

## Research Article

# Mothers' attitude toward digit sucking habits in children of United Arab Emirates

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## **MOTHERS' ATTITUDE TOWARD DIGIT SUCKING HABITS IN CHILDREN OF UNITED ARAB EMIRATES**

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### **ABSTRACT**

The purposes of this study were to evaluate maternal attitudes and knowledge towards digit sucking habits and to investigate the association between various factors and the presence of these habits. A cross-sectional sample of 150 mothers of children currently engaged in digit sucking habits were interviewed. The information collected was from a questionnaire completed by the mothers.

The analyzed data regarding the mothers revealed that younger mothers represented 54% of the sample, 47.3% were well-educated and 70.0% were unemployed. Regarding the children, female children (65.3%) practiced digit habits more than males, and 45.3% of the children were younger than 3 years of age. Significant factors associated with maternal attitudes towards digit sucking habit included: 88.6% of mothers never tolerated this habit, 75.0% of the mothers were unemployed and provided instruction to cease the habit, and 89.9% of the mothers never sought advice from a dentist. Overall, mothers did not view digit sucking habits to be an acceptable behavior regardless of their nationality. Mothers indicated that they tried to stop the habit with a variety of techniques but without any professional advice. The study concludes that mothers would benefit from receiving information about a motivational program, professional advice, and suggestions to discourage this habit.

### **INTRODUCTION**

Sucking is a natural reflex practiced by infants and young children. Many infants suck their thumbs and fingers in the womb. This has been documented through ultrasound imaging (Van Norman R.A. 1997). After birth, many babies begin digit sucking behaviors between 3 and 6 months of age when their motor skills are sufficiently developed to effectively bring a thumb or finger to the mouth at will. Many toddlers begin digit sucking by imitating the sucking activity of a sibling or other children at day care or preschool (Bruce & John, 1991). Oral habits may also be acquired through the repetition of actions that serve to calm an emotional need of the child. At each repetition, the habit becomes less conscious and if repeated often enough, it may be relegated to the subconscious (Paredes G. & Paredes C., 2005).

The digit sucking habit is quite normal in infancy and early childhood. It is also the most common oral fixation seen in children. Either the thumb or one or more fingers may be sucked to varying extents (Josell, 1995).

Many activities create changes in mood through increased and decreased neurotransmission and subsequent alterations in brain chemistry. Decreased neurotransmission during digit sucking induces a calming, relaxing sensation that is associated with the production of endorphins; this may also reduce feelings of discomfort or pain. As time passes, children often indulge in the pleasure of the sucking activity subconsciously.

Some situations that stimulate digit sucking are fatigue, boredom, excitement, hunger, fear, physical and emotional stress. Sucking may provide contentment or make the child feel happy. Sucking may also provide a sense of security during difficult times.

However, if these habits persist beyond the preschool age when permanent teeth start to erupt, they may be implicated as an important environmental etiological factor associated with the development of malocclusion. Therefore, the effects of diurnal or nocturnal parafunctional activities may cause damage to dentition, musculature, and joints (Friman, Mcpherson, Warzak, & Evans, 1993). Parafunctional

activities may also negatively impact the emotional and psychological well-being of the child, and may contribute to learning difficulties in the classroom setting.

It is important to understand that digit sucking habits may become excessive over time. The severity of the problem depends on the frequency, intensity, duration, and also the position in which the finger is placed in the mouth. (Van Norman, 1997; 2001). This excessiveness is determined by three factors: Intensity, or how hard the thumb/finger sucked when it is in the mouth; frequency, or how often during the day and night the sucking occurs; duration, or how long the habit has been present (Al-J-Joair & Al-Emran, 2004; Van Norman, 1997). These factors act together to play an important role during the development of the oral and facial structures and can create a disturbance of the relationship between the jaws and teeth.

For example, the upper teeth may be pulled outward and pushed upward by persistent, long-term digit pressure. If severe, the upper jaw can become displaced forward, which may contribute to a poor biting and chewing surface and promotes a "bucked teeth" appearance. In addition, the pressure of the digit resting on the lower front teeth may retard the growth of the lower jaw (Paredes G. V., 2005) and crowd or tip the lower front teeth lingually. The bony support of the upper teeth may be displaced upward, resulting in an "open bite," or, and more likely, the posterior maxillary teeth continue to erupt downward while the freeway space is opened during digit sucking, resulting in an anterior openbite. In addition, the tongue may come forward during the production of certain speech sounds, usually sibilants, to compensate for this digit-induced open bite. A "tongue thrust" swallow may be fostered, which may further contribute to the misalignment of the teeth or malocclusion.

The constant motion of the cheek muscles in the sucking action may begin to narrow the upper dental arch by collapsing it around the digit; this may contribute to a "cross bite" where the upper and lower posterior teeth no longer fit in harmony. With the digit in the mouth the lips remains in an open posture. Over time, this can distort the appearance of the lips and the child may begin to rest with

the lips open most of the time, giving the appearance that the child is a mouth-breather (Al-J-Joair & Al-Emran, 2004; Ayer & Gale, 1970; Van Norman, 2001; Nicholas & Moore, 2002).

It is a common assumption that children with digit sucking habits are emotionally insecure. However, it is often the negative response of others to the habit that leads to emotional and psychological distress. Peer interactions are considered to be important contributing factors to social development. Chronic digit sucking in school-age children may produce potentially harmful peer reactions, which have the potential to negatively affect social and emotional development (Al-J-Joair & Al-Emran, 2004; Van Norman, 1997).

Digit sucking may also have a negative impact on the learning process whether or not the child sucks his/her digit at school. Many children will not suck in front of other children or in the classroom. However, oral fixation, frustration, and the effort not to suck often lead children to chew on pencils, clothing, hair, and fingernails. They may then possess two oral habits instead of one - sucking and chewing (Van Norman, 1997; 2001).

The child who is trying to control sucking activity in the classroom may also exhibit disruptive behavior and have difficulty sitting still. If the child cannot restrain from digit sucking at school, the behavior can induce a trance-like state and inhibit the ability to focus on subject matter. Writing, manipulative skills, general class participation, communication, and interaction may also be limited (Van Norman, 1997; 2001).

The concern about digit sucking habits is evident from the many epidemiological studies which have been performed in different countries throughout the world during the past 50 years. The world-wide prevalence of digit habits is represented in Table 1. These studies indicate that concern about digit habits is global and encompasses a wide age range. However until this current research, no studies had been conducted in United Arab Emirates (UAE).

Prevalence of this habit varies from one population to another. It is influenced by many factors such as gender, birth order, feeding method, and socioeconomic status (Paredes G. & Paredes C., 2005; Friman, Mcpherson, Warzak, & Evans, 1993; Josell, 1995; Najat, Farsi, & Fouad, 1997; Sarkar, Chowdgury, Mukherjee, & Ahmed, 1996; Caglar, Larsson, Andersson, Hauge, Ogaard, Bishara, Warren, Noda, & Dolci 2005; Onyeaso, 2004).

## MANAGEMENT OF DIGIT SUCKING HABIT

Over the past 60 years, there have been many different designs for dental appliances used to curtail digit sucking habits. These appliances are called habit breakers which may be removable or fixed. Virtually all fixed habit appliances have been constructed utilizing bands on the upper first molars, to which an arch wire is attached that carries the main element that serves to prevent the digit sucking (Nicholas & Moore, 2002).

**Table 1. Prevalence of digit sucking habits**

First Author	Year	Sample	Age in years	Digit Habits %
Bliss	1945	300 New Zealander children	2-4	17
Traisman	1958	2,650 U.S. children	under 4	46
Bowden	1966	116 Australian children	0-8	27
Zadik	1977	333 Israeli children	birth-7	23
Melsen	1979	723 Danish children	10-11	8
Svedmyer	1979	462 Swedish children	3-5	16
Cerney	1981	600 Australian children	birth-3	18
Modeer	1982	588 Swedish children	4	10
Larsson	1985	415 Zimbabwean children	1-2	2
Larsson	1992	245 Norwegian children	3	12
Ahmed	1996	2,517 Calcutta children	3-12	18
Andrija	2002	5,554 Delhi children	5-13	20
Kharbanda	2003	1,100 Spain children	4-11	9.36
Paredes	2003	493 Nigerian children	7-10	8.1
Onyeaso	2004	1,025 Croatian children	6-11	18.42

Although the design of fixed habit appliances has changed a great deal since they were first introduced, no consensus has been achieved on the best type to use, or even how long to use them in treatment. There are also indications that appliance therapy is potentially extremely dangerous, yet this appears to be completely ignored by many practitioners.

Many recent reviews recommend that dental appliances should not be used unless all other behavioral methods of deterring the habit fail. In 1997, a program of behavior management for sucking habits was proposed; a motivational program to help children discontinue their digit sucking habits before developing deleterious dental conditions (Van Norman, 2001; Molinari, 1994; Josell, 1995).

Any new approach needs three elements to be successful: children who are willing to stop the habit; a skilled therapist who can bridge the communication gap between the child and parents; parents' role and participation. These elements play an essential role in achieving a successful result in the elimination of an undesired behavior. In UAE society, the mother is designated as the person responsible for child rearing and behavior management, yet, unfortunately, most mothers have not had access to specific guidelines to deal with digit sucking habits (Van Norman, 2001; Josell, 1995).

## **METHODS**

This research protocol approved by the ministry of health of UAE involved a cross-sectional study conducted in primary care clinics in Abu-Dhabi, Dubai, Sharjah, Ajman, Umm al Qaiwain and Fujairah.

There were 900 mothers who visited these centers. They were asked if they had a child who currently practiced digit sucking. One hundred fifty 150 mothers who were found to have one 1 or more children with digit habits were included in this study. These mothers were then interviewed using a questionnaire format designed for this purpose.

The questionnaire consisted of items with more than one answer choice so that the mothers could choose the most appropriate response. General information about the mothers was collected, including: age, nationality, education, occupation, and attitudes and attempts to deal with this habit. The mothers were also asked if they had requested any clinical advice from medical or dental professionals. The data were analyzed using the Chi-square test.

## **RESULTS**

Analysis (Table 2) showed that most mothers belonged to the 20-30 year-old group (54%). Arab mothers represented the highest percentage among the sample size (79.0%), whereas Emirate mothers represent (32.0%). A high percentage of the mothers sampled had a university level of education (47.3%) while those who did not attending school (8.5%), mothers with primary level (30.8%) and with secondary level (13.4%) Most mothers were unemployed (70.0%). The majority of the mothers considered digit sucking habit to be a detrimental habit (86.7%).

In addition most of the mothers indicated concerns about digit habits (80.7%), while some mothers (6.0%) found it acceptable until 2 years of age, and fewer mothers (4.0%) felt it was acceptable up to 4 years of age. The majority of the mothers indicated that they tried to instruct their children to stop this habit (79.3%). Mothers indicated that they never used aggression (such as: castigation, warning, and harming) in dealing with this habit (68.0%). The majority of the mothers had not sought any pediatric advice (81.3%), nor any dental advice (83.3%).

Most of the mothers had one child practicing this habit (70.7%), while the remaining 29.3% had more than one child with this habit. Female children represented the highest percentage (65.3%) of children practicing this habit. Children less than 3 years of age represented the highest percentage in this study with a digit habit (45.3%), while 26.7% of the children with a digit habit belonged to the 4-6 year-old age group (Table 3).

An analysis based on the nationality of the mothers was compared with the methods used to encourage the cessation of digit habits. Results are summarized in Table 4. Half of the mothers (50.0%) regardless of nationality applied a substance with a bitter taste on the digit in an attempt to stop the habit, while 39.3% of the mothers used other materials like henna, or mercurochrome. Some of mothers (36.0%) of children with digit habits applied gloves at night on their child's hand/hands, while other mothers (26.7%) applied tape on their child's digit. Some mothers preferred to construct a taped splint over the digit (20.0%), while other mothers (13.3%) wrapped the hand, and 11.3% of the mothers used nail polish on the digit to stop the habit.

An assessment of the relationships between maternal age, education, employment status

and attitudes towards digit sucking are provided in Tables 5 and 6. Younger mothers were found to have one child practicing this habit (73.4%). Younger mothers also indicated that they had never accepted this behavior (88.6%), and were likely to routinely instruct their children to stop the habit (70.9%). Most of the mothers had not sought professional advice (89.9%).

Overall, 80.3% of educated mothers instructed their children to stop this habit. However, most of the mothers (81.7%) never asked for professional advice from a pediatrician or dentist.

Employed mothers represented the highest percentage (75.2%) of mothers who provided motivation and instructional methods for their child. This was a statistically significant finding.

**Table 2. Descriptive analysis of the mothers involved in the present study.**

Variable	Number	Percentage %
<b>Age</b>		
20-30		
31-40	79	54.0
41-55	53	34.0
	18	12.0
<b>Nationality</b>		
Emirate	48	16.0
Arab	78	79.0
Non-Arab	24	5.0
<b>Habit acceptance</b>		
Never	130	86.7
Until 2 years of age	9	6.0
Until 4 years of age	6	4.0
<b>Mothers' instruction</b>		
Gave instruction	119	79.3
Didn't instruct	31	20.7
<b>Aggression</b>		
Use aggressive	48	32.0
Don't use aggressive	102	68.0

**Table 3. Age and gender distribution of the children currently practicing digit sucking habit**

Variable	Number	Percentage %
<b>Age of children currently practicing digit sucking habits</b>		
1	105	70.7
2	33	21.3
3	12	8.0
<b>Child gender</b>		
Female	98	65.3
Male	51	34.0
<b>Child age (years)</b>		
< 3	68	45.3
4-6	40	26.7
7-9	12	8.0
10-12	30	20.0

**Table 4. Association between mother's nationality and the techniques used for cessation.**

Techniques used	Emirate	Arab	Non Arab
<b>Bitter taste</b>	24 (50.6%)	39 (50.%)	12 (50%)
<b>Tape application</b>	14 (29.2%)	21 (26.9%)	5 (20.8%)
<b>gloves</b>	18 (37.5%)	29 (37.2%)	7 (29.2%)
<b>Nail polish</b>	5 (20.4 %)	9 (11.5%)	3 (12.5%)
<b>Digit splint</b>	10 (20.8%)	18 (23.1%)	2 (8.3%)
<b>Wrapping the hand</b>	7 (14.6 %)	12 (15.4%)	1 (4.2%)
<b>Other</b>	17 (35.4 %)	34 (43.6%)	8 (33.3%)

**Table 5. Association between mother's age and attitudes towards digit sucking habits.**

Variable	Age of mothers		
	20-30	31-40	41-55
<b>Habit acceptance</b>			
Never	(88.6%)*	(5.1%)	(5.1%)
Until 2 years	(92.5%)	(7.5%)	(0.0%)
Until 4 years	(82.1%)	(5.6%)	(11.1%)
<b>Mother instruction</b>			
Give instruction	(70.9%)*	(90.6%)	(83.3%)
Didn't give instruction	(29.1%)	(9.4%)	(16.7%)
<b>Aggression</b>			
Yes	(30.4%)	(34.%)	(33.3%)
No	(69.6%)	(66.%)	(66.7%)

\*p<0.05

**Table 6. Association between mothers' education, employment status, and their attitude towards digit sucking**

Variable	Education level				Employment status	
	Never attended school	Primary	Secondary	University	Employed	Unemployed
<b>Mother instruction</b>						
Yes	(66.7%)	(80.0%)	(80.8%)	(80.3%)	(88.9%)	(75.2%)*
No	(33.3%)	(20.%)	(19.2%)	(19.7%)	(11.1%)	(24.8%)
Seeking pediatric advice						
Yes	(8.3%)	(20.0%)	(21.2%)	(18.3%)	(17.1%)	(22.2%)
No	(81.7%)	(91.71%)	(80.0%)	(67.8%)	(82.9%)	(77.8%)
Seeking dentist advice						
Yes	(0%)	(13.3%)	(19.2%)	(18.3%)	(14.3%)	(22.2%)
No	(100%)	(86.7%)	(80.8%)	(81.7%)	(85.7%)	(77.8%)

\*p<0.05

## DISCUSSION

The marriage of young females is a common event in UAE society. Early marriage may result in having a child in the family when the mother is in her twenties. This finding is not in agreement with what has been reported in other studies and is likely related to differences in societal tendencies/norms.

A digit sucking habit is a normal infant behavior seen commonly in early ages. (6, 7 Al-J-Joair & Al-Emran, 2004; Van Norman, 1997) This explains the current study's finding of a large number of children younger than 3 years of age practicing this habit. It may also be related to the mothers'

feeding choice through the first years of life. Several studies conclude that infants who were breastfed for a reasonably long period of time (1-2 years) are less likely to develop a digit habit than non-breastfed infants. Is this current decline in breast feeding linked to the initiation of an unfavorable digit sucking behavior? This decline in breast feeding is statistically significant and in agreement with several studies (Najat, Farsi, Fouad, 1997; Yarrow, 1954; Larsson & Dahlin, 1985).

A digit sucking habit was not tolerated or accepted by some of the younger mothers in



this study. This finding is in agreement with previous studies which indicate that older mothers, or mothers with older children, tend to be more knowledgeable about health awareness from sources such as care centers and mass media studies (Al-J-Joair & Al-Emran, 2004; Najat, Farsi, Fouad, 1997; Turbenville & Fearnow, 1976).

Female children were found to be practicing digit sucking habits more than males. This result is consistent with conclusions in other studies that families may more readily accept this behavior in girls than boys (Van Norman, 1997; 2001).

In UAE culture many ethnic groups have been living in proximity for a long time. These cultural interactions might affect and influence individuals in many ways. Cultural influences might be the reason that the majority of the mothers, regardless of their nationality, employ similar methods in trying to stop the digit sucking behavior. The methods used may have been transmitted across generations without scientific support for methodology. This is a new finding in our study.

The finding that a majority of mothers were convinced that aggressive techniques might create anxiety and physical distress for such a young child, and therefore did not use aggressive methods to try to stop the digit habit. This statistically significant finding was in agreement with other studies (Van Norman, 1997; 2001).

The results indicate a highly significant relationship between educated unemployed mothers and their attempts to instruct their children to stop the digit habit. This finding is also compatible with other study results (Al-J-Joair & Al-Emran, 2004; Turbenville & Fearnow, 1976; Warren & Levy, 2000). Educated women may develop an increased awareness of the difficulties children with a digit habit may experience through magazine or newspaper articles and social contacts, in comparison to uneducated mothers. However, unemployed mothers would be presumed to spend more time with their children, enabling them to watch observe their children and advise or correct them about undesired behaviors.

A major finding in our study was the need for health literacy, where we can increase health awareness among individuals in different categories. Most of the mothers had not sought out advice about their child's digit sucking habit from a dentist, even though they were visiting the dentist regularly for routine dental treatment for their children. Also, dentists were not providing advice to mothers about the dental effects that could result from a chronic sucking habit, nor providing treatment cessation techniques. This finding, which is statistically significant, suggests that dentists are failing to instruct and motivate the mother and child to stop this habit as early as possible to avoid negative dental effects in the future. This finding highlights the deficiency of dental health awareness in institutions to instruct and motivate individuals to seek out advice from the appropriate sources, as noted in other studies (Al-J-Joair & Al-Emran, 2004; Caglar, Larsson, Andersson, Hauge, Ogaard, Bishara, Warren, Noda & Dolci, 2005). Overall, the outcomes of this study reflect light on environmental factors which may help the implementation of future studies regarding oral habits.

## **CONCLUSIONS**

Many studies have been undertaken to investigate various issues regarding digit sucking habit in children. This study focused on maternal attitudes towards digit sucking habits in children and the maternal role and methodologies used in dealing with this habit cessation.

The results of this study can be summarized as follows:

1. The mothers in UAE did not regard a digit sucking habit to be acceptable, and they utilized a variety of techniques to stop this habit.
2. No differences were found among different nationalities involving the techniques used to stop this habit.

3. No significant relationships were found regarding child gender, age, and maternal attitudes towards this habit, although girls were found practicing this habit more frequently than boys.
4. A significant relationship was found between educated and unemployed mothers and their methods to provide child motivation to discourage this habit.

5. A great need for increased health awareness among mothers in seeking professional advice about digit habits was revealed.

Additional research should focus on the global trends to discourage this behavior among different nations. It is also important to establish the proper age to start this action. Digit habit cessation is a major concern for mothers.

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