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The frequency of using different types of pacifier and bottle nipple among 1-24 months old children

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Original Article

Abstract

BACKGROUND AND AIM: Sucking of some types of a pacifier may be a risk factor for mal-development of orofacial structures and malocclusion. This study assessed the prevalence of using of different types of pacifier and bottle nipple among 1-24 months old children in Kerman, Iran.

METHODS: In this cross-sectional study, a total of 300 mothers interviewed at 20 specialized private pediatric offices in Kerman. The mothers had 1-24 months old children. A checklist includes items about pacifier sucking, bottle feeding habits, as well as mothers' ability to recognize different kinds of available pacifier and bottle nipple was used.

RESULTS: The rate of pacifier-sucking was 37.3%, and use of bottle feeding was 42.3%, and among of the users, 24.0 and 35.7% were used orthodontic (functional) types of pacifier and bottle nipple respectively. However, only 28.7% of mothers had adequate ability to recognize orthodontic pacifier and bottle nipple.

CONCLUSION: The rates of using orthodontic kind of pacifier and bottle nipple were low, and a few mothers had adequate ability to recognize their differences.

KEYWORDS: Pacifier, Bottle Feeding, Bottle Nipple, Breast Feeding, Sucking Habits

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Sucking habit is an action that starts in the beginning of life and normally stop until 3.5 years old. Sucking habit is generally in two forms: Nutritive and non-nutritive.¹ Non-nutritive sucking is a natural reflex for infants and newborns. Babies with limited breastfeeding satisfy their instinct sucking with a pacifier or other habits such as finger sucking.^{1,2} Among non-nutritive habits, using a pacifier is very common. It was reported by a prevalence of 75-79% in industrialized western countries in recent decades. Hence, nutritive and non-nutritive sucking habit seem to be associated with cultural and economic factors that affect

the population.³

According to different studies, using of a pacifier can be profitable until 6 month year olds. The some of its advantages include: Analgesic and relaxation effects, shorter hospital stay for preterm fetus, reduction in the risk of sudden infant death syndrome, pain relief in newborns and fetus undergoing minor procedures in the emergency department.²

Disadvantages of pacifier use especially for long-term include: negative effect on breastfeeding, ear disorders (otitis media) and dental malocclusion. The studies have shown the most substantial malocclusions

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occurred in children who continued sucking habits more than 48 months and include: Anterior openbite, increased overjet, induce class II canine relationship and cross bite.^{2,4}

Another potential disadvantage is accidents such as airway obstruction. However, the association of pacifier use and lower intelligence quotient (IQ) is controversial. A few studies have shown that pacifier use is also positively associated with oral candidiasis.⁵

According to these effects of the pacifier, a new design of pacifier and bottle nipple were introduced, known as the functional (orthodontic) nursing nipple and orthodontic pacifier/exerciser. This design was improved as encouraging muscular movements, that more closely similar to those used by an infant during breastfeeding, consequently leading to more normal dental arch development.⁵ Some benefits of using an orthodontic pacifier are infant lip comfort, good adaptation, better nose breathing, and better labial seal.¹

Due to the importance of the issue, and lack of any previous study to determine the frequency of pacifier use in Iran, this study was designed to verify the frequency of using different types of pacifier and bottle nipple among 1-24 months old children in Kerman, Iran, year 2013-2014.

Methods

In this cross-sectional study, a total of 300 mothers interviewed at 20 specialized private pediatric offices in Kerman. In this formula, the sample size was calculated based on the formula for estimating a proportion (prevalence). We assumed $P = 0.50$ and $Z_{(1-\alpha/2)} = 1.96$ in the formula. We calculated $n = 257$ and finally we increased it to 300.

The mothers were selected by multistage stratified sampling procedure. They had 1-24 months old children. The information was presented to mothers about aim and method of the study and was taken their consent. A questionnaire includes items about pacifier sucking, bottle feeding habits, and their kinds

as well as mothers ability to recognize different kinds of available pacifier and bottle nipple was used during the interview. In the end of interview, some information about advantage and disadvantage of pacifier use and their kinds were given to the mothers by a resident of pediatric dentistry. $P < 0.05$ was considered as significant. Data were analyzed using Stata software (version 11.2, Stata Corporation, College Station, TX, USA) and a chi-square test was used.

Results

Sample distribution according to age and sex displayed in table 1. The frequency of the different kinds of pacifiers and bottle nipples are showed in table 2. The results demonstrated that the majority of children (57.7%) had breastfeeding. The frequency of pacifier use and its type is showed in table 2. The majority of children (62.7%) did not use any pacifier. The rate of current or previous pacifier-sucking was 37.3% and among the users, 24.0% were used orthodontic type.

Table 1. Sample distribution according to the children age and sex

Variables	n (%)
Sex	
Female	158 (52.7)
Male	142 (47.0)
Age (month)	
0-5	59 (19.1)
6-11	85 (28.0)
12-17	75 (25.0)
18-24	81 (27.0)

According to children gender, there was no statistically significant difference ($P = 0.90$). Only 28.7% of mothers had sufficient ability to recognize functional (orthodontic) pacifier as well as functional bottle nipple.

Discussion

Results of the current study demonstrated that the majority of children (57.7%) had breastfeeding. In the present study, the frequency of pacifier sucking was 37.3. The

Table 2. Frequency of children according to type of feeding, type of used bottle nipple and type of pacifier

Type of feeding	n (%)	95% CI
Breast feeding	173(57.7)	51.86-63.32
Bottle feeding	22 (7.3)	4.65-10.89
Both breast and bottle feeding	105 (35.0)	26.61-40.69
Type of bottle nipple		
Conventional	177 (59.0)	53.20-64.62
Functional	107 (35.7)	30.25-41.37
Not buying	16 (5.3)	3.08-8.52
Use of pacifier		
Yes	112 (37.3)	31.84-43.08
No	188 (62.7)	56.92-68.16
Type of pacifier		
Conventional	40 (13.3)	9.60-17.71
Functional	72 (24.0)	19.28-29.24
Not use of pacifier	188 (62.7)	56.92-68.16

CI: Confidence interval

prevalence of pacifier use among varies countries is different from 12.5 to 71.0%. Some countries such as Japan (12.5%), New Zealand (14.0%) and China (16.0%) had the lowest rates of pacifier use.⁶ In European countries pacifier use varied from 36.0 to 71.0%.⁵ Jahanbin et al.⁷ evaluated the association between socio-demographic factors and nutritive and non-nutritive sucking habits and found that the prevalence of pacifier use among girls children in Mashhad, Iran, was 26.0% that is lower than that reported by some investigator: 40.0, 37.0 and 40.0 percent in the United State of America, Norway and Saudi Arabia, respectively.

There is little information as to the reasons for such wide variation between countries. It seems cultural and socio-economic differences among the countries are one of the reasons. Some studies reported that some factors such as parents educational level, child's birth rank and number of sibling had a significant effect on the prevalence of pacifier use. They claimed that children of lower socio-economic status demonstrated pacifier use a more frequent.⁸

Farsi and Salama⁸ found pacifier use to be the more prevalence among the children of

parents with higher educational levels. It is unclear why less educated parents were less likely than others to have children with a pacifier-sucking habit; however it could be due to the more time that educated mothers spend working outside the home for working.⁷

According to the study of Warren et al.,⁹ older maternal age and higher maternal education level as well as having no older siblings were the most important factors in children developing prolonged non-nutritive sucking habits. And children whose birth rank was the 4th or more were significantly less likely to have a pacifier-sucking habit (7.8%) than those who were the 1st child (45.7%) and 2nd or 3rd child (46.6%).⁹

In the present study, the frequency of using conventional pacifier and orthodontic pacifier were 13.3 and 24.0%, respectively. Adair et al.¹⁰ reported the prevalence of using conventional pacifier 17.4% and orthodontic pacifier 37.0%. Although the prevalence of pacifier use in that study was more than current study but in both studies orthodontic pacifier was twice as prevalence as a conventional pacifier.

At first of the study, the mothers were uncooperative so it took a long time to

convince them to participate in the study.

Conclusion

The frequencies of using orthodontic kind of pacifier and bottle nipple were low, and a few mothers had adequate ability to recognize their differences.

Conflict of Interests

Authors have no conflict of interest.

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