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Perceived and Normative Needs of Facial Cleft Patients Seen in Nigeria

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Abstract

Objective: To evaluate the pattern of presentation and assessing treatment needs of children with facial clefts. **Material and Methods:** This was a cross sectional study of 49 patients seen at the cleft clinic of Obafemi Awolowo University Teaching Hospitals Complex, Ile-Ife for a 39-month period of study. Data collected were patient's bio-data including age, date of birth, sex, social class, age of parents, dental findings, associated malformations, treatment given and referral using an interviewer-administered questionnaire. Data was analyzed using the Statistical Package for Social Sciences. Frequency distributions were carried out for all variables and the Pearson Chi-Square Test was applied to assess the significance of differences between groups at a p value of 0.05. **Results:** Cleft lip and palate had the highest preponderance 23 (47.0%) followed by cleft lip 14 (28.6%) and cleft palate 12 (24.5%). There were more females 28 (57.14%) than males 21 (42.9%) at male to female ratio of 3: 4, though; it was not statistically significant (p-0.73). Most of the patients (73.5%) belong to the low social class. The high social class had 13 (26.5%) cases. **Conclusion:** The most important treatment needs of cleft patients in this study were: review/follow-up of treatment protocol, oral hygiene instructions, cleft palate repair, cleft lip repair, and referral to the Orthodontist for treatment of varying degrees of malocclusion in descending order. This trend in the treatment needs arose because most of the patients were still ignorant of the implications of managing facial cleft defects through the multi-disciplinary treatment approach.

Keywords: Cleft Palate; Cleft Lip; Abnormalities, Multiple; Epidemiology

Introduction

Clefts of the lip, alveolus and palate are the most common congenital malformations of the head and neck and are the second most common congenital malformation of the entire body, trailing only clubfoot in incidence [1].

The incidence of cleft lip and palate and cleft palate in Caucasian populations varies from 0.6 to 1.89 per 1000, the mean incidence being approximately 1 per 1000 [2]. Black and Arab populations of the Middle East appear to have a lower incidence of cleft Lip and palate than do Caucasians [3-8]. The Japanese have a higher incidence compared with other parts of the world [2,7,8]. Several reports from different countries have figures between these two extremes [3,9,10]. In Nigeria, a study revealed that the prevalence of cleft lip and palate is 0.4/1000 births and the incidence of cleft lip, cleft palate and cleft lip and palate were 0.2, 0.05 and 0.14 respectively [4].

Studies have shown that females are more predisposed. Etiological factors of cleft lip and palate is unknown but associated risk factors include environmental factors such as drugs, cigarette smoking, infections, and exposure to chemicals etc [11]. Teratogenesis with trichloroethylene and tetrachloroethylene in water has been suggested and associations of facial cleft with farming have indicated a possible role of pesticides, confirmed in some published studies but not in others [12].

Literature has revealed that children with congenital malformation in the oro-facial region are more susceptible to dental disease than normal children [12]. According to studies conducted in Western countries, the children with oral clefts have higher caries prevalence than normal children. The caries experience in the primary dentition is significantly higher [12]. Some other dental conditions have been associated with oro-facial clefts such as missing teeth, supernumerary and/or supplemental teeth, teeth of abnormal morphology, hypoplastic teeth, delayed or abnormal eruption, crowding, malocclusion, poor mid-face development etc [12].

However, studies done on facial clefts in Nigeria have been concentrated mostly in the area of surgical management and epidemiology. Few researchers in Nigeria have attempted to study the treatment needs of patients with oro-facial clefts and the multidisciplinary team approach to their management. Hence, this study has assessed the pattern of presentation and treatment needs of children with cleft lip and palate.

Material and Methods

Study Design

This was a prospective study of the pattern and presentation of facial clefts as well as treatment needs in patients aged 16 years and below managed over a 39 month period (December 2005 to March 2009) at Obafemi Awolowo University Teaching Hospital (OAUTHC). The OAUTHC is located in Ile-Ife, the ancestral home of the Yorubaland of Nigeria.

Study Location

The study was conducted at Obafemi Awolowo University Teaching Hospital, Ile-Ife, Osun State. Osun State is in the southwestern region of Nigeria. By virtue of its location and the scarcity of health care facilities in neighboring areas, the catchment area of the Obafemi Awolowo University Teaching Hospitals Complex is extremely large, including the whole of Osun, Ekiti and Ondo States and some parts of Oyo, Kwara, Kogi, Lagos and Edo states.

While the primary base is the Ife/Ijesa Senatorial District, the institution provides tertiary, secondary and primary health care services through six health care units as follows: Ife Hospital Unit, Ile-Ife; Wesley guild Hospital, Ilesa; The Dental Hospital, OAU; Ile-Ife Urban Comprehensive Health Centre, Eleyele, Ile-Ife; Rural Comprehensive Health Centre, Imesi-Ile; and Multipurpose Maternal and Child Health Centre, Ilesa.

Inclusion Criteria

1) All patients less than 16 years with facial clefts who presented at the cleft clinic in the Department of Oral and Maxillofacial Surgery of the Obafemi Awolowo University Teaching Hospitals Complex during the period of study; 2) Cleft cases repaired within the past three years that were residing around Ile-Ife, that could be reached were recalled for reassessment and 3) Patients who gave informed consent after the study objectives were explained to them.

Exclusion Criteria

1) Patients with facial clefts who were older than 16 years; 2) Parents/patients who did not agree to participate in the study and 3) Patients lost to follow-up.

Sampling Technique

Convenience sampling technique was used. All children with facial cleft who visited the cleft clinic of Obafemi Awolowo University Teaching Hospital, which operates in association with the Smile Train Organization were recruited consecutively for the study until the sample size was gotten.

Data Collection

The data was collected using the Smile Train Patient's data collection tool developed by the Clefts Management Group of Obafemi Awolowo University Teaching Hospitals' Complex, Ile-Ife. This is a fifteen-page booklet designed to collect detailed information of cleft patients before, during, and after treatment with information on follow-up. Necessary adjustments were made on this instrument for clarity as well as ease of response with regard to Orthodontic records by adapting it to fit the format used by the Orthodontic unit of the Obafemi Awolowo University Teaching Hospitals Complex.

The instrument was validated before continuing the study by pre-testing the questionnaire amongst the first ten patients who were also included in the study sample. Data collection for all

patients in this study took place at different stages in their management. The data collected included socio-demographic profile of the child (age and sex), teeth present or absent, tooth abnormalities, mandibular/maxillary relationship, molar/incisor relationship, presence/absence of caries, and oral hygiene status.

Socio Economic Status

This was estimated using multiple indices obtained from a scoring index, which combined the mother's level of education and occupation of the father. Father's occupation was grouped into; professional (score 1); civil servants (score 2); unskilled, unemployed, civil servants with primary education (score 3) while mother's level of education was categorized into tertiary education (score 0); secondary (score 1) and primary or no school education (score 2). Each child's family social class was obtained by adding the score of the father's occupation to the score of the mother's level of education.

A total score of 1 (class 1) was categorized as upper class, total score of 2 (class II) was upper middle class, total score of 3 (class III) middle class, total score of 4 (class IV) the lower middle class, and a total score of 5 (class V) was the lower class. This information was collected from the questionnaire that was given to the parents along with the consent form.

Data Handling

Data were recorded on a data sheet. Scores for socioeconomic status was regrouped into two levels: high (upper and upper middle classes), and low (middle class, lower middle and lower classes) for ease of analysis using cross tabulation. This categorization was used to test associations. For the purpose of descriptive statistical analysis parents > 35 years were graded as old while < 35 years were graded young.

Data Analysis

Data was analyzed using the Statistical Package for Social Sciences (SPSS Chicago, Illinois, USA) version 16. Frequency distributions were carried out for all variables and cross tabulations were done between dependent and independent variables. The Pearson Chi-Square Test was applied to assess the significance of differences between groups at a p-value of 0.05. Where values of cells were less than 5, the Pearson Chi-Square test was not valid and Yates's correction factor was applied. The Pearson correlation test was used to test the validity of associations of the variables. Statistical significance of the different variables in cross-tabulations was recorded.

Ethical Aspects

Ethical approval was obtained from Research and Ethics Committee of The Obafemi Awolowo University Teaching Hospitals Complex (OAUTHC - ERC/2009/07/12), while written informed consent was obtained from parents of each child that participated in the study.

Results

The age of the study participants ranged from 2 days to 13 years and the mean age was 2years 6 months. Most of the study participants were aged 1-5 years (44.9%). More females (57.1%) had cleft lip and /or palate while the condition occurred more in children (53.1%) from the low social status (73.5%). The age of parents ranged from 23 years to 50 years for fathers with mean age of 35.4 years, and 20 years to 45 years for mothers with mean age of 29.8 years (Table 1).

Table 1.Distribution of participants according to socio-demographic characteristics.

Variables	Frequency	
	N	%
Age		
<1 month	10	20.4
>1-11 months	10	20.4
1-5 years	22	44.9
6-10 years	4	8.2
11-16 years	3	6.1
Sex		
Male	21	42.9
Female	28	57.1
SocialClass		
High	13	26.5
Low	36	73.5
Age of Father		
Old	25	51.0
Young	24	49.0
Age of Mother		
Old	11	22.5
Young	38	77.5

The greatest dental problem was caries (54.5%) while oral hygiene instruction (46.7%) was the greatest care given to all the children. The children were referred to the orthodontists the most (77.7%) (Table 2).

Table 2. Dental findings and treatment given.

Variables	Frequency	
	N	%
Dental Findings		
Caries	6	54.5
Incisal mottling	1	9.1
Delayed eruption	1	9.1
Peg shaped lateral	2	18.2
Missing tooth	1	9.1
Total	11	100.0
Treatment		
GIC filling	4	3.8
Oral Hygiene Instruction	49	46.7

Cleft Palate Repair	26	24.8
Cleft Lip Repair	24	22.9
Scaling and Polishing	7	6.7
Pre-surgical Orthopedics	4	3.8
Fistula repair	4	3.8
Frenectomy	1	1.0
Amalgam filling	2	1.9
Total	105	100.0
Referral		
Orthodontist	21	77.7
Pediatrician	2	7.4
Speech therapist	1	3.7
Oral Surgeon	1	3.7
Ophthalmologist	1	3.7
Dermatologist	1	3.7
Total	27	100.0

Figure 1 shows that cleft lip and palate occurred the most (47.0%) while cleft palate occurred the least (24.5%).
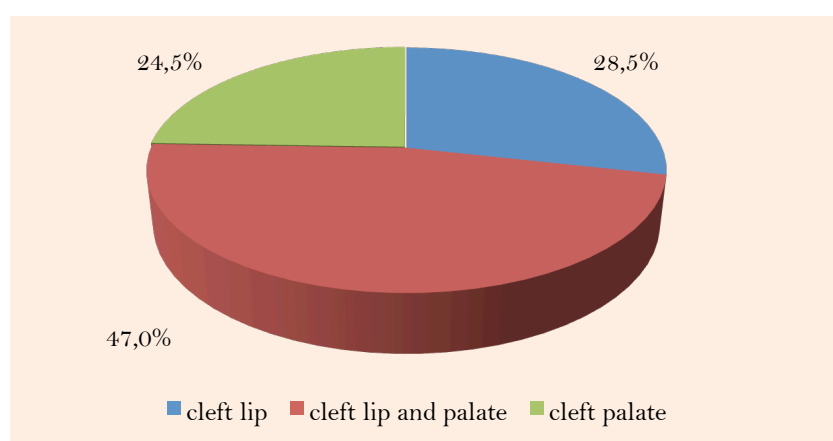

Figure 1. Types of cleft presented by the patients.

There was a strong association between sex and the occurence of left sided cleft lip (p = 0.025) and combined left cleft lip and palate (p = 0.035) with more males having left sided cleft lip and more females having combined left cleft lip and palate. Also, the occurence of bilateral cleft lip and palate was strongly associated with age of both father (p = 0.024) and mother (p = 0.041) with more cases occuring in older fathers (Table 4).

Table 4. Site of cleft, gender differences, frequency of occurrence and associated malformations.

Variables	Site of Cleft						
	RCL n (%)	LCL n (%)	RCLP n (%)	LCLP n (%)	BCLP n (%)	CP n (%)	Total n (%)
Sex							
Male	2 (4.1)	8 (16.3)	1 (2.0)	2 (4.1)	4 (8.2)	4 (8.2)	21 (42.86)
Female	1 (2.1)	3 (6.1)	2 (4.1)	10 (20.4)	4 (8.2)	8 (16.3)	28 (57.14)
Total	3 (6.1)	11 (22.5)	3 (6.1)	12 (24.5)	8 (16.3)	12 (24.5)	49 (100.0)
p-value	0.14	0.03	0.73	0.04	0.66	0.44	

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Associated Malformations

	RCL	LCL	RCLP	LCLP	BCLP	CP	Total
No malformations	2 (4.1)	11 (22.5)	2 (4.1)	11 (22.5)	6 (12.3)	12 (24.5)	44 (89.8)
Tongue tie	1 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)	0 (0.0)	2 (4.1)
Bilateral ectropion	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)	0 (0.4)	0 (0.0)	1 (2.0)
Hypoplastic midface, Bilateral proptosis, bulging posterior fontanelle	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)	0 (0.0)	1 (2.0)
Slanting eyes, low set ears, crooked nose, and congenital hydrocephalus	0 (0.0)	0 (0.0)	1 (2.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (2.0)

Age of Child

	RCL	LCL	RCLP	LCLP	BCLP	CP	Total
<1 month	1 (2.1)	4 (8.2)	1 (2.1)	1 (2.1)	2 (4.1)	1 (2.1)	10 (20.4)
>1-11 months	1 (2.1)	3 (6.1)	1 (2.1)	2 (4.1)	2 (4.1)	1 (2.1)	10 (20.4)
1-5 years	0 (0.0)	3 (6.1)	0 (0.0)	7 (14.3)	3 (6.1)	9 (18.4)	22 (44.9)
6-10 years	1 (2.1)	0 (0.0)	1 (2.1)	1 (2.1)	0 (0.0)	1 (2.1)	4 (8.2)
11-16 years	0 (0.0)	1 (2.1)	0 (0.0)	1 (2.1)	1 (2.1)	0 (0.0)	3 (6.1)
Total	3 (6.1)	11 (22.5)	3 (6.1)	12 (24.5)	8 (16.3)	12 (24.5)	49 (100.0)

Social Class

	RCL	LCL	RCLP	LCLP	BCLP	CP	Total
High	2 (4.1)	1 (2.1)	0 (0.0)	5 (10.2)	2 (4.1)	3 (6.1)	13 (26.5)
Low	1 (2.1)	10 (20.4)	3 (6.1)	7 (14.3)	6 (12.3)	9 (18.4)	36 (73.5)
Total	3 (6.1)	11 (22.5)	3 (6.1)	12 (24.5)	8 (16.3)	12 (24.5)	49 (100.0)
p-value	0.104	0.137	0.238	0.172	0.915	0.890	

Age of Father

	RCL	LCL	RCLP	LCLP	BCLP	CP	Total
Old	0 (0.0)	7 (14.3)	0 (0.0)	4 (8.2)	7 (14.3)	7 (14.3)	25 (51.0)
Young	3 (6.1)	4 (8.2)	3 (6.1)	8 (16.3)	1 (2.1)	5 (10.2)	24 (49.0)
Total	3 (6.1)	11 (22.5)	3 (6.1)	12 (24.5)	8 (16.3)	12 (24.5)	49 (100.0)
p-value	0.068	0.342	0.068	0.158	0.024	0.560	

Age of Mother

	RCL	LCL	RCLP	LCLP	BCLP	CP	Total
Old	0 (0.0)	3 (6.1)	0 (0.0)	1 (2.1)	4 (8.2)	3 (6.1)	11 (22.5)
Young	3 (6.1)	8 (16.3)	3 (6.1)	11 (22.5)	4 (8.2)	9 (18.4)	38 (77.5)
Total	3 (6.1)	11 (22.5)	3 (6.1)	12 (24.5)	8 (16.3)	12 (24.5)	49 (100.0)
p-value	0.336	0.663	0.336	0.177	0.041	0.807	

RCL = Right Cleft Lip; LCL = Left Cleft Lip; RCLP = Right Cleft Lip and Palate; LCLP = Left Cleft Lip and Palate; BCLP = Bilateral Cleft Lip and Palate; CP = Cleft Palate.

Discussion

Combined cleft lip and palate defect was the most preponderant followed by cleft lip and cleft palate respectively. Repair of cleft lip and palate defect was the most predominant perceived treatment need of patients. However, other normative treatment needs comprised scaling and polishing, oral hygiene instructions, pre-surgical orthopedics, restorations, and orthodontic treatment etc.

The variable sex showed strong significant association for cleft lip only and cleft of the lip and palate, but no significant association for combined cleft lip and palate and cleft palate only. The statistical significance showed that the male sex has a high probability of developing left cleft of the lip only than the female sex, while the female sex has a high probability of developing left cleft of lip and palate. The variables, age of fathers and age of mothers showed significant association for combined cleft lip and palate. These observations agree with earlier reports that increased paternal and maternal age, and head topography are related to increased incidence of cleft defect [13].

Approach to management in this study was affected by the status of patients at the time of collection of data or questionnaire administration, which differed in some aspects from the age at

first visit to hospital. Some patients have already received surgical repair of cleft defect, which have healed, or are being prepared for surgery, or are recovering from surgical repair during questionnaire administration, while some others were seen for the first time during questionnaire administration. Hence, the treatment protocol depended on the age at questionnaire administration, and the type of treatment already given [14-17].

The most important treatment needs of cleft patients in this study were: review/follow-up of treatment protocol, oral hygiene instructions, cleft palate repair, cleft lip repair, and referral to the Orthodontist for treatment of varying degrees of malocclusion in descending order. This trend in the treatment needs arose because most of the patients were still ignorant of the implications of managing facial cleft defects through the multi-disciplinary approach. Scaling and polishing with oral hygiene instructions were not a prominent feature of the treatment needs because of the age at presentation of these patients. More than 80% of the patients were below the age of 5 years [14-17].

The oral health status of the cleft patients was good by WHO standards. The perceived treatment needs distribution showed that most of the patients requested repair of cleft defect. This is because the cleft defect manifests extra-orally contributing more to the poor aesthetic appearance responsible for appalling social attitude, depression, poor self-esteem, and negative impact on oral health-related quality of life [1,7]. Patients seen within few days after birth benefited from pre-surgical orthopedics and naso-alveolar molding and favorable results were obtained similar to a prior study. The patients were strongly motivated and prepared for surgery since cleft repair was free, courtesy of The Smile Train [18]. Restorative treatment need was dependent on tooth type and dental caries pattern comprising – one surface fillings. This is consistent with the approach of other researchers [19,20].

It was observed that caries incidence was very low in the study sample [19,20]. The low caries incidence in the study sample is as a result of most patients reporting early for treatment before the age of one year. This helped to create dental awareness and institution of preventive oral health care long before eruption of the primary dentition. The incidence of periodontal disease and gingivitis was low in the study sample. This is likely due to early presentation of most patients to hospital before the age of one year. Most of the patients in this study sample were infants below the age of five years.

Conclusion

Combined cleft lip and palate defect was the most preponderant followed by cleft lip and cleft palate respectively. Repair of cleft lip and palate defect was the most predominant perceived treatment need of patients. However, other normative treatment needs comprised scaling and polishing, oral hygiene instructions, pre-surgical orthopedics, restorations, and orthodontic treatment etc.

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