

Nursing Mother's Awareness and Intervention towards Thumb Sucking Habit, Prevention and Management among Children in Kano State of Nigeria.

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Abstract: With the growing numbers of children practicing thumb sucking habit globally, Nigerian neonates and infants are not excluded. Parents are the key factor in controlling child behavior. They play an important role in the prevention and proper controlling of thumb sucking habit in children. This research focuses on investigating the nursing mothers' awareness about thumb sucking habit among children and its role as a causative factor behind many orofacial defects as well as other related oral infections in **Kano state of Nigeria**.

The level of interventions and different types of preventive measures they implement in managing of this habit was also considered. Structured questionnaires of **60 samples** was constructed and randomly distributed among mothers of children with age ranging from **1-6 months and 3-5 years** respectively. Data was collected from **3 local government areas** in the state which include **Tarauni, Farawa and Warawa Local government areas**. The research methodology approach is quantitative, designed under descriptive statistical studies using Statistical package for social sciences (SPSS) 0:17. version. In light of the findings following complete data analysis, conclusion is made with necessary recommendations to nursing mothers in the society, for further preventive measures to be taken in an effort to discourage such habit in children.

Keywords: Nursing mother, awareness, thumb sucking, Management, Kano state Nigeria

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I. Introduction:

Thumb sucking, is defined as the placement of thumb or one or more fingers in varying depths into the oral cavity, which is one of the most commonly seen habits that most children indulge in. Although, the incidence of such habit varies considerably between different countries, such habit in children is common among different populations. According to Osilon, the most common oral habit was thumb sucking or finger sucking, with a reported incidence ranging from 13% to almost 100% at some time during infancy. (1)

Recent studies have shown that thumb sucking maybe practiced during intra uterine life. The presence of such habit is considered quite normal from birth till the age of 3-5 years. Persistence of the habit beyond this age can lead to various malocclusions. (2)

1.1 Etiological factors:

1-Psychoanalytical theory by Sigmund Freud (1905). According to this theory, Non- nutritive sucking habit develops due to inherent biologic derive for sucking.

2-Oral derive theory: Sears and Wise 1982: This occurs due to prolongation of nursing strengthen the oral derive in children.

3-Benjamin theory (1962): According to this theory, thumb sucking is due to the rooting reflex where the infants head and tongue moves towards an objects touching the cheeks.

4-Oral gratification theory: Sheldon (1932): If the child is not satisfied with the sucking during feeding period, it will remain as a symptom of emotional conflict/disturbance in the form of digit sucking.

5- Learning theory: This theory is most favored and states that, sucking is an innate craving in infants and non-nutritive sucking is an excessive sucking urge with breast feeding or bottle feeding. (3)

Substelnly and Substelnly (1973), has graded thumb sucking into four types.

In the first group, almost 50% of the children place the whole digit inside the mouth with the pad of the thumb pressing over the palate, while at the same time maxillary and mandibular contact is present.

In the second group, 24% of the children placed thumb into the oral cavity without touching the vault of the palate. While at the same time maxillary and mandibular anterior contact is maintained.

In the third group, (18%) The thumb is placed into the mouth just beyond the first joint and contacts the hard palate and maxillary incisors but there is no contact with mandibular incisors excluding mandibular incisors.

In the fourth group, (6%): The thumb is not fully inserted into the mouth. The lower incisor makes contact at the approximate level of the thumbnail. {3}

1.2 PHASES OF DEVELOPING THUMB SUCKING HABIT (MOYERS 1995).

- **1- Subclinical /Normal:** Begins from birth up to 3 years of age which is considered normal and does not require any dentist or parent's intervention however, continuation of habit beyond this age, becomes abnormal and preventive measures should be instituted and thumb to be substituted with pacifiers.
- **2- Clinically significant:** This phase extends from 3-6,7 years of age and is associated with clinically significant sucking. The habit may be meaningful or empty. It requires dentist intervention in an effort to manage or correct the habit at this stage.
- **3- Intractable sucking:** when the habit proceeds beyond 6-7 years, child will require both parents and dentist attention and may need to be given psychotherapy.

1.3 EFFECTS OF THUMB SUCKING HABIT ON OROFACIAL AND BODY SYSTEM

- i- **Deleterious effects:** includes speech difficulties in pronouncing some words like l/t/d (Larsson et al).
- ii- **Psychological effect:** children tends to loose concentration especially in school activities where they face lots of challenges from peer environment contributing towards fear of socialization.
- iii- **Effects on orofacial system:** It depends on the duration of time the child spent indulged in the habit, the frequency at which the habit is activated in a day and the intensity in which it is performed.

These results in different types of occlusal discrepancies and facial changes including, increased in maxillary arch length, proclination of maxillary anterior causing unpleasant smile in a child and prone to trauma, Overjet giving a "rabbit like teeth appearance", anterior open bite, Posterior cross bite and tongue thrust habit as a result of open bite.

Short hypotonic upper lip with hyperactive lower lip leading to further proclination of upper anterior. Retroclined mandibular incisors, Retrusion of mandible

iv- **Effects on body system:** In chronic thumb suckers, Infections due to germs causing diseases from the thumb are carried inside the mouth which results in many oral and other systemic infections such as oral thrush, stomatitis, middle ear infections, tonsils and gastrointestinal infections to mention a few. A study reveals that, the prevalence of Escherichia coli and Enterobacteria among children that practice such habits is greater than in children that are not engaged in the habit.

1.4 DIAGNOSIS OF THUMB SUCKING HABIT:

EXTRA ORAL EXAMINATIONS

I-History: Positive history of the habit will determine the question regarding the frequency, intensity and duration. The remedies that have been tried at home, feeding pattern, parental care and love for the child is also ascertained.

ii- **Emotional status:** determining if the habit is meaningful or empty. It requires an insight into the emotional security and familial well-being of the child

iii- **Digits:** the digits that are involved in the habit will appear reddened, exceptionally clear, chapped and a short fingernail i: e a clean dishpan thumb. Fibrous roughened callus maybe present on the superior aspect of finger.

vi -**Lips:** position of the lips at rest or during swallowing should be observed. A short hypotonic upper lip frequently characterizes chronic thumb suckers. Lower lip is hyperactive and this leads to further proclination of upper anterior.

v-**Facial form analysis:** Facial profile is either straight or normal. Mandibular retrusion, maxillary protrusion, high mandibular plane angle and profile is to be checked. During swallowing, patient is observed for facial grimace or an excessive mentalis muscle contraction, normal display of the tongue against the teeth and palate and whether the pattern of speech is normal.

iv- **Other associated symptoms:** habit of mouth breathing and tongue thrust swallow particularly in children with anterior open bite. Active thumb suckers have high incidence of middle ear infection and frequently have enlarged tonsils accompanied by mouth breathing.

i- INTRA ORAL EXAMINATIONS:

v- Tongue position at rest, tongue action during swallowing.

- vi- Mouth breathing, gum line etching, decay or excess staining in the labial surface of upper central and lower lateral incisors.

1.5 CLINICAL FEATURES OF A CHILD INDULGED IN THUMB SUCKING HABIT:

- Labial flaring of maxillary anterior teeth
- Lingual collapse of mandibular anterior teeth
- Increased overjet
- Hypotonic upper lip and hyperactive lower lip
- Tongue placed inferiorly leading to posterior cross bite due to maxillary arch contraction.
- Simple tongue thrust due to adaptive response to open bite
- Narrow nasal floor and high palatal vault

1.6 PREVENTION AND MANAGEMENT APPROACHES OF THUMB SUCKING.

Managing such habit requires multidisciplinary approaches in an effort to build the child's self-confidence and self-esteem to quit the habit. This involves the combination of both parents, care takers and dentist to come under one roof in an effort to inhibit and discourage the habit for the child. Different stages of prevention and management were initiated from both parents and dentist perspectives and categorized as psychological, Reminder therapy and mechanotherapy.

i-Psychological approach: Gaining child's psychological stability in case of a child that lacks parental affection, love and concern. Parents should encourage child to engage in activities such as playing outdoors and buying new toys in an effort to divert away child's attention from repetitive action of the habit.

In case of infancy stage, mothers should give maximum care with an adequate feeding of the child to ensure that child exhaust its sucking urge and completely satisfied. Parents can encourage child to suck on dummy or pacifier instead of thumb.

From the dentist desk of concern, age-appropriate explanations to the child and positive reinforcements are necessary for the success of clinical management. The child is positively reinforced, praised and rewarded for making the effort to discontinue the habit.

In addition, **Beta hypothesis theory** given by Dunlop, also contributes to the psychological approach in breaking the child's habit. It states that, the best way to break a habit is by its conscious, purposeful and repetition. Dunlop suggests that, the child should be asked to sit in front of a large mirror and asked to suck his thumb observing himself as he indulges in the habit.

ii-Reminder therapy: This therapy uses the idea of reminding a child to stop the habit by applying some certain non-harmful pastes/chemicals that tastes bad on the thumb, making sucking less satisfying

A) **3-Alarm system:** proposed by **NORTAN AND GELLIN** (1968) it is often effective in children from 3-7years

B) **Extra oral electronic appliance:** A simple device, which gives alarm when the child takes the finger into the mouth as the appliance has to be worn on that finger which is involved in sucking. The alarm part was encased in an attractive wristwatch so as to make the appliance attractive to the child. It is custom fabricated by measuring the length of the finger and by taking the impression of the involved finger

C) **Thumb-Home concept:** one of the most recent concept. In this, a small bag is tied around the wrist of the child during sleep. It is explained to the child that, just as the child sleep in his home also the thumb sleep in its house. Thus the child is restrained from thumb sucking during night.

iii- Mechanotherapy: In case of a child with deeply ingrained habit in which the above interceptive approaches do not yield successful result, mechanotherapy is implemented. It involves the application of fixed or removable dental appliances referred to as habit breakers, which are designed to make the sucking difficult or unpleasant for the child. The optimal time for placement of appliances is from 3- 4 ½ years when the child's health is at its peak and sucking desires can be sublimated

1.7 HABIT BREAKERS

Habit breakers are various orthodontics appliances employed to attenuate and eventually break the habit. These are categorized as removable or fixed appliances.

i- Removable or fixed palatal crib: Type of brace that sits full-time on the upper teeth and the roof of the mouth. The crib consists of semicircular stainless steel wires connected to supporting steel bands or rings. It breaks the suction force of the digit on the anterior segment. It reminds the patient about the habit and makes it a non-pleasurable one.

i- Hay Rakes: Developed by Mack (1951). The Rake thumb sucking appliance is used in children over the age of 3 1/2 years whom are persistent thumb suckers. It is called as hay rakes because it is designed with series of fence like lines that causes discomfort when the thumb is inserted.

ii- **Blue grass appliance:** developed by Bruce S- Haskell (1991) This appliance is used to manage thumb sucking habit in children between 7-13 years of age. It contains either beads or a short Teflon roller, which can be rotated with the tongue. With this device, the child is expected to roll the tongue on the beads or roller instead of thumb, replacing one habit for another, until the device is removed.

Iv -**Quad helix:** Fixed appliance used to expand the constricted maxillary arch. The helixes of the appliance serve to remind the child not to place the finger in the mouth.

V- **Oral screen:** is a functional appliance introduced by Newell 1912. It produces its effect by redirecting the pressure of the muscular soft tissue curtain of the cheeks and lips. It prevents placing of thumb or finger into the oral cavity during sleeping hours.

3. OBJECTIVES OF THE STUDY:

3:1 To find out the level of awareness in nursing mothers about thumb sucking habit in children and the age at which they begin to indulge in the habit.

3:2 To analyze the level of knowledge regarding effects of prolong use of pacifiers and proper method of sterilization.

3:3 To evaluate the opinion of mothers with respect to thumb sucking habit and its effect on orofacial system and spread of infection to other parts of the body

3:4 To identify the different methods applied by mothers in an effort to manage the existing habit in a child.

II. Literature Review:

2:1 According to the study conducted by: Karin Michèle Schmid, Remo Kugler, Prasad Nalabothu, Carles Bosch & Carl Alberta Verna The use of pacifiers is widespread among babies and children throughout the world. Pacifiers are frequently used to calm crying babies, to increase the well-being of the parents and babies, and to prevent thumb or finger sucking. The use of pacifiers in some developed countries is so culturally established that the prevalence is up to 42.5% in young children by the age of 12 months. Pacifier sucking is a common non-nutritive habit and has received considerable attention over many years.

According to non-randomized studies, the use of conventional pacifiers may impair the development of orofacial structures, cause infections, shorten the duration of breast-feeding, and produce dental malocclusions. [6]

Pacifiers are in contact with saliva and oral microflora and can be a site for contamination, growth, and transmission of microorganisms in children. Their use has been associated with the occurrence of otitis media, candidiasis, intestinal parasitic infections, and dental caries. As Mutans Streptococci (MS) are the main etiologic agents of dental caries in humans, their adhesion to the pacifier's surface may increase the risk of caries in children. [7]

It was observed that cariogenic microorganisms colonize pacifiers and, therefore, it is strongly recommended to perform disinfection by boiling water for 15 minutes or, preferably, spraying an antimicrobial agent such as the 0.12% chlorhexidine, which is a safe, of low-cost, and practical method of disinfecting pacifiers. [7]

2:2 According to a study conducted , titled : Habit-breaking methods employed by mothers of children with nonnutritive sucking habits resident in suburban Nigeria by (Nneka Kate Onyejaka¹, Kikelomo Adebanye Kolawole², Morenike Oluwatoyin Folayan², Elizabeth Obhioneh Oziegbe², Nneka Maureen Chukwumah³, Titus Ayodeji Oyedele⁴, Hakeem Olatunde Agbaje⁵, Olusegun Victor Oshomoji)

Many mothers were concerned about the NNS habits of their children with the main concern being the possibility of the habit persisting to older age. There was little concern about habit affecting speech and the facial appearance of the child. Punishment was the most common method employed to break the habit. There was no significant association between age, educational level of mother, and the use of professional or nonprofessional methods to break NNS habits. {8}

Seeking professional advice for stopping the habit was minimally utilized in this population. Very few of mothers sought professional advice for the NNS habit of their children which is significantly lower than findings from a previous study.^[30]

Children could also face psychological distress from the use of unprofessional methods such as punishment, the topical application of unpleasant lotion,^[5] to break the NNS habits, and the use of restraints.^[19] Afifi *et al.*^[31] were able to demonstrate that harsh physical punishment was associated with mental illness.

While this study was not able to highlight the forms of punishment meted to children who engaged in NNS habits, the probability that some children may have to face harsh punishment cannot be ruled out. This is another reason to advocate for active professional education of parents in this community about NNS and how to find professional support for breaking these habits.

III. Materials And Method:

The paper is a survey research and employed the use of questionnaire for data collection through personal interview with mothers and caretakers of children with age ranging between 1-6months and 1-5years respectively. Tarauni, Farawa and Warawa local governments of Kano state of Nigeria constitutes the sample population of the study.

Sample size of 60 questionnaires were randomly distributed among the local government communities out of which 58 answered questionnaires were retrieved and 2 were left un answered.

IV. Results:

This section presents the results of the data collected as well as discuss the findings. The results were analyzed based on returned and filled questionnaires by the respondents of the selected communities in **Tarauni, Farawa, and Warawa** local government areas. The returned questionnaires were categorized based on the Age at which thumb sucking begins” opinion of mothers regarding prolong use of pacifiers and proper method of sterilization, Correlation between thumb sucking and speech problems, techniques used to inhibit thumb sucking in a child and mother’s opinion regarding correlation between thumb sucking and teeth malalignment.

Results were analyzed under descriptive statistics using Statistical package for social sciences (**SPSS 0.17 version**). The results were presented using charts and tables.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	at birth	18	32.7	39.1	39.1
	1-6 months	24	43.6	52.2	91.3
	1 to 5 years	4	7.3	8.7	100.0
	Total	46	83.6	100.0	

Table 1: reveals that 43.6% of infant begins thumb sucking from the age 1- 6months. 32.7 % at birth and very rare at age, 1 -5 years 7.3%

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	39	70.9	76.5	76.5
	No	12	21.8	23.5	100.0
	Total	51	92.7	100.0	

Table 2: Shows the distribution of children who practice thumb sucking. According the Respondents 70.9% in the sample practice thumb sucking with the least 21.8% are not

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	35	63.6	64.8	64.8
	No	19	34.5	35.2	100.0
	Total	54	98.2	100.0	
Missing	System	1	1.8		
Total		55	100.0		

Table 2: Reflects the knowledge of the respondents about the effect of using pacifiers for long time shows 63% aware, 34.5 % are not aware.

Table:4 : Opinion of mothers about the correlation between thumb sucking and speech problem

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agreed	28	50.9	52.8	52.8
	disagreed	11	20.0	20.8	73.6
	strongly Agreed	9	16.4	17.0	90.6
	Strongly disagreed	5	9.1	9.4	100.0
	Total	53	96.4	100.0	

Describes the opinion of respondents about the relation of chronic thumb sucking and speech difficulties,51% of the respondents agreed, 20% disagreed,16%Strongly agreed, and 9% strongly dis agreed.

Table: 4: Mothers agreement about the relation of thumb sucking and teeth Mal Alignment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	agreed	28	50.9	53.8	53.8
	disagreed	12	21.8	23.1	76.9
	strongly agreed	10	18.2	19.2	96.2
	strongly disagreed	2	3.6	3.8	100.0
	Total	52	94.5	100.0	
Missing	System	3	5.5		
	Total	55	100.0		

V. Discussion

This study found that thumb sucking habits start from birth to six months, and this was according to the belief of both nursing mothers and caretakers whom were sampled for the study in which majority believed that, the age of onset of thumb sucking is an important factor in reducing the habits while some disbelieve such.

It was also observed that children who are practicing thumb sucking habit scored the highest percentage than those who are not. This is the main problem observed in the research, indicating lack of knowledge and awareness of mothers about the effects of thumb sucking on oral health. This research also found that mothers are concerned about the correlations between chronic thumb sucking habit as related to prolong use of pacifiers and the deleterious effects it causes on orofacial structures such as, teeth malalignment and problem of speech.

Additional research need to be conducted to determine how effective health education to women in early pregnancy will promote oral health and prevent oral problems of children from birth to maturity age. Nigeria has adequate primary health care centers and health clinics in almost all local government in the country. Health workers with specifically dentist, dental hygienist and dental technicians have an important role to play in promoting community dental health education.

VI. Recommendations

In light of the findings following data analysis, it is highly recommended to both Nigerian health sectors and the community at large to get more enlightened about effects of thumb sucking habit and other related oral habits which can lead to different orofacial and systemic defects if not managed properly.

- It is highly recommended that, the Nigerian health sectors should put this types of oral related problems into considerations by boosting awareness through proper community health education channels.
- Medical and dental council of Nigeria should put an extra effort to obtain community trust and confidence about proper oral health maintenance by organizing different oral and dental health awareness programs and camps to reach out the community.
- Mothers and caretakers needs to be sensitized more about the proper methods of breastfeeding, sterilization of pacifiers and proper management approach of the habit.

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