



Original Research:

Knowledge, Attitude, and Perception among Dental Graduate Practitioners about Presurgical Naso-alveolar Molding Therapy in cleft lip/palate infants: A Questionnaire-based Survey

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Abstract

Aim: To explore or evaluate dentist's (BDS graduate practitioners) knowledge and perception towards Presurgical Naso-alveolar molding (PNAM) in cleft lip/palate infants.

Materials and methods: A questionnaire containing 10 validated questions (Google forms) was electronically distributed through E-mail and WhatsApp. A total of 144 BDS graduate practitioners were included in the study. The data obtained was subjected to statistical analysis.

Results: The majority of BDS practitioners were not aware of PSNAM regarding many of its aspects like the time duration required for PSNAM treatment, the person who performs PSNAM, the design of the appliance, and the infant's age at which it is carried out. 91% of the practitioners showed interest in learning information about PSNAM and wished to attend workshops or courses about PSNAM.

Conclusion: There is a necessity to enhance the level of awareness, perception, and knowledge of BDS graduate practitioners towards the PNAM treatment performed in cleft lip/palate infants.

Keywords: Dental graduates, cleft lip, cleft palate, Presurgical, Naso-alveolar molding.

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Introduction

India, one of the sub-continent of Asia is one of the most populated countries in the world with a documented population of 1.1 billion in India. This results in an estimated 24.5 million births per year and the birth prevalence of clefts among these births is approximately between 27,000 and 33,000 clefts per year according to the research survey.^[1] As India is a country packed with both urban and rural areas, inequalities and definitive differences have been noticed in the field of access and quality of cleft care provided for infants in these areas. As a result, there is an accumulation of or increased prevalence of unrepaired cleft lip and palate seen in India constituting cleft lip and palate as a significant major health care problem. Although India is one of the fastest-growing economies in the world, its public health sector is still not improved especially in the rural sector.^[1,2]

Naso-alveolar molding is a powerful holistic approach in the management of infants affected with either unilateral or bilateral cleft lip or palate. The introduction of PSNAM in infants dates back to 18th century which was introduced by Grayson et al in 1993.^[3] consisting of molding appliance and elastics. The main goal of this novel treatment modality is to improve the alignment of critical anatomic elements that are jiggered due to the congenital defect before performing definitive therapy which consists of surgical correction of the unilateral or bilateral cleft lip. To create a suitable platform for achieving tension-free surgical repair of the cleft lip, it is essential to first modify the position of the alveolar segments, columella, and their associated lip components, and the lower lateral cartilages which all need to be moulded. This treatment modality is performed mainly by pediatric dentists with very few by oral and maxillofacial surgeons.^[2-5]

In many areas of India, parents of an infant born with a cleft lip/palate have no access to counselling on the care and different treatment modalities for the defects found in their children. The scarcity of knowledge and resources available in this country leads to unacceptable delays in seeking and receiving adequate medical care, and hence, many infants who are born with cleft lip/palate die of malnutrition.^[1,3] It is a well-known fact that the occurrence of cleft lip or palate is a more common finding in parents with consanguineous marriage. The results of the 1992-1993 National Family and Health Survey (NFHS) revealed that consanguineous marriages are not common in the Eastern North Eastern, and Northern states of India because of the predominance of the Hindu

population.^[5-7] On the contrary, in the Southern part of India, consanguineous unions between biological kin have an old long tradition. Therefore, the highest rates of history of consanguineous marriages are reported in the states of Karnataka, Tamil Nadu, and Andhra Pradesh except Kerala because of the strict avoidance of consanguineous marriage amongst the large Christian population.^[6-10] Davangere and Chitradurga are two district places that come under Karnataka State with reported high frequency of consanguineous marriage as well as increased prevalence of cleft lip and palate infants.^[1,2, 5-7] The number of practicing dentists in these two cities is quite high and the parents of cleft lip/palate children more frequently approach first to nearby dental practitioners as the practicing dental specialties are quite low. As BDS (Bachelor of Dental Surgery) dental practitioners are not well educated regarding this new treatment approach, it is essential to create awareness regarding PSNAM. Moreover, even in the BDS curriculum, this new approach is not incorporated so that all BDS students who have graduated will not be aware of this.^[11] There is no data or survey regarding dentist's perception toward application of PSNAM in cleft lip/palate infants and their level of gratification from the dental education in India. Therefore, the purpose of this study was to evaluate the current knowledge and perception of BDS dental practitioners in and around the city of Davangere and Chitradurga pertaining to PNAM in cleft lip and palate infants and also to understand the gap existing in current undergraduate education system.

Materials and Methods

10 questions regarding PSNAM were framed and prepared by the investigator by incorporating such questions that BDS practitioners can understand (Google Forms). The questionnaire survey forms (Google forms) were then distributed online using both E-mail and social media like Whatsapp to only BDS practitioners' groups obtained in and around the city of Davangere and Chitradurga which constitutes an inclusion criterion. The survey was conducted for a period of one week. The study excluded other medical professionals, dental specialists, MDS postgraduate students and other healthcare workers. The participants were asked to tick the most appropriate answer for all 10 questions not leaving a single question. The survey study was carried out in strict compliance based on the Helsinki Declaration Principle of Studies (HDPS) involving Human subjects. The identity of all participants was kept anonymous except for their gender. Finally, the filled questionnaire survey forms were obtained and tabulated in MS Excel sheet (Microsoft Corp). The obtained data was entered and using SPSS software (version 20. Chicago Illinois, USA) percentages were calculated. The statistical analysis used was Descriptive Statistics (DS) which included frequency distribution and percentages for obtaining each answer.

Results

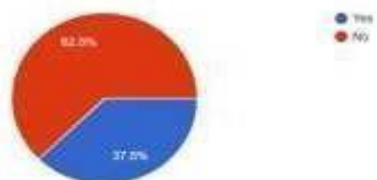
In the present study, a total 144 participants have actively participated and there were no dropouts observed. Among 144 participants there were 86 males and 58 females (Table 1).

Table 1: Gender-wise distribution of participants of the current survey

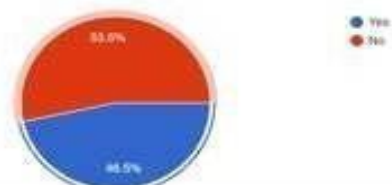
Gender	No. of participants
Male	86
Female	58

When dentists were asked whether they come across any cleft lip and palate infants during their daily clinical practice, 62.5% of dentists said 'yes' as they do come across such patients in routine dental practice (Figure 1). When participants were asked about have you ever heard about presurgical naso-alveolar molding, 53.5% of dentists responded 'yes' and the remaining 46.5% said 'no' to the question (Figure 2). Dentists were then asked are you aware of who can perform the novel approach of presurgical naso-alveolar molding, The majority of dentists (52.8%) were unaware of the specialists who performed PSNAM (Figure 3). Pie chart 4 (Figure 4) demonstrates dentists' perception towards the age of the infant at which the PSNAM is carried out. About 66% of dentists were aware of the correct age of the infant in them PSNAM is performed (Figure 4). Next, dentists were asked about have you ever seen the design of the PSNAM appliance, The majority of the participants (80.6%), reported 'yes' and the remaining 19.4% said 'no' (Figure 5). Among 144 BDS practitioners, 60% of dentists reported 'no' and 34% of dentists said 'yes' to the question regarding "does PSNAM is required prior to cleft lip and palate surgery" (Figure 6). Figure 7 represents time duration required for the PSNAM therapy. For this question 81.3% of dentist's perception was 'no' and few dentist's (18.8%) perception was 'yes' (Figure 7). For the question of do they think PSNAM is a burden for infants and parents, 40.3% of dentists said 'yes' and the remaining 59.7% of the participants said 'no' (Figure 8). When survey participants were questioned about have they attended any workshop or course regarding PSNAM, the majority of the dentists (94%) had not attended and were unaware of this treatment procedure (Figure 9). The last Figure 10 shows the interest of the participants in learning or attending a course or workshop about PSNAM. In this figure, almost all participants (91%) expressed interest in attending such awareness programmes regarding PSNAM.

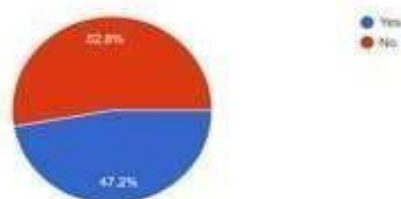
1. Do you come across cleft lip and palate infants in your daily practice?
144 responses



2. Have you ever heard about presurgical nasoalveolar moulding?
144 responses



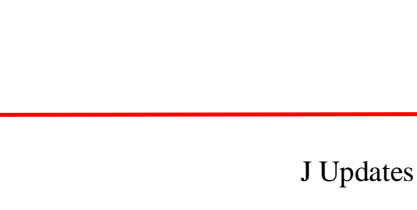
3. Are you aware about who can perform PSNAM?
144 responses



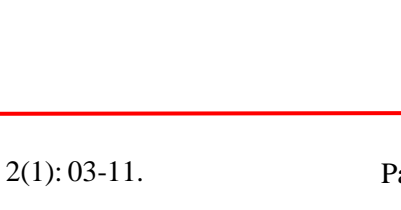
4. Do you know at what age of an infant PSNAM is carried out?
144 responses

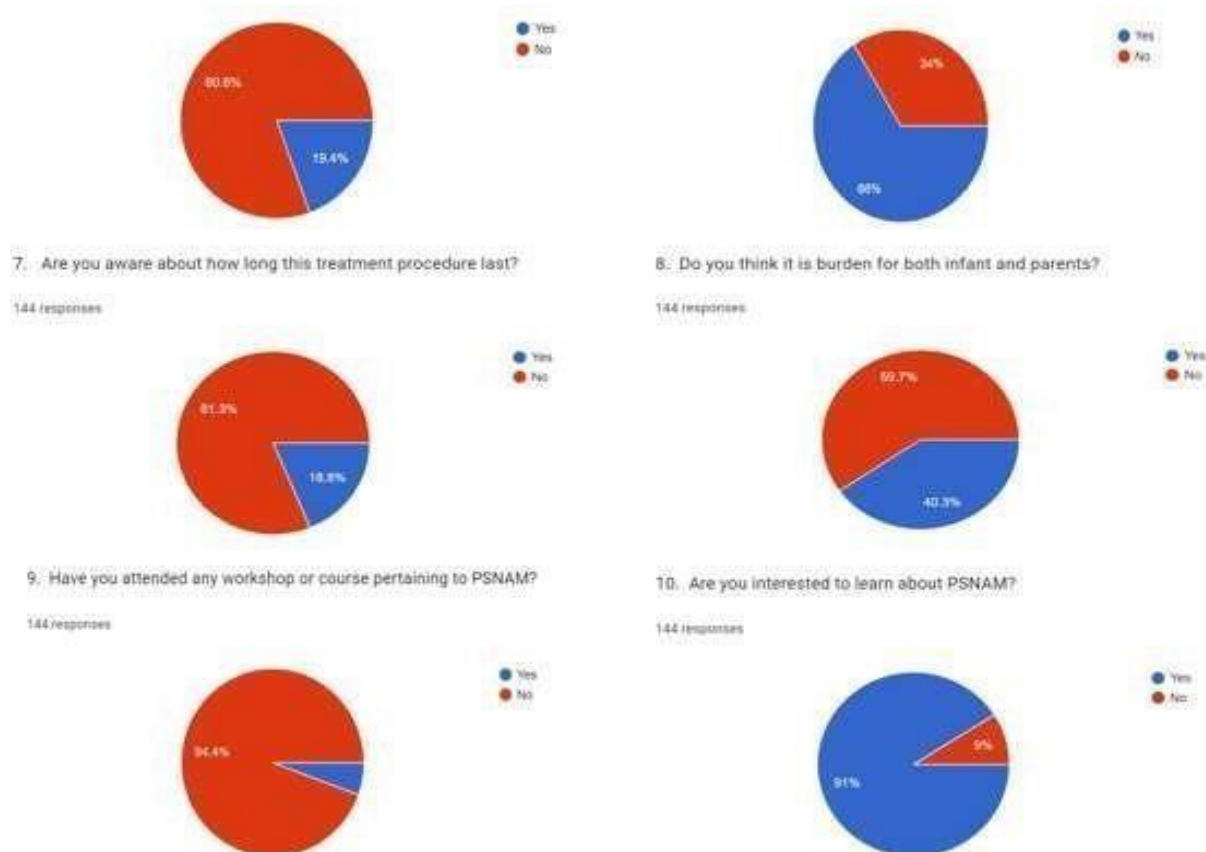


5. Have you ever seen the design of the PSNAM appliance?
144 responses



6. Do you think PSNAM is essential prior to cleft lip and palate surgery?
144 responses





Figures 1-10: The participants responses to the questionnaire

Discussion

Compared to the medical field, in dentistry only pediatric dentistry is a unique specialty involving pediatric dentists as a separate specialist who deal with children right from their infancy. The role of a pediatric dentist is a multi-task job encompassing various preventive, diagnostic, and therapeutic measures seen in children. The major congenital deformity like cleft lip/palate is not an exception to this and is highly prevalent in developing countries like India.^[1,6,8,9] Apart from oral and maxillofacial surgeon and plastic surgeon, pediatric dentist also plays a major role in the management of infants with cleft lip/palate, who not only manages but also educate the parent and society as a whole.^[6] Although an awareness about PSNAM among cleft lip/palate infants has increased exponentially in India, still there are many aspects that are lacking like parents, practitioners, teachers and other health care professionals. Therefore the present study was carried out targeting first BDS practitioners. The present study was a questionnaire-based survey that explored BDS practitioners' knowledge and

perception toward the practice of PSNAM in cleft lip/palate infants. In this survey, the dentists who participated were only dental practitioners (BDS graduates) as these health professionals come across more cleft lip/palate infants compared to other specialists.^[11-16] It is a highly accepted fact that surveying health professionals is the strongest tool in dissipating knowledge and assessing health care practices involving infants and children which is urgently required for the overall improvement of the oral health care system. World Health Organisation (WHO) has witnessed the responsible role of the oral health care professionals and research community in promoting oral health.^[17-19] It is also evident that there is an increased access to nearby dental clinics and limited access to specialty centres. In the same way, it is essential that even in this domain of PSNAM which constitutes tiny tender infants it is highly essential to propagate knowledge and positive attitudes among practising dentists thereby increasing the referral to pediatric dentists by these health professionals.

The present survey was conducted over a period of one week. The self-prepared questionnaire consisting of 10 framed questions (Google forms) dealing with PSNAM by the investigator was distributed to all the BDS graduates who are working in both private clinics and government hospitals. The questionnaires were sent through digital platforms using E-mails and social media like WhatsApp. No dropouts were observed as all dentists who participated in this study filled out the questionnaires. The active role of dentists observed in this survey shows that such academic-related awareness surveys appear attractive and interesting to those non-academic, only practice-orientated dentists.

In this study, about 37.5% of dentists come across infants with cleft or palate during their routine daily practice. The uneducated panic parents usually visit the nearby dental hospitals immediately following the birth of a child found with cleft lip/palate. The remaining 62.5% of participants felt they don't come across such cleft lip/palate infants in their clinic which may be due to the incapability of dentists in managing such infants. Moreover, it was also assumed that almost all BDS practitioners don't like to see such patients because they feel less knowledgeable and not comfortable enough to treat such patients. This finding was almost similar to Salma et al [8], and Wolff et al [9] who assessed dentists' knowledge regarding oral health care in children with special health care needs.

Regarding awareness about PSNAM, half of the total participants were not aware of the name of this treatment which is used in infants with cleft lip/palate infants before definitive surgery. A clear and well-demarcated evidence observed from this question was that this unawareness is due to no coverage of this topic in the regular BDS syllabus as there is no change in the curriculum from past years [1, 10, 11]. Therefore, their undergraduate BDS degree did not prepare them with much confidence to manage and handle infants with cleft lip or palate. The old dated syllabus with all old concepts and old treatment modalities is still seen even in the current syllabus. The regular curriculum must undergo changes and inculcate more information about PSNAM which further helps in managing infants with cleft lip and palate.

For both the question of age at which PSNAM is carried out and the question of which dental specialist can perform PSNAM, the majority were unaware of this. This is again because the regular BDS degree did not cover the topic of PSNAM.[1,19,22] Hence dentists are not aware in-depth into the topic of PSNAM. The principals and

directors of Institutions should compulsorily force the Members of the Board of Studies (MBOS) who handle undergraduate curriculum to incorporate this topic mandatorily.^[19,22] Other oral health surveys showed that although all dentists were aware of pediatric dentist and paediatric dentistry as separate specialties but only a few of them referred to them. The cause of nonreferral to pediatric dentists might also be due to the shortage of pediatric dentists in the cities of Davangere and Chitradurga. One more study revealed that based on a recent census, the pediatric dentist to child ratio is very less which makes it quite alarming scenario regarding the achievement of comprehensive treatment for children as they are future citizens of our country.^[1,12,23] Indira et al^[24] showed that the pediatricians were not advising parents to see the pediatric dentist immediately following the birth of an infant to seek advice on infant oral health care. Therefore, similar to pediatricians, dentists are in the same position to provide information about PSNAM and make referrals of parents of cleft lip and palate infants to the pediatric dentist when it is required. If proper awareness is created among dentists, they can educate and guide the parents and precisely identify the patients who need referral. It is also essential that both medical and dental professionals together are responsible for infants with deformities to seek infant oral health care.^[25] Both professionals should work together to approximately educate and train themselves to be able to provide comprehensive treatment.^[25]

Even for the question of knowledge about the design of the PSNAM appliance maximum number of participants were not aware of the appliance design, which was again attributed to the fact that insufficient curriculum was provided for the undergraduate students.^[19,22] Concerning necessity of PSNAM prior to definitive surgery, the majority of the dentists responded positively which might be due to the little, incomplete information acquired from colleagues, magazines, or from watching information on social media. A recent study was conducted by Doddamani et al^[18] to assess knowledge and attitude among various dental specialties regarding naso-alveolar molding procedures in cleft patients. The dental specialties surveyed were pedodontists, orthodontists, prosthodontists, and oral surgeons. The results of the study revealed that 99% of the participants thought of preferring PNAM before cleft lip and palate surgery and 39% of participants preferred pedodontists to carry out the PNAM procedure. The overall conclusion was that dental specialists in India have a positive attitude toward PSNAM, as this treatment procedure will cause great improvement in the aesthetic outcomes of surgeries following PNAM intervention. A Nigerian study^[26] evaluated the attitude of cleft care specialists in Africa towards presurgical orthopedics. The different cleft care specialists assessed were Anesthetist, General Surgeons, Plastic Surgeons, and General Nurses, orthodontists, Otolaryngologist and Oral and Maxillofacial surgeons. In

this survey, the majority of the specialists opted for pre-surgical orthopedics before surgical treatment. 91% of the specialists used plaster strapping for bilateral cleft cases, 8.3% used naso-alveolar molding, and only 2% used feeding plates. Half of the specialists expressed that pre-surgical orthopedics should be managed by orthodontists alone. Finally, younger specialists had a more favorable attitude towards pre-surgical orthopedics compared to older specialists in this study. The majority of the participants did not know time duration required for the PSNAM treatment which was again due to incomplete or no information learned during their undergraduate level. This finding was similar to the other study carried out in Nigeria.^[27] Half of the respondents expressed PSNAM is a burden for both infants and parents. From other studies, it was found that most of the parents felt when definitive surgical treatment is available why unnecessarily making both infant and parents undergo this strenuous procedure. This was similar to other studies done by Nadel et al.^[28] Roth et al,^[29] and Magyar et al.^[30]

When dentists were asked about have they attended any workshop or course pertaining to PSNAM, 94.4% of dentists said that they had not come across any such workshop or course. This shows the inactiveness of local dental bodies, associations, organisations like state branch of Indian Dental Association (IDA) or local dental practitioners groups compared to medical bodies which conduct regularly health-related continuing dental education programs and local guest lectures on relevant trending topics. Such awareness campaigns not only boost the interest of practitioners but also enhance the validity of the dental profession. A positive response was observed among all clinicians regarding whether they wished to attend any course or programs pertaining to PSNAM. The enthusiasm seen in the majority of the participants was due to their eagerness to enhance their knowledge and also to improve their daily practice by learning new methodologies. In a recent study, the practitioners wished to have personal information to understand the patient's life situation to plan and implement appropriate health promotion activities.^[31] A study done by Dao et al^[23] found that most of the participants felt a lack of facilities including equipment to treat these patients. Therefore, similar to other studies,^[23-25,32] even in the current survey it was presumed that the majority of dentists wished to have or attend additional training in the form of a hands-on workshop or an audio-visual lecture to provide more insights about the PSNAM.

From the current literature^[33-38] it was also observed that various barriers existed among BDS practitioners in handling cleft lip and palate infants like cost of the treatment, difficulty in transportation, unwillingness of surgery, distance to the clinic and even for fear of the doctor towards infants. They feel hurdle to treat such patients. Sometimes behaviour of the parents is a more pronounced barrier to treating such patients.^[34,36] Therefore, it is highly essential to overcome all these barriers while simultaneously creating and spreading awareness about PSNAM among lay public and dentists which includes, training and education among budding dentists on oral health care of cleft lip and palate infants.^[35-38] There is also a need for increased public health education to created awareness and to develop more positive attitudes toward children with cleft lip/palate.^[40-43] The different programmes should include distribution of pamphlets about PSNAM at clinics, media campaigns on radio, TV and newspaper as well as establishment of cleft support organisations by the relevant government and professional organizations.^[40, 41, 44]

Conclusion

From the results of the present study, it was concluded that the majority of BDS practitioners were unaware of PSNAM. Knowledge and awareness are highly required among these practitioners which in turn help in early recognition and referral to a pediatric dentist that is highly essential to initiate this pre-surgical holistic approach as early as possible.

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