW (18)	2.55±0.94	2.60±0.88	3.00±0.64	2.97	0.227
CW (15)	2.35±0.87	2.60±0.94	2.90±0.91	3.54	0.170
CW (12)	2.55±1.19	2.60±0.94	2.65±0.87	0.11	0.943
CW (9)	2.25±1.07	2.40±0.99	2.80±0.95	4.33	0.114
CW (6)	2.30±1.03	2.25±0.63	2.60±0.75	3.36	0.186
CW (3)	2.45±0.94	2.45±0.75	2.55±0.88	0.09	0.954
Reference (0)	2.70±1.21	2.50±0.94	2.50±1.00	0.48	0.787
CC (3)	2.30±1.08	2.35±0.58	2.45±0.75	0.38	0.825
CC (6)	2.55±1.14	2.20±1.00	2.75±1.07	2.94	0.230
CC (9)	2.20±1.19	2.05±0.75	2.30±0.73	1.07	0.583
CC (12)	2.55±0.88	2.40±0.94	2.95±0.75	4.21	0.122
CC (15)	2.65±1.13	2.95±0.99	3.25±0.91	3.68	0.158
CC (18)	2.65±1.22	2.55±0.99	3.25±0.96	5.41	0.067
CC (21)	3.00±0.85	2.75±1.07	3.10±0.78	1.03	0.597
CW&CC (±21)	2.66±0.78	2.56±0.70	2.82±0.58	0.81	0.666

CW = clockwise rotation; CC = counterclockwise rotation

nasolabial esthetic score 3 or less (fair to very good appearance) with consistent and no significant differences at 0 to 4 degrees in CW rotation for nasal tip deviation, 2 degrees in CW rotation to 4 degrees in

CC rotation for alar base asymmetry, and 18 degrees in CW rotation to 12 degrees in CW rotation for nasolabial angle. All pictures and pictures with acceptable degrees of nasal tip deviation, alar base asymmetry, and nasolabial angle parameters are shown in Fig. 3 to 5, respectively.

Discussion

Previous studies have attempted to develop reliable methods to assess facial esthetics in repaired CLP patients. Asher-McDade et al. presented the most commonly used method by a 5-point Likert scale (1 = very good appearance to 5 = very poor appearance)[19] for assessing four features of the nasolabial area separately, namely nasal form, nasal symmetry, the vermilion border, and nasal profile including the upper lip. This scoring system was a subjective assessment which the familiarity in a specific assessment of examiners may have biased the process. However, the objective measurements combined with the subjective assessments should be advocated for the evaluation of facial esthetics in CLP patients in order to increase the reliability of the measurements[23]. Therefore, this present study used the modified Asher-McDade esthetic index, which is different from the original study[19]. Assessments were performed with simulated pictures which changed only the degree of objective parameters and maintained baseline characteristics such as size of the nose, columella length, or shape of vermilion border. Moreover, digital simulation program was more currently used[17,18,24] and have obvious advantages in maintain consistency of factors which may influence the assessments[24]. However, the Asher-McDade method was used broadly in the study from the Americleft Project and reported good agreements among the examiners[25]. This scoring system would allow more accurate assessments of nasolabial appearance[26-28].

High reliability of Thai examiners in esthetic assessments of nasolabial appearance was found in this present study. The results are consistent with previous studies which had used the same evaluating scales[13,25] and indicated the repeatability of the evaluating methods. For inter-examiner reliability test,

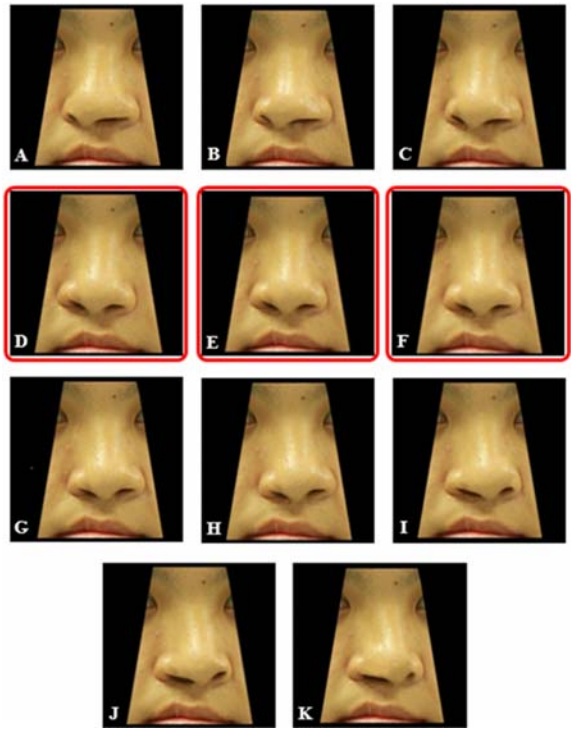

Fig. 3 All simulated and reference pictures of nasal tip deviation: CW 10° (A), CW 8° (B), CW 6° (C), CW 4° (D), CW 2° (E), reference 0° (F), CC 2° (G), CC 4° (H), CC 6° (I), CC 8° (J), and CC 10° (K); CW, clockwise rotation; CC, counterclockwise rotation; Framed pictures were presented the acceptable degree of nasal tip deviation parameters.

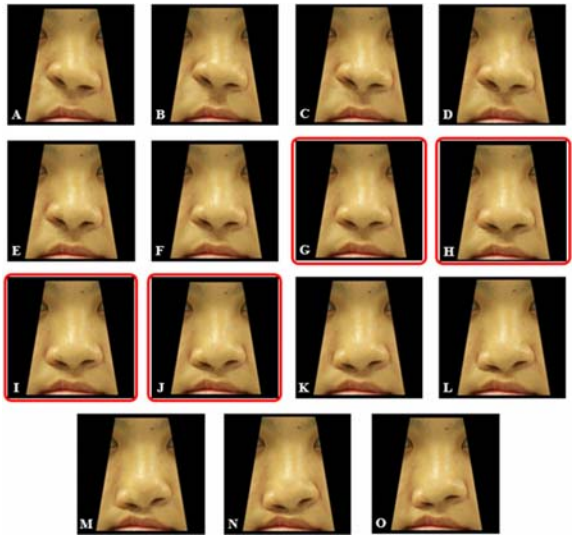

Fig. 4 All simulated and reference pictures of alar base asymmetry: CW 14° (A), CW 12° (B), CW 10° (C), CW 8° (D), CW 6° (E), CW 4° (F), CW 2° (G), reference 0° (H), CC 2° (I), CC 4° (J), CC 6° (K), CC 8° (L), CC 10° (M), CC 12° (N), and CC 14° (O); CW, clockwise rotation; CC, counterclock wise rotation; Framed pictures were presented the acceptable degree of alar base asymmetry parameters.

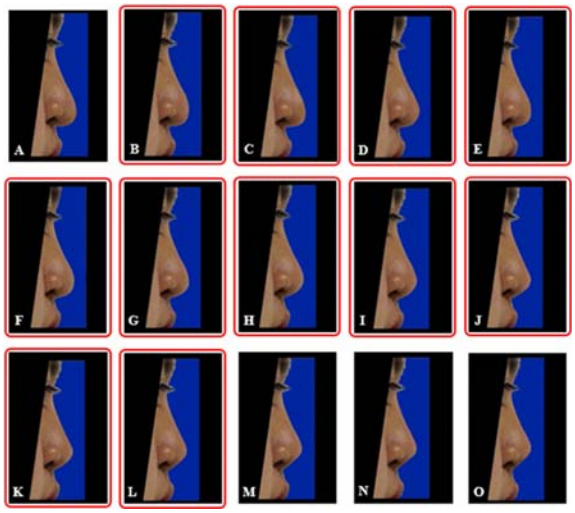

Fig. 5 All simulated and reference pictures of nasolabial angle: CW 21° (A), CW 18° (B), CW 15° (C), CW 12° (D), CW 9° (E), CW 6° (F), CW 3° (G), reference 0° (H), CC 3° (I), CC 6° (J), CC 9° (K), CC 12° (L), CC 15° (M), CC 18° (N), and CC 21° (O); CW, clockwise rotation; CC, counterclockwise rotation; Framed pictures were presented the acceptable degree of nasolabial angle parameters.

high reliability and coherence between examiners were found. This indicated low individual variation of the examiners. Using a panel of judges might be the reason to minimize the variation and increase reliable and reproducible of the study[8,13].

In each parameter, the average scores of nasolabial esthetics for all pictures were not significantly different among the patients with CLP, young adult laypersons, and healthcare professionals. Meng et al found consistent results from comparative assessments among CLP patients, cleft surgeons, and laypersons regarding the soft tissue profile of CLP patients[29]. Some previous studies found the differences in assessments of nasolabial esthetics between patients with CLP and plastic surgeons[30] or between young adult laypersons and professionals (plastic surgeons and orthodontists)[31]. Numbers and characteristics of the sample group such as type and number of specialized fields and duration in medical expertise of professionals, cleft type of patients, level of education, gender, and age of examiners might cause a diversity of results in different studies.

At 8 degrees' CW rotation of deviated nasal tip, the attitude to nasolabial esthetics differed among the examiners. However, poor to very poor appearance scores from all examiner groups represented dissatisfaction with these pictures. This result is consistent with previous studies that more degree of nasal tip deviation affected the high rating scores of nasolabial esthetics[32]. Asymmetry of the midface in CLP patients, especially from the symmetry plane influenced the perceptual ratings[33]. Moreover, the range of acceptable degree of nasal tip deviation for all examiner groups was narrower than alar base asymmetry. Therefore, nasal tip deviation might be considered as the main factor in assessment of frontal nasolabial appearance of CLP patients.

In profile view, all simulated pictures of nasolabial angle parameters were only adjusted by rotation of columella tangent line because the nose was the most prominent feature of face[34] and most desirable feature to correct for CLP patients[7,30]. However, nasolabial angle would also depend on the inclination of upper lip which was affected from the inclination of the maxillary incisor teeth and the sagittal position of the anterior maxilla. For example, maxillary hypoplasia will reduce the upper lip inclination[18]. The range of acceptable degrees of nasolabial angle for all examiner groups was wider than other parameters. This indicated that esthetics of nasolabial appearance in profile view might be less critical than frontal view for CLP patients.

Conclusion

In general, the young adult patients with CLP, young adult laypersons, and healthcare professionals have similar attitudes to the nasolabial appearance of CLP patients. This result would benefit UCLP patients that their healthcare professionals will be consistent in esthetic attitudes and provide reliable advice without over- or under-estimation about esthetic correction. Moreover, the CLP patients will have more confidence in social interaction with laypersons. In addition, nasal tip deviation might be considered as the main factor in assessment of frontal nasolabial appearance in the CLP patients.

What is already known on this topic?

Attitudes to nasolabial esthetics from laypersons could affect confidence of patients with CLP. In Thailand, there are no studies reporting on the comparison of esthetic rating on nasolabial appearance of young adults with UCLP among patients, young adult laypersons, and healthcare professionals.

What this study adds?

Esthetics of nasolabial appearance in frontal

view might be more critical for CLP patients than profile view. Nasal tip deviation might be the greatest concern factor in assessment.

In this present study, reference photo of all objective parameters was held in the acceptable range of nasolabial esthetics. Therefore, the ideal esthetics remain a core objective of the treatment.

Acknowledgements

This manuscript is a part of the Master's thesis and reprinted from the materials as they appear in the thesis titled "Esthetic perception of nasolabial complex in young adult cleft lip and palate patients". The co-authors listed in this publication directed and supervised the research that forms the basis for the Master's thesis of Naresuan University. The present study was supported by the Naresuan University Cleft and Craniofacial Center and the Center of Cleft Lip-Cleft Palate and Craniofacial deformities, Khon Kaen University under the Tawanchai Royal Grant Project.

Potential conflicts of interest

None.

References

1. Johnson N, Sandy J. An aesthetic index for evaluation of cleft repair. Eur J Orthod 2003; 25: 243-9.
2. Harris DL, Carr AT. Prevalence of concern about physical appearance in the general population. Br J Plast Surg 2001; 54: 223-6.
3. S□ndor GK, Ylikontiola LP. Patient evaluation of outcomes of external rhinoplasty for unilateral cleft lip and palate. Int J Oral Maxillofac Surg 2006; 35: 407-11.
4. Tobiasen JM, Hiebert JM. Clefting and psychosocial adjustment. Influence of facial aesthetics. Clin Plast Surg 1993; 20: 623-31.
5. Paradowska-Stolarz AM, Kawala B. The nasolabial angle among patients with total cleft lip and palate. Adv Clin Exp Med 2015; 24: 481-5.
6. Blackwell SJ, Parry SW, Roberg BC, Huang TT. Onlay cartilage graft of the alar lateral crus for cleft lip nasal deformities. Plast Reconstr Surg 1985; 76: 395-401.
7. Sinko K, Jagsch R, Prechtl V, Watzinger F, Hollmann K, Baumann A. Evaluation of esthetic, functional, and quality-of-life outcome in adult cleft lip and palate patients. Cleft Palate Craniofac J 2005; 42: 355-61.
8. Mani MR, Semb G, Andlin-Sobocki A. Nasolabial appearance in adults with repaired unilateral cleft lip and palate: Relation between professional and lay rating and patients' satisfaction. J Plast Surg Hand Surg 2010; 44: 191-8.
9. Eichenberger M, Staudt CB, Pandis N, Gnoinski W, Eliades T. Facial attractiveness of patients with unilateral cleft lip and palate and of controls assessed by laypersons and professionals. Eur J Orthod 2014; 36: 284-9.
10. Eliason MJ, Hardin MA, Olin WH. Factors that influence ratings of facial appearance for children with cleft lip and palate. Cleft Palate Craniofac J 1991; 28: 190-3.
11. Gkantidis N, Papamanou DA, Christou P, Topouzelis N. Aesthetic outcome of cleft lip and palate treatment. Perceptions of patients, families, and health professionals compared to the general public. J Craniomaxillofac Surg 2013; 41: e105-10.
12. Thittiwong R, Manosudprasit M, Wangsrimongkol T, Kongsomboon S, Pitiphat W, Chowchuen B, et al. Evaluation of facial appearance among patients with repaired unilateral cleft lip and palate: Comparison of patient- and clinician-ratings of satisfaction. J Med Assoc Thai 2015; 98 (Suppl 7): S68-76.
13. Nollet PJ, Kuijpers-Jagtman AM, Chatzigianni A, Semb G, Shaw WC, Bronkhorst EM, et al. Nasolabial appearance in unilateral cleft lip, alveolus and palate: a comparison with Eurocleft. J Craniomaxillofac Surg 2007; 35: 278-86.
14. Langlois JH, Roggman LA. Attractive faces are only average. Psychol Sci 1990; 1: 115-21.
15. Wangsrimongkol T, Beress A, Caruso JM, Schlenker WL, Jeiroudi TM. Soft tissue analysis in Thai adult female with pleasing faces. Khon Kaen Univ Dent J 1998; 1: 26-33.
16. Lindsay WK, Farkas LG. The use of anthropometry in assessing the cleft-lip nose. Plast Reconstr Surg 1972; 49: 286-93.
17. Kwak KH, Kim YI, Nam HJ, Kim SS, Park SB, Son WS. Differences among deviations, genders, and observers in the perception of eye and nose asymmetry. J Oral Maxillofac Surg 2015; 73: 1606-14.
18. Naini FB, Cobourne MT, McDonald F, Wertheim D. Aesthetic impact of the upper component of the nasolabial angle: A quantitative investigation. J Oral Maxillofac Surg Med Pathol 2015; 27: 470-6.
19. Asher-McDade C, Roberts C, Shaw WC, Gallager C. Development of a method for rating nasolabial appearance in patients with clefts of the lip and

palate. Cleft Palate Craniofac J 1991; 28: 385-90.
20. Cohen J. Statistical power analysis for the behavioral sciences. New Jersey: Lawrence Erlbaum Associates Publishers; 1988.
21. Schmitt N. Uses and abuses of coefficient alpha. Psychol Assess 1996; 8: 350-3.
22. McGraw KO, Wong SP. Forming inferences about some intraclass correlation coefficients. Psychol Meth 1996; 11: 30-46.
23. Vegter F, Hage JJ. Facial anthropometry in cleft patients: a historical appraisal. Cleft Palate Craniofac J 2001; 38: 577-81.
24. Edwards M, Macpherson LM, Simmons DR, Harper GW, Stephen KW. An assessment of teenagers' perceptions of dental fluorosis using digital simulation and web-based testing. Community Dent Oral Epidemiol 2005; 33: 298-306.
25. Mercado A, Russell K, Hathaway R, Daskalogiannakis J, Sadek H, Long RE Jr, et al. The Americleft study: an inter-center study of treatment outcomes for patients with unilateral cleft lip and palate part 4. Nasolabial aesthetics. Cleft Palate Craniofac J 2011; 48: 259-64.
26. Mosmuller DG, Bijnen CL, Don Griot JP, Kramer GJ, Disse MA, Prahl C, et al. Comparison of two scoring systems in the assessment of nasolabial appearance in cleft lip and palate patients. J Craniofac Surg 2014; 25: 1222-5.
27. Mosmuller DG, Bijnen CL, Kramer GJ, Disse MA, Prahl C, Kuik DJ, et al. The Asher-McDade aesthetic index in comparison with two scoring systems in nonsyndromic complete unilateral cleft lip and palate patients. J Craniofac Surg 2015; 26: 1242-5.
28. Mercado AM, Russell KA, Daskalogiannakis J, Hathaway RR, Semb G, Ozawa T, et al. The Americleft project: A proposed expanded nasolabial appearance yardstick for 5- to 7-year-old patients with complete unilateral cleft lip and palate (CUCLP). Cleft Palate Craniofac J 2016; 53: 30-7.
29. Meng T, Ma L, Wang Z. Comparative assessment of the cleft profile by patients with cleft lip and palate, cleft surgeons, and lay people. Aesthetic Plast Surg 2015; 39: 757-63.
30. Marcusson A, Paulin G, Ostrup L. Facial appearance in adults who had cleft lip and palate treated in childhood. Scand J Plast Reconstr Surg Hand Surg 2002; 36: 16-23.
31. Foo P, Sampson W, Roberts R, Jamieson L, David D. Facial aesthetics and perceived need for further treatment among adults with repaired cleft as assessed by cleft team professionals and laypersons. Eur J Orthod 2013; 35: 341-6.
32. Desmedt DJ, Maal TJ, Kuijpers MA, Bronkhorst EM, Kuijpers-Jagtman AM, Fudalej PS. Nasolabial symmetry and esthetics in cleft lip and palate: analysis of 3D facial images. Clin Oral Investig 2015; 19: 1833-42.
33. Meyer-Marcotty P, Alpers GW, Gerdes AB, Stellzig-Eisenhauer A. Impact of facial asymmetry in visual perception: a 3-dimensional data analysis. Am J Orthod Dentofacial Orthop 2010; 137: 168.
34. Babuccu O, Latifoglu O, Atabay K, Oral N, Cosan B. Sociological aspects of rhinoplasty. Aesthetic Plast Surg 2003; 27: 44-9.

การประเมินความงามจมูกร่วมริมฝีปากของผู้ใหญ่ต่อนต้นที่มีภาวะปากแหว่งและเพดานโหว่ข้างเดียวเปรียบเทียบระหว่างผู้ป่วย คนทั่วไป และแพทย์

ศุภมาศ ปริสัญโญดม, จุฑารัตน์ ฉิมเรือง, ศรัณย์ วรศักดิ์วุฒิพงษ์, บวรศิลป์ เชาวน์ชื่น, รัชวรรณ ตัณศลารักษ์

วัตถุประสงค์: *เพื่อเปรียบเทียบค่าประเมินความงามจมูกร่วมริมฝีปากระหว่างผู้ป่วยภาวะปากแหว่งและเพดานโหว่ วัยผู้ใหญ่ต่อนต้น ผู้ใหญ่ต่อนต้นทั่วไป และแพทย์*

วัสดุและวิธีการ: *ใช้ภาพถ่ายใบหน้าด้านหน้าตรงและด้านข้างที่ผิดปกติของผู้ป่วยปากแหว่งและเพดานโหว่ ข้างเดียวอายุ 19 ปี มาปรับความต่างองศา (ด้านหน้าตรง: รูปภาพละ 2 องศาได้เป็นรูปภาพการเบี่ยงเบนของปลายจมูก 10 รูปและรูปภาพความไม่สมมาตรของปีกจมูก 14 รูป; ด้านข้าง: รูปภาพละ 3 องศาได้เป็นรูปภาพมุมจมูกร่วมริมฝีปาก 14 รูป) กลุ่มตัวอย่างจำนวน 57 คน ถูกคัดเลือกแบบสุ่มมาเป็นผู้ประเมินคะแนนความงามจมูกร่วมริมฝีปากด้วยมาตรา ประเมินค่า 5 ระดับ ซึ่งพบว่ามีค่าความเชื่อมั่นสูงทั้งภายในและระหว่างผู้ประเมิน การวิเคราะห์ข้อมูลใช้สถิติทดสอบครัสคาล-วอลลีส (Kruskal-Wallis test) และสถิติทดสอบไค-สแควร์ของเพียร์สัน (Pearson's Chi-square test)*

ผลการศึกษา: *ไม่พบความแตกต่างในการให้คะแนนความงามจมูกร่วมริมฝีปากระหว่างผู้ป่วยปากแหว่งและเพดานโหว่ ผู้ใหญ่ต่อนต้นทั่วไป และแพทย์ต่อชุดรูปภาพการเบี่ยงเบนของปลายจมูก, ชุดรูปภาพความไม่สมมาตรของปีกจมูก, และชุดรูปภาพมุมจมูกร่วมริมฝีปากที่มีความต่าง 10 ถึง 21 องศาจากภาพถ่ายอ้างอิง*

สรุป: *การรับรู้ความงามจมูกร่วมริมฝีปากระหว่างผู้ป่วยภาวะปากแหว่งและเพดานโหว่วัยผู้ใหญ่ต่อนต้น ผู้ใหญ่ต่อนต้นทั่วไป และแพทย์โดยทั่วไปนั้นไม่มีความแตกต่างกัน ลักษณะการเบี่ยงเบนของปลายจมูกอาจเป็นปัจจัยหลักที่ใช้ในการประเมินความงามจมูกร่วมริมฝีปากของผู้ใหญ่ต่อนต้นที่มีภาวะปากแหว่งและเพดานโหว่ข้างเดียวในมุมมองด้านหน้าตรง*