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Perception of pre-surgical orthodontics for cleft patients among dental technology interns, dental technology and nursing students

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Abstract
Background: The birth of a baby with orofacial cleft provokes mixed feelings of shock, shame, confusion, rejection, disappointment, anger, hopelessness and stigmatization for some parents, especially the mother.
Aim: To assess the perception of pre-surgical orthodontics for cleft patients among dental technology interns, dental technology students and dental nursing students in Enugu state, Nigeria**.**
Methodology: A cross- sectional questionnaire based study was conducted among dental technologist interns at University of Nigeria teaching hospital and dental technology and nursing students at Federal College of Dental Technology and Therapy, Enugu state. Ethical clearance for the study was sought and obtained. Individual verbal consent was obtained from the respondents before giving out the pre-tested questionnaire which was self-administered. Data were analysed using Statistical Package for Social Sciences (SPSS) Version 20.
Results: 23 (34.3%) males and 44(65.7%) females were seen, giving a male to female ratio of 1:1.9. The age of the participants ranged from 20 years - 32 years with a mean age of 24.1 ± 2.9 years. 52(77.6%) students, 15(22.4%) interns, 45(67.2%) dental technologist professional cadre in training while 22(32.8%) dental nurses professional cadre in training.82.1% of the respondents said cleft lip and palate can cause malocclusion, 68.7% said cleft lip and palate patients need to be seen by an orthodontist while 80.6% said pre-surgical orthodontic/ orthopaedic appliance are important for or facial cleft patients. P-value = 0.012.
Conclusion: There is need for cleft patients to be assessed by an Orthodontist. Efforts need to be applied to increase awareness among health workers and the general public through awareness programmes.

Keywords: cleft, interns, orthodontics, perception, students

Introduction

The birth of a baby with orofacial cleft provokes mixed feelings of shock, shame, anxiety, confusion, guilt, inadequacy, rejection, depression, disappointment, anger, hopelessness and stigmatization for some parents, especially the mother [1-2]. These emotional reactions reflect the pervasive negative beliefs about cleft lip and palate based on cultural, religious and socio-economic diversities in many communities [3-6]. Unaesthetically pleasing dental appearance has been found to exert a negative impact on self-image, career advancement, family acceptance and peer-group acceptance. This in turn will have an adverse influence on an individual's level of social interaction [7]. Parent's feelings about their child's cleft defect depend partly on their knowledge, counseling and awareness about the condition from dental practitioners, medical practitioners and health workers in rural communities. The evolution of the complimentary professional dental personnel in Nigeria has produced different cadre such as dental technologists, dental therapists, dental surgery technician and dental nurses [8].

In the pre-surgical orthodontic management of cleft patient, allied dental professionals can play a role in areas of orthodontic appliance fabrication by dental technologist and emotional support to parents/patients by dental nurses. Health education has been recognized and widely used to modify health-related behavior. Health education attempts to change behavior by altering an individual's knowledge, attitudes and beliefs about health matters. The awareness and knowledge of orthodontics and some other dental specialties is still grossly inadequate among medical practitioners, health care workers and the general public. Previous report about the high incidence of unoperated cleft [9] seem to suggest a low level of awareness. Access to oral health facilities by orofacial cleft patients could be described in terms of cost, distance, location, availability of qualified personnel and functioning oral health facilities [10]. The occurrence of dental anomalies is more common in cleft lip and palate individuals when compared to general population. Though postnatal events have been implicated in tooth anomalies, dental abnormalities are mostly caused by prenatal and genetic influences [11].

Previous study reported that mothers of children with clefts, experience great stress and handle marital conflicts poorly [12-13]. Research has shown that attractive children are seen by others as brighter, as having more positive social behavior and receive more positive treatment than their less attractive counterparts [14]. Many children with cleft lip and palate (CLP) may have a high incidence of teasing over facial appearance than their peers [15]. Owotade *et al*., from a study conducted in Lagos, Nigeria in 2014 reported that 50.5% of pregnant women [1] attending antenatal

Clinics had seen or heard about orofacial cleft. Mane *et al*., from a study conducted in India in 2018 reported that 32% of the respondents [16] have not heard of an orthodontist before, while Sruthi *et al*., from a study [17] conducted in India in 2018 reported that undergraduates dental students were aware of orofacial clefts and the treatment procedures but were not aware of the timing of different procedures, the multidisciplinary team involved and role of each speciality at different phases of treatment. There are various studies on cleft lip and palate in South-east Nigeria, other parts of the country, in Africa and the World. The aim of this study is to assess the perception of pre-surgical orthodontics for cleft patients among dental technology interns, dental technology students and dental nursing students in Enugu state, Nigeria**.** It would also determine the level of awareness of allied dental professionals in training on the need for early presentation, assessment and pre-surgical orthodontic management of orofacial cleft patients by an orthodontist.

Material and Methods

A cross- sectional questionnaire based study was conducted among dental technologist interns at University of Nigeria teaching hospital and dental technology and dental nursing students at Federal college of dental technology and therapy, Enugu state. Federal college of dental technology and therapy offers programmes in dental therapy, dental technology, dental nursing, health assistant and biomedical engineering at the National diploma and Higher national diploma levels. A semi structured questionnaire was designed by the researcher and ethical clearance for the study was sought and obtained. Individual verbal consent was obtained from the respondents before giving out the pre-tested questionnaire which was self-administered. The questionnaires were randomly distributed among dental technologist interns at University of Nigeria teaching hospital and dental technology and nursing students at Federal college of dental technology and therapy, Enugu state. Data were analysed using a computer software programme, Statistical Package for Social Sciences (SPSS) Version 20. P values < 0.05 were accepted as being statistically significant.

Results

One hundred questionnaires were randomly distributed to dental technology interns, dental technology and nursing students, 67 questionnaires were correctly filled and returned (response rate of 67%). 23 (34.3%) males and 44(65.7%) females were seen, giving a male to female ratio of 1:1.9. (Table 1) The age of the participants ranged from 20 years - 32 years with a mean age of 24.1 ± 2.9 years. 9(13.4%) married, 58(86.6%) single. 52(77.6%) students, 15(22.4%) interns as shown in Figure 1. 45(67.2%) dental technologist professional cadre in training while 22(32.8%) dental nurses professional cadre in training(Figure 2). 82.1% of the respondents said cleft lip and palate can cause malocclusion,68.7% of the respondents said cleft lip and palate patients need to be seen by an orthodontist,88.1% of the respondents said cleft lip and palate management should start from birth/neonatal period, while 80.6% said pre-surgical orthodontic/ orthopaedic appliance are important for orofacial cleft patients (Table 2). None of the respondents mentioned nasoalveolar moulding appliance as an example of a pre-surgical orthopaedic appliance. There was a statistically significant association of gender and professional cadre in training. *P*= 0.012

Table 1: Socio-demographic characteristics of respondents

Variable	Frequency	Percent
Gender		
Male	22	34.3
Female	44	65.7
Age group		
20-29	63	94.0
30 and above	4	6.0
Marital status		
Single	58	86.6
Married	9	13.4
Total	67	100

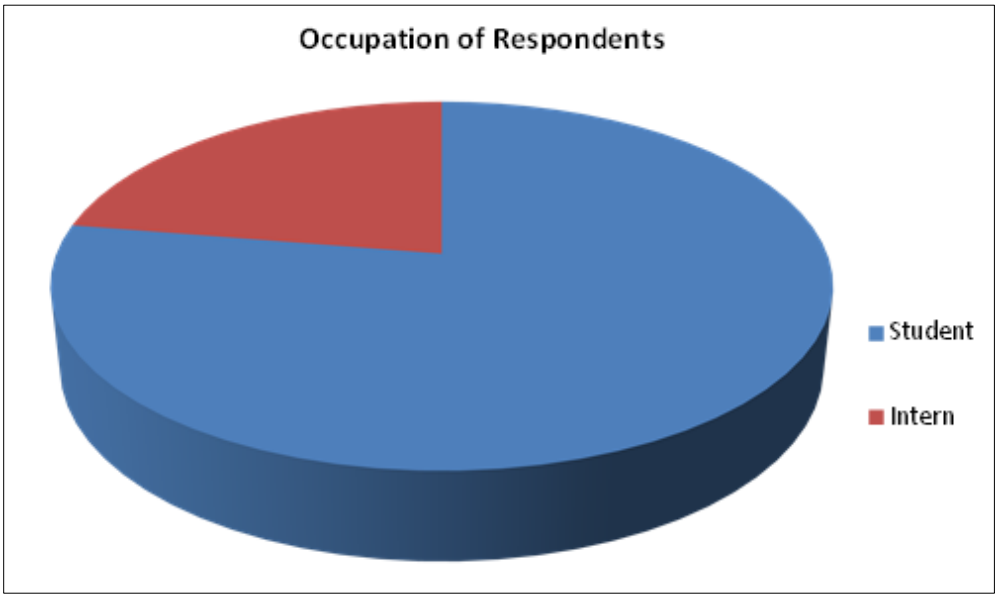

Fig 1

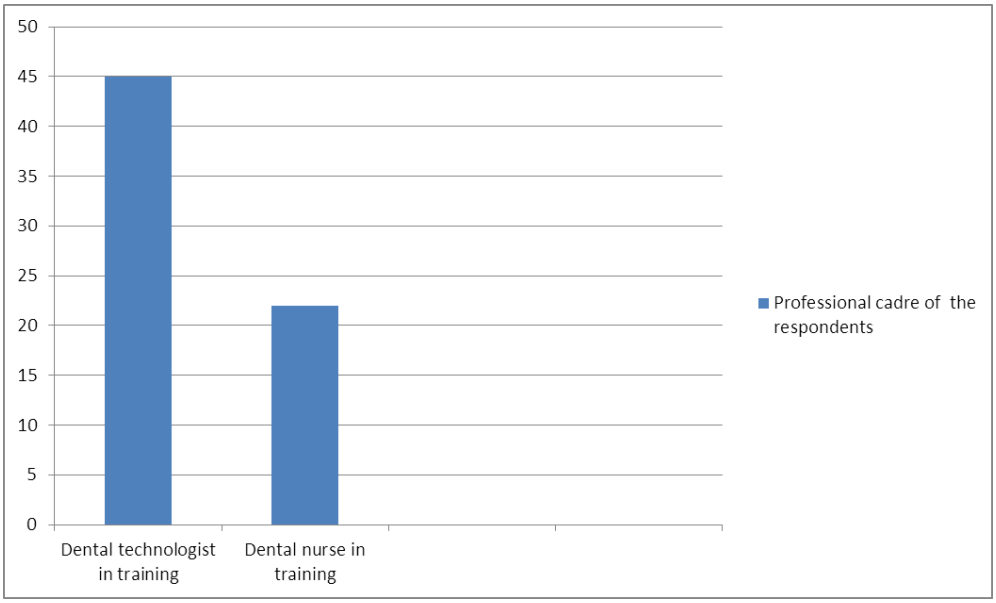

Fig 2: Professional cadre of the respondents

Table 2: Responses on perception of pre-surgical orthodontics for cleft patients

Variable	N (%)
Cleft lip and palate can cause malocclusion?	
Yes No	55(82.1%) 12(17.9%)
Cleft lip and palate patients should be seen by an orthodontist?	
Yes	46(68.7%)
No	21(31.3%)
Pre-surgical orthodontic/orthopaedic appliances are important to cleft lip and palate patients?	
Yes	54 (80.6%)
No	13 (19.4%)
Cleft lip and palate management should start from birth/ neonatal period?	
Yes	59 (88.1%)
No	8(11.9%)

Discussion

Cleft of the lip and palate is one such condition that occurs at such a strategic place in the orofacial region. It has been reported that patients with cleft lip and palate (CLP) exhibit a higher frequency of dental anomalies than non-cleft subjects [18-20]. The management of cleft lip and palate involves a multidisciplinary approach [21] requiring the services of pediatrician, plastic surgeon, general surgeon, oral surgeon, pedodontist, orthodontist, speech therapist, psychologist, prosthodontist, ENT surgeon, social worker, parents, genetic counselor, audiologist, and nurse. The condition requires surgical procedures from birth to adulthood, as well as frequent outpatient visits [22]. These are usually handled by orthodontists, plastic and maxillofacial surgeons. When unilateral and bilateral cleft patients were compared for the prevalence of dental anomalies, bilateral cleft patients showed more prevalence of agenesis, ectopic eruption, hypoplasia, and microdontia. Rotations, short roots, dens invaginatus, supernumerary tooth, and pulp stones were more prevalent in unilateral cleft patients [11]. In this study, 68.7% of the respondents said cleft lip and palate patients need to be seen by an orthodontist and 88.1% said cleft lip and palate management should start from birth/neonatal period.

Pre-surgical orthopaedic/orthodontics involves procedure done by the orthodontist prior to surgical procedures like cleft lip repair, cleft palate repair, alveolar bone grafting and orthognathic surgery. Some of the orthodontic procedures involves the use of appliances like feeding plate, pre-surgical nasoalveolar moulding appliance, removable and fixed orthodontic appliances for better alignment of the teeth. Pre-surgical nasoalveolar moulding (PNAM) aids in alignment and approximation of the alveolar cleft segments, to correct the malposition of the nasal cartilage and reduce soft tissue deformity [23] by correcting the nasal tip, alar base and the position of philtrum and columella. It produces an overall improvement in the aesthetics of the nasolabial complex in cleft patients, while minimizing the extent of the surgery and the overall number of further surgical procedures [24]. Another finding in this study was that 80.6% of the respondents said pre-surgical orthodontic/orthopaedic appliance are important for orofacial cleft patients and none of the respondents mentioned pre-surgical nasoalveolar moulding appliance as an example of a pre-surgical orthopaedic appliance.

Conclusion

There is need for cleft patients to be assessed by an Orthodontist. Efforts need to be applied to increase awareness among health workers and the general public through awareness programmes.

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Conflicts of Interest: There are no conflicts of interest.

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