Original article

Prevalence the Types of Occlusions According To Methods of Lactation and Sucking Habits in Preschool Children in Qazvin

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Abstract

Introduction: Dentists who treat malocclusions, require information on the etiology of malocclusions in order to prevent, intervention, and treatment of occlusive problems. Awareness of hereditary factors helps the dentist in designing and effective treatment of genetic causes.

Method: This cross-sectional study was performed on 456 children aged 5-6 years old with the aim of investigating the prevalence of occlusion according to lactation methods and sucking habits in preschool children in Qazvin. To do this research, first, the preschool child who was qualified was examined. Their mothers then completed a questionnaire on the baby's feeding method during their infancy, their habits and their duration, and the oral health status of the child at rest. Maternal subjects were also examined and their molar relationships were recorded.

Findings: Breastfeeding was the most prevalent method of feeding for newborn children in Qazvin. The mothers used milk bottle to feed their son's children more than the daughters. The use of milk bottle in the first two years of life showed a significant relationship with the increase in over-jet. Also, the prevalence of oral habits in those who were fed with milk bottle was more and indicated the role of milk bottle in forming inappropriate sucking patterns. The prevalence of oral habits was 24.2%, which it's most common type was pacifier sucking in comparison with other communities. The sucking habits showed a significant relationship with increasing the over-jet, reducing the overbite, and increasing the open-bite prevalence.

Conclusion: The relationships of the children's deciduous molars were similar to those of the mothers' molars, and the similarity was higher in those who fed from the mother's breast ($p < 0.05$). The results showed that sucking habits have a greater impact on occlusion compared with the nutritional method and should be controlled in in early childhood.

Key words: Occlusions, Prevalence, Lactation, Sucking Habits, Preschool Children

Introduction:

Dentists who treat malocclusions, require information on the etiology of malocclusions in order to prevent, intervention, and treatment of occlusive problems. The etiology of malocclusion is the cause or causes of malocclusion. Malocclusions have three main causes. 1) Hereditary or genetic factors 2) Environmental factors 3) Special causes (which include dental-facial syndromes). Awareness of hereditary factors helps the dentist in designing and effective treatment of genetic causes. Knowledge of environmental factors also guides therapeutic decision making and includes strategies that prevent the continuation of environmental factors on the teeth occlusion. For example, one of the environmental factors affecting the occlusion is sucking habits (2).

A sucking habit is a practice that occurs during the developmental stages of the mouth and disappears during the growth period between the ages of 1 to 3.5 years. In the infancy, this is the first muscular activity of the infant. The tongue is large at this stage and locates in front of the head during normal sucking. The tip comes out of the gums and take part in the support of the lips. This type of swallowing is called infantile swallowing. When the tooth is about 6 months old, the placement of the tongue begins to retreat and causes the swallowing type to adult swallowing (3). One of the characteristics of this type of swallowing is less using from the muscles around the mouth, because the teeth are in contact and the tongue is limited by the teeth.

There are 2 main types of sucking:

1. Nutritional type (such as breastfeeding or milk bottle) that nourishes the baby

2. Non-nutritional type that gives the child a sense of satisfaction and safety.

Feeding the breast of the mother improves the oral-facial, as the movement of the lower jaw in a breastfeeding mothers is faster than the infant's baby. Oral presentation is important in the examination of a 3-6-year-old child. Oral tastes are not considered to be normal in children at the end of this age group, and should be addressed in some way. If no dental changes occur, therapeutic care for teeth is not necessary, but by stopping the habits before the age of 5 to 6, the malocclusion may be prevented. On the other hand, sucking habits will not be acceptable as the child grows older (4). The prevalence of habits and its disorders in different populations has been studied. Disorders that are caused or exacerbated by oral habits can be prevented by diagnosis and on time treatment with a little amount of money in childhood. If the habits of malocclusion persist, it may lead to problems such as periodontal abnormality of the jaw-facial forms, adverse effects on the temple and jaw joint, beauty and ultimately, mental problems (5).

Harmful effects of sucking habits:

Sucking habits or wrong use of the pacifier, for example, when part of the head is placed in the lower lip, can have unwanted effects on the teeth and even the ankle bone. Also, the more the finger be inside the mouth, the more sufficient pressure may be made to alter the shape of the dental arches, or both. There is a consensus among the researchers that when permanent teeth are appeared, if there is a sucking of the finger, causing harmful effects on dental-facial development (3). For the first 3-4 years of life, studies have shown that the

damage is more limited to the anterior part, and these harms are usually temporary. Researchers have said that if sucking habits are cut off before the age of 6, dental changes will often be reversible, but children who leave their habit after 6th age, they have malocclusion after 12 years of age. The probable effects of sucking habits on dental buildings are determined by the direction and nature of the force (3). The effects of sucking on the evolution of the upper and lower jaw depend on the frequency and strength of habits, the length of habits, the latency of the habit, the bone evolution and the child's genetic basis. Etiology of abnormal swallowing is still unknown and may be due to the false nutrition during infancy, long-term use of the pacifier, sucking a finger or a mixture of these factors (3).

Habits Treatment:

The onset of treatment is often between the ages of 4-6. The child should stop his/her habit before he/she has permanent teeth. 3 ways are suggested to treat habits and they depend on the child's desire to stop habit. The first treatment is a reminder and it is suitable for children who want to stop the habit but need help to stop them completely (4). A band or waterproof ribbon is used on a finger that reminds the baby not to keep finger in the mouth. Unfavorable stimulants, such as a poorly flavored solution that is rubbed on a finger, also reminds the child that he should stop his habit (4). Another way is rewarding system. A contract is concluded between children and parents or dentist who simply states that the child receives a prize if abandons habits within a specified period. At the end of a particular period, a prize will be awarded and the child will be verbally encouraged to comply with the contract. If after the reminder and reward, habit still persists, but the child is willing to remove it, the method of using the device can be used. This type of treatment involves placing a device in the mouth that physically makes it difficult to keep the habit. The two devices most used for this purpose are quad helix and palatal crib. The helmets of the device remind the baby not to put finger in the mouth. Quad helix is a dual purpose device, because it can correct the posterior cross-byte and help at the same time to abandon the habit of sucking a finger. These devices should remain in the mouth for as long as 6 months to be sure to leave the habit (4).

In 2002, Orenuga and dacosta examined dental-facial anomalies related to sucking a finger in Nigeria. 81 children aged 3-6 years old were examined, all having a sucking habit. Subsequently, they were classified according to the age. Over jet increasing was seen in all groups. There was anterior open bite, in 33-80% of children, which decreased with age increasing. The unidirectional cross-bite prevalence was 65.8% and the incompetent lips were 51.8% and were seen in older children. Double-skeletal class relations were observed in 22.2% of children. According to these findings, malocclusion was one of the obvious effects of sucking fingers (6).

Charchut and colleagues in Boston examined the relationship between different nutritional patterns of infants and occlusion of the teeth. The samples included 126 children. Parents of these children filled out questionnaires about the nutritional model and the health status of children and also, the occlusion of the teeth was recorded for each child. The results were as follows:

1. Feeding the milk bottle between 0 and 6 months often causes the tendency of baby to the pacifier.

2. Children who used pacifier were more likely had a non-mesial step occlusion and over jet higher than 3 mm and open bite was seen in them.

3- Children who had finger sucking had likely more overbite than 3 mm.

4. In the absence of non-nutritional oral habits, children who were fed by milk bottle from 0 to 6 months' age, more likely had overbite higher than 75% (deep bite) (7).

In 2004, Katz et al. examined the relationship between sucking habits, facial morphology and malocclusion in 3 pages (horizontal, vertical, and anterior-posterior) in 330 adult Brazilian children aged 4 years. Data were collected by interviewing the parents of children and completing the questionnaires. Subsequently, the examination was performed. Malocclusion in the samples was 49.7% and 28.6% of the children had 2 to 3 factors related to malocclusion. Posterior bite was 12.1%, anterior open bite was 36.4%, and over jet increased up to 29.7%. A definite relationship was found between malocclusions and sucking habits (8).

In 2004, Vaggiano and her colleagues in Italy evaluated the effects of infant feeding and sucking habits on occlusion of deciduous teeth. In a retrospective study 130 children aged 3-5 years old were examined and information about their habitual history and their nutritional methods was collected. The results showed that non-nutritional sucking habits have a clear effect on occlusion. Posterior cross-bite was more common in children who fed with milk bottle or had sucking habits. The open bite is not related to the nutritional method and is related to sucking habits, and therefore, the feeding habits have a more important role than feeding method in the development of malocclusion in infant. In 2005, cunha and colleagues examined the relationship between pacifier usage and breastfeeding in Brazil. A total of 500 children who were poor in the community, and whose birth weight was not favorable were followed from birth to 6 months of age. 60% of children from the first month had been using pacifiers. Children who had a pacifier with a possibility of more than 9/1, stopped feeding from their mother's chest (9).

Methods:

After obtaining a license from the Education and Training administration of Qazvin province, with the help of the statistician and using the random numbers table, 25 schools were selected from the total list of preschool centers in a completely randomized way, with 10 schools in the District 2 and 15 schools in District 1. After referring to each school, all primary school children were first examined and among them eligible people were selected. Additionally, the invitations were sent for eligible mothers, to attend at school for examination and completion of the questionnaire (Appendix on page 70).

In order to examine each of the selected samples, the child was first asked to sit upright in the chair and look at the front. Then, the baby's side-view was assessed through the examination of the relationship between the two lines, one from the Nazion to the upper lip and the other, from this point to the chin. If these three points were in the same direction,

the side-view was considered as straight, but if two lines were arched to the anterior, it was considered as convex, and if they arranged to the posterior, it was regarded as concave.

Then, intra-oral examinations began with a posterior cross-bite checking. When the buccal cusp of the posterior teeth was placed on the lingual buccal cusp of the lower jaw teeth, or even tip to the tip of them, or when the palatal cusp of the posterior teeth was placed in the adjacent to or outside the buccal cusp of the lower posterior teeth then, the posterior cross-bite was recorded. In individuals with cross-bite, occlusion relations were observed in CR and CO modes, and if there was a significant difference between them in lateral or anterior direction, they were recorded as functional shift. The cross-bite survey was performed in CO, but in those with functional shift, the teeth relationship in CR was also investigated.

Over jet (horizontal spacing of the most prominent central maxillary to the central opposite in lower jaw) was measured in CO using a millimeter ruler. If the teeth were tip to tip, the overjet would be zero, and if the maxillary incisors were far behind than the mandibular incisors, they would have recorded as anterior cross-bite. Then, it was investigated in a CO-type relationship.

If the mesial inclination of the upper deciduous canine was placed adjacent to the distal inclination of the lower deciduous canine, the class 1 relationship and, if the upper deciduous canine was placed between the lateral and the lower deciduous canine, the class 2 relationship, and if the maxillary deciduous canine was placed far behind the distal inclination of mandible deciduous canine, the class 3 relationship would have been considered.

Then the child molar relationships were recorded according to the end plates. If the end plate of the second mandibular molar was located forward of the upper maxillary plate, the relationship would be as mesial step, and if the end plates were in the same direction, the relation was in the form of a flush terminal plate, and in the case that, the end plate of mandibular second molar was behind the end plate of maxillary second molar, the relationship would have been considered as a distal step. Ultimately, the overbite (vertical overlapping of maxillary incisor teeth on mandibular incisor teeth) was measured using a ruler. If the teeth were tip-to-tip, the over bite was zero and if there was no vertical overlap between the upper and lower mandibular incisors, it was registered as open bite. Also, in children with a vertical overlap of 3mm or more, that is, more than 75% of the lower crown of an incisor was covered by upper incisor; the vertical relationship was considered to be deep bite. After examining the mentioned cases, the examination form was completed and the next stage was the examination of the mothers and completing the questionnaires.

Mothers referred to the school in the mornings at defined times. The method of completing the questionnaire was explained to them and they were asked to answer the questions carefully. In the first questionnaire, the child's general information was recorded including age, gender, registered name, and then a series of questions about how the baby was fed during the infancy and its duration, the child's habits and their duration, and the condition of the baby's mouth during the rest time were

answered. Finally, a scheduled table of how to feed the baby and the habit of sucking were recorded based on their exact duration. Then the mothers were examined and their molar relations were recorded according to the parasite classification in the questionnaire. Mothers were given explanations about the condition of their children's teeth and their need for treatment, and if children still had sucking habits, they would be ordered to prevent them from further complications. The examinations lasted about 3 months.

Then, the data recorded with the help of a professor of statistical consulting for data processing and then entered into the computer and analyzed by computer programs (SPSS), t-test (ANOVA) and Chi-square test with precision.

Findings:

In this study, 456 children were examined. Of these, 46.7% (213 people) were girls and 3. 53.3% (243 people) were boys (Table 1). The age range of samples was between 4-6 years old. The prevalence of posterior cross bite was 6.2%, the anterior cross-bite was 2.8% (Table 2), open bite 1.7%, Deep BITE (12.5%) (Table 3), and increased over-jet was 1.8% (Table 4).

Canine relationships of samples were 70.2% of Class I and Class II and 1.3% of Class III and 4.6% of tip to tip and deciduous molar ratio of 70/4% and 1/22% for mesial step, and 14.7% for the distal step and 14/9% for flash terminal plan. In fact, 29.6% of the samples had a non-mesial step molar relationship (Table 4). The sample profile position was 89.9% convex, 0.9% concave and 9.2% straight (Table 5).

The dominant nutrition method during the neonatal period was mother's breast. 75.2% of the children were fed only from the mother's breast, 20.4% fed from mother's breast and the milk bottle together, and 4.4% was fed only from milk bottle. (Table 6)

The feeding method of girls and boys showed a significant difference. 81.7 % of the girls (P = 0.01) only fed from the breast of the mother, 15% were fed from the mother's breast and milk bottle together, and 3. 3% were fed only by milk bottle, while 69.5% of the boys only fed from their mother's breast, 25.1% were fed from mother's breast and milk bottle, and only 5.3 % were fed from the milk bottle. Therefore, the use of milk bottle for feeding the boys was more than that of girls (Table 7).

In a group of children fed solely from the mother's breast, the prevalence of posterior cross-bite was 2.9%, the anterior cross-bite was 3.8% and open bite was 6.7% (Table 8). Canine relations in this group were 73.2% in the class I, 19.5% in class II, 2.9% in class III and 4.4% in tip to tip. The relationship between the deciduous molars in this group were 72.9% for mesial step, 12.8% for distal step and 14.3% for the flash plan terminal. The profile of these children was 88.6% convex, 1.2% concave and 10.2% straight (table 8)

In a group of children fed only with a milk bottle, the prevalence of posterior cross-bite was zero, anterior cross-bite was 15% and open-bite was 20%. Canine relations in this group were 50% for class I, 40% for the class II, 5% of the class III, and 5% for the tip to the tip. The deciduous molars relations in this group were 50% of the mesial step, 30% of the distal step and 20% of the plan terminal flash.

In a group of children fed from the mother's breast and milk bottle, the prevalence of posterior cross-bite was 2.2% and the anterior

cross-bite was 4.3% and open bite was 7.5%. The canine relations in this group were 63% of class I, 2.3% of the class II, and class III and 4.5% was for tip to tip. The deciduous molars relationship in this group was 65.6% of the step, 18.3% of the distal step and 16.1% of the terminal flash. The profile of these children was 92.5% convex and 7.5% direct (Table 8).

The mean of over jet in the first group was 89.1 mm, in the second group was 2.90 mm and in the second group it was 44.4 mm. The mean over bite in the first group was 1.14 mm, in the second group was 1.0 mm and in the second group it was 1.23 mm. (Table 9).

According to the results, the prevalence of anterior cross-bite, open-byte, class I-II relationships, molar distal step relationships, convex and over-edged profile, increased with the use of milk bottle, and also increased in the group fed only by milk bottle more than the other groups.

However, there was not a significant correlation between cross bite feeding method (P = 0.08),) P = 0.8) Open-bite (P = 0.023), Canine relations (p = 0/81) and overbite (p = 0.36) profile (p = 0.12) and Molar relations in two genders. There was only a significant relationship between the feeding method and the over jet (P=0/003) (Chart 1).

The prevalence of oral habits was also studied in samples. 75.8% of the samples had no habits, while 13.4% had a pacifier sucking, 9% had a history of sucking a finger and 1.8% had a history of both habits (Table 10) The prevalence of habits in girls was 44.8% and in boys it was 55.1% and there was no significant difference, and the most common habit of both genders was sucking the pacifier.

In those who fed from the mother's breast, the prevalence of habits was 17.2%, in those fed with milk bottle it was 50%, and in those who fed from breast and milk bottle it was 44% (11).

There was a significant relationship between feeding method and habits (P = 0.000). In infants fed solely on the mother's breast, the prevalence of habits was lower than in other groups. The mother's breast has a preventative role for habits. The sucking of the fingers was different in children fed differently, but the prevalence of pacifier sucking in children fed with milk bottle was higher than that of other children (Table 12).

In a group of children who had no habit, the prevalence of posterior cross-bite was 3.2% and open bite was 6.9%, and anterior cross-bite was 4.6%. Canine relations in this group was 71.1% and Class I was 5.20% of Class II, and 3.5% for the class III, 4.9% was for the tip to tip, and the molar relations obtained 71.1% for the mesial step and 14.9% for the distal step and 4.7% for the terminal flash plan. The group was 89.3% convex, 0.6% concave and 10.1% direct (Table 13).

In a group of children who had a pacifier sucking habit, the prevalence of posterior cross-bite was 1.6%, the anterior cross-bite was 4.9%, and open-bite was 4.9%. Canine relations in this group were 65.6% of Class I and 26.2% of the class II and 3.3% of the class III and 4.9% of the tip to tip and the molar relations were 65.6% of the mesial step, 16.4% of the distal step and 18% of the terminal flash plan. The profile of this group was 95% convex and 9.4% straight (Table 13).

In a group of children who had a sucking finger habit, the prevalence of posterior cross-bite

was zero, anterior cross-bite was 2.4% and open bite was 7.3%. Canine relations in this group were 70.7% of Class I, 24.8% of the class II and 2.5% of the tip to tip, and the molar relations were 62.5% of the mesial step and 37.5% of the distal step. The profile of this group was 85.4% convex 14.9% concave and 9.8% straight (Table 13).

In a group of children who had both habits, the prevalence of posterior and cross-bite was 0% and open-bite was 50%. Canine relations in this group were 62.5% for Class I and 37.5% for Class II, and molar relations of 62.5% were 25% for mesial step, 25% for distal step, and 12.5% for flash terminal plan. The profile in this group was 100% convex (Table 13).

The mean of over jet in the first group was 1.96 mm, in the second group it was 21.2 mm, and in the second group it was 2.25 mm and in the fourth group was, 4.25 mm. The mean of over bite in the first group was 1.14 mm, in the second group it was 23.1 Mm, in the third group was 1.40 mm and in the fourth group it was zero (Table -14).

The conducted analyzes didn't show any meaningful relationships between habits and variables such as cross-bite, canine relations, Molar relationships and profiles, while there was a meaningful relationship between habits and over jet (p = 0/000) open bite (p = 0.023)) overbite p = 0.005).

Sucking habits increased over jet, reduced overbite, and increased open-bite prevalence.

The prevalence of oral respiration in children was 15.1%, and among occlusive features only open bite revealed a significant relationship with oral respiration. The open-bite outbreak in those with oral breathing was twice as likely as those who did not have oral breathing (Table 15).

The relationship between permanent molars in mothers was 72.8% in class I, 23% in class II, and 3. 3. in class III (Table 16). Children of mothers in Class I had 76.8% molar mesial step, 10.5% distal step relation and 12.7% of flash terminal plan relation. Children of mothers in Class II had 50.5% of the molar mesial step relationship, 29.4% of the distal step and 20.2% of flash terminal plan. Children of mothers in Class III had 73.3% of molar mesial step relation and 26.7% of the planar terminal flash relation (Table 17).

There is a meaningful relationship between the molar ratio of mothers and the deciduous molar relationship in children (p = 000/0). In fact, the relationships between the deciduous molars is consistent with the relationship between the permanent molars of mothers. This relationship is more obvious in children who fed from the mother's breast or fed from the mother's breast and milk bottle together.

Discussion

Baby feeding method

The benefits of feeding the baby from the mother's breast are immunologically, evolutionally and nutritionally clear to everyone. The high levels of vitamins and minerals needed by the baby in breast milk increase the health of the baby. Meanwhile, the entry of immunoglobulin half enzyme and leukocytes through breast milk helps the baby to resist against bacterial and viral infections. It has been shown that breastfeeding in infancy increases neurodevelopment and reduces the risk of allergies, rhinitis, asthma and dental caries (7).

In addition, evidences suggest that breastfeeding causes the formation of a healthy sucking pattern in the baby, which can play a preventative role in the habit (7). Therefore, mother's breast has been considered as the best baby feeding method for many years.

The relationship between infant feeding and occlusive characteristics has not been studied in details. Studies have shown that the pattern of nutrition of the baby is various in different societies. The aim of this study was to investigate the prevalence of different infant feeding methods and sucking habits and their relationship with occlusion of dental teeth in preschool children in Qazvin for the first time.

In this research, 456 preschool children, including 213 girls and 243 boys, were examined. A questionnaire was also provided by their parents about their nourishment and their children's habits.

According to the findings table (Table 6), the most common feeding method was the mother's breast for first two years of life, and 95% of the children were breastfeeding at the age of 20 months. The dominant method of feeding the baby in our research is very different from other researches. In many societies, especially western countries, the predominant method is feeding the infant using milk bottle. The difference in nutrition pattern in our society with other societies can be found in the difference of cultures. In Asian countries, especially Muslim countries such as Iran, mothers are paying more attention to their children and spending more time feeding their babies in comparison with other countries due to certain traditions and customs.

Therefore, most babies are breastfed. Additionally, according to a study conducted in Shanghai on 3285 newborns there was a significant between the low or high birth weight, birth with cesarean section, high parental education, smoking by mother and male, and the breastfeeding. Each of these factors varies in different societies (10).

In the findings, the sale of nutrition and gender relationship has a significant meaning. In fact, mothers were more likely to use the milk bottle for feeding their son's children (Table 7). This relationship is also shown by yue chen. The similarity of our findings with the yue chen findings can be due to the fact that both studies were conducted in Asia and probably with the same nutritional patterns (10).

The prevalence of finger sucking was not significantly different in children fed with different methods, but the prevalence of pacifier sucking in children fed with milk bottle was higher than that of other children (Table 12). These results were consistent with the studies of larrson and farsi and Colleagues, victoria et al., Vadia kas et al., and reflecting the views of straub, graber and turgeon obrein about the effect of the milk bottle on the formation of inappropriate sucking patterns. Hendershot also achieved similar results. Breastfeeding prevents and reduces the incidence of sucking habits due to creating proper pattern of sucking in baby (11-13).

The relationship between nutrition and occlusion

According to Chart (4-1), there is a meaningful relationship between the feeding from milk bottle and the increase of over jet (14). This connection was also shown by bell and davis.

In our findings, there was no correlation between the posterior cross bite and feeding of

the milk bottle. Qgaard et al., who were studying about the posterior cross-bite factors, also did not find any relationships between the posterior cross-bite and the milk bottle feeding. Nevertheless, vaggiano and colleagues in a study conducted in Italy concluded that the posterior cross-bite is more common in children fed with milk bottle, but there is no relationship between open-bite and feeding method (9).

Our results on the relationship between feeding method and open bite are consistent with the findings of vaggiano and his colleagues, but there are two reasons why there is a difference in the relation between feeding method and posterior cross-bite:

1- In our sample, the prevalence of milk bottle feeding was very low compared to other studies; and 2- None of the samples had been fed with milk bottle for a long time (2 years or more), and with this, cross-bites Posterior, possibly require more time to be created.

Habits

To satisfy the inherent need for sucking, most children have a kind of non-nutritional sucking habits that today's two main types are sucking a finger and a pacifier. In the early years of birth, the prevalence of sucking habits is high, but they decrease as age rises. In some children, the staying of habits at older young age turns them into a problem from a natural one, causing parents to be worried (2).

From previous years, sucking habits have been considered as factors causing change in occlusive characteristics. Several studies have been conducted to investigate these changes and their prevalence and relationship with the occlusion of dental teeth (5).

24.2% of the examined children in Qazvin had a history of at least one oral habit (Table 10), which its rate is less than other studies. For example, according to studies, the prevalence of sucking habits in Stockholm is 88 percent, in Brazil, 69.7 percent, in Saudi Arabia 48.3 percent, in Norway 89 percent, and in Yazd city is about 50 percent. The difference in the prevalence of habits with regard to research can be related to the age and level of education of the parents, the way of feeding, not having an older sister or brother, and the degree of solidarity in different societies (4-8).

Meanwhile, these results indicate that inappropriate patterns of sucking and habits in children who live in industrialized and developed countries are more than other societies. This matter was also shown in studies by Adair et al., Larsson et al., and Warren et al.

In some studies, the prevalence of habits in girls was higher than that of boys, but in our findings there was a significant difference in the prevalence of habits between girls and boys. In studies by Katz et al, Adair et al., and Paunio et al., the prevalence of habits in girls and boys was the same. This disagreement in different societies can indicate that the environmental factors play a more important role in generating habits than genetic factors (15).

The relationship between habits and occlusion

Our findings showed that the prevalence of canine relationships in class II and distal step molars relationships in children with a history of sucking habits is more than other children (Table 13). Meanwhile, we found a significant relationship between sucking habits and

increment in over jet, reduction of over bite and an increase in open-bite prevalence (Figures 4-2 and 4-3), but there was no relationship between posterior cross bite and sucking habits.

The findings of farsi (12) and charchut (7) and his colleagues are consistent with our results, and they have not found any relationship between sucking habits and posterior cross-bite, while other studies have shown the relationship between posterior cross bites and sucking habits.

For example, moder proposed the one-way cross-bite as one of the most commonly found in children who still had sucking habits after 2 years of age. Qgaard et al., Modeer and Adair, linder et al., and Waren et al. also described posterior cross-bite as one of the side effects of sucking habits (2,15,5).

The main reason for this discrepancy is that in the present study, as the outbreak of sucking habits was less than that of other societies, the habit duration was low as well, that is, the children who were examined all had quit the habit of sucking fingers up to the age of 1, and the pacifier sucking up to 2 years of age (Except for one person).

On the other hand, according to conducted researches, at least two years of sucking habits are necessary to produce specific effects on occlusion. Thus, it can be concluded that the effects of sucking habits on the anterior part of the jaw are caused earlier (e.g. excessive increase, over bite reduction, and open-bite development). While the creation of posterior cross bites requires longer periods of time, the frequency and intensity of habits also play a role in creating different effects that vary in different specimens.

Comparison of Mothers' Molar Relations with children's Molar relations

According to our findings, the molar relations of children largely follow the mothers' molar relationship, especially in children fed from the mother's breast, there was more similarity, and it shows the role of inheritance.

For example, the prevalence of non-mesial relations in deciduous molars of children who had mothers of class 2, was twice that of these children (Table 17). This relationship is clearer in the absence of environmental factors such as sucking habits.

Conclusion:

1. The most common baby feeding method in the first 2 years of life in Qazvin was breast-feeding, and 95% of our babies had been breastfed for about 20 months.

2. Mothers used more bottle milks for the boys than girls to feed them.

3. The prevalence of pacifier sucking in children fed with milk bottle was higher than that of other children.

4. There was a clear connection between the use of the milk bottle and the increment in over jet.

5. About 2 to 24 out of 24 examined children had at least one kind of oral habit, which its rate is less than that of other communities.

6. There was a significant relationship between sucking habits with an increase in over jet, an overbite reduction, and an increase in open-bite prevalence.

7. The relationship between the child's deciduous molars and the permanent molars relationship of the maternity was similar. This

similarity was more obvious in the absence of oral habits.

8. According to the above, habits have a more important role in the formation of occlusion and should be more taken into consideration. Therefore, dentists who recognize such habits in children should be aware of them and pay more attention to their treatment.

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Tables and Charts:

Table 1: Frequency of preschool children in Qazvin city by gender

Gender/ Frequency	numbers	Percentage
Girl	213	46.7%
Boy	243	53.3%

Table 2: Cross Bites in Preschool Children in Qazvin City

Frequency / type	numbers	Percentage
Anterior	13	2.8
Posterior	12	2.6

Table 3: Frequency of Types of General Relations in Preschool Children in Qazvin City

Frequency / type	numbers	Percentage
Soft over bite (0-3)	367	80.4%
Open bite	32	7.1%
(Deep bite(	57	12.5%

Table 4: Frequency of anterior-posterior relationships in preschool children in Qazvin

Frequency / type		numbers	percentage
Over-jet	Normal (4-0)	389	85.3%
	increased	54	11.8%
Canine relations	class I	320	70.2%
	class II	101	22.1%
	class III	14	3.1%
	Tip to tip	21	4.6%
Molar relations	Mesial step	321	70.4%
	Distal step	67	14.7%
	ftp	68	14.9%

Table 5: Types of profile in Preschool Children in Qazvin

Frequency / Types	numbers	Percentage
Convex	410	89.9%
Concave	4	0.9%
Direct	42	9.2%

Table 6: Frequency of various nutritional methods of preschool children in Qazvin during infancy

Frequency / feeding method	numbers	Percentage
mother's breast	243	75.2%
milk bottle	20	4.4%
Both of them	93	20.4%

Table 7: Frequency of gender feeding method in preschool children in the city of Qazvin

Feeding method / Gender	mother's breast	Milk bottle	Both	Total
Girl	81.7%	3.3%	15%	100%
Boy	69.5%	5.3%	25.1%	100%

Table 8: The Relationship between feeding method and Occlusion Characteristics in Preschool Children in Qazvin City

Occlusion / Characteristics		Mother's breast	Milk Bottle	Both
Cross bite	Posterior	2.9%	0%	2.2%
	Anterior	3.8%	15%	4.3%
Open bite		6.7%	20%	7.5%
Canine relations	class I	73.2%	50%	63%
	class II	19.5%	40%	28%
	class III	2.9%	5%	3.2%
	Tip to tip	4.4%	5%	5.4%
Molar relations	Mesial	72.9%	50%	65.6%
	Distal step	12.8%	30%	18.3%
	FTP	14.3%	20%	16.1%
Profile	Convex	88.6%	100%	92.5%
	Concave	1.2%	0%	0%
	Direct	10.2%	0%	7.5%

Table 9: The relationship between overbite and over jet and feeding method in preschool children in Qazvin

Feeding method / Over jet & over bite	Mother's breast	standard deviation	Milk Bottle	standard deviation	Both	standard deviation
over jet average (mm)	1.89	1.16	2.90	1.55	2.44	1.25
over bite average (mm)	1.14	1.52	1.10	3.38	1.23	2.28

Table 10: Frequency of habits in pre-school children in Qazvin city

Kind of habit / Frequency	Sucking pacifier	sucking finger	Both	Without habit
Numbers	61	41	8	346
percentage	13.4	9	1.8	75.8

Table 11. The Relationship between feeding method and Habits in Preschool Children in Qazvin

Feeding method / Kinds of habit	Mother's breast	Milk Bottle	Both
Yes	17.2%	50%	44.1%
No	82.8%	50%	55.9%

Table 12: The Relationship between feeding method and Kinds of Habits in Preschool Children in Qazvin

Feeding method / Kinds of habit	mother's breast	milk bottle	Both
Without habit	82.8%	50%	55.9%
pacifier sucking	6.4%	35%	34.4%
finger sucking	9.9%	10%	5.4%
Both	0.9%	5%	4.3%

Table 13: Relationship between habits and occlusion characteristics in preschool children in Qazvin

occlusion characteristics	Kinds of habit	Without habit	pacifier sucking	finger sucking	Both
cross-bite	posterior	3.2%	1.6%	0%	0%
	anterior	4.6%	4.9%	2.4%	0%
open-bite		6.9%	4.9%	7.3%	50%
Canine relations	class I	71.1%	65.6%	70.7%	62.5%
	class II	20.5%	26.2%	26.8%	37.5%
	class III	3.5%	3.3%	0%	0%
	Tip to tip	4.9%	4.9%	2.5%	0%
molar relations	Mesial step	71.1%	65.6%	62.5%	62.5%
	Distal step	14.2%	16.4%	37.5%	25%
	fip	14.7%	18%	0%	12.5%
profile	convex	89.3%	95.1%	85.4%	100%
	concave	0.6%	0%	45.9%	0%
	straight	10.1%	4.9%	9.8%	0%

Table 14: The relationship between habits and overbite and overjet in preschool children in Qazvin

Habits / Over jet & over bite	No habits	Standard deviation	Pacifier sucking	Standard deviation	Finger sucking	Standard deviation	both	Standard deviation
Over jet average (mm)	1.96	1.72	2.21	1.95	2.05	1.13	4.35	4.97
over bite average(mm)	1.14	1.17	1.23	1.05	1.40	1.27	0.00	2

Table 15: Oral breathing relationship with open bite in preschool children in Qazvin

oral respiration / open bite	Yes	No
Yes	13%	6.5%
No	87%	93.5%

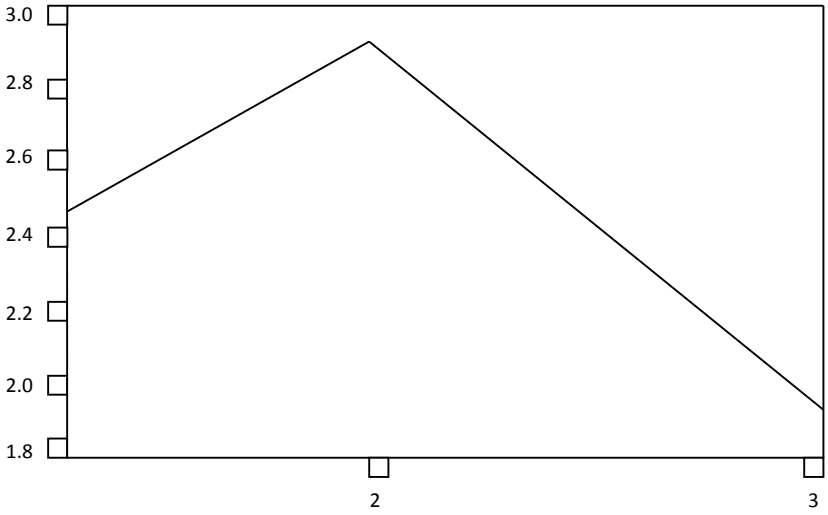
Table 16: The Relationship between Permanent Molars of the mothers of Preschool Children in Qazvin

Class / Frequency	Numbers	Percentage
Class I	332	72.8%
Class II	109	23.9%
Class III	15	3.3%

Table 17: Comparison of the relationships between deciduous molar of children and molar of mothers in Qazvin

Deciduous molar relationship / Permanent molars relationship	Mesial step	Distal step	ftp
Class I	76.8%	10.5%	12.7%
Class II	50.5%	29.4%	20.2%
Class III	73.3%	0%	26.7%

Chart 1: The relationship between feeding method and over jet in preschool children in Qazvin



1-Breast of Mother and milk bottle

2- Milk bottle

3. Breast of the mother