

Impact of Maternal Education and Dental Visits on Age of Pacifier Withdrawal and Caries Incidence

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Introduction

Pacifier is a latex or silicone nipple mounted on a wide plastic shield - can be a sanity saver, especially when the baby is fussy. The term pacifier is derived from the Latin word - *Pacificare* which means 'to bring peace' or 'to soothe or calm. These are available as physiological / orthodontic pacifiers and non physiological / traditional pacifiers. The sucking action will calm babies and can even help some of their jaw muscles develop properly. So the use of pacifiers to satisfy the sucking instinct is a widely extended practice.^{1,2,3}

Recent studies on non-nutritive sucking-behaviors, such as pacifier use and digit sucking, have reported the prevalence rates ranging from 47% to 90%,^{2,4} with pacifier use cited as the most predominant of these habits in the early childhood.⁴ Some authors consider that non-nutritive sucking is a manifestation of the innate biological drive for sucking. According to them, digits, pacifiers, or toys

A B S T R A C T

Purpose: To evaluate the effects of maternal education and dental visits on the age of pacifier withdrawal and caries incidence in children

Methods: The dental histories of mothers of 100 children with age group of 4 to 8 years were obtained along with their educational level, frequency of dental check-ups & age of pacifier withdrawal. Data were analysed by using independent samples t-test, one way ANOVA, two-way ANOVA.

Results: There was a significant effect of maternal education on the age of pacifier withdrawal and the caries incidence; higher the maternal education, younger the age of pacifier withdrawal and less caries incidence. The frequency of dental visits influenced relationship between maternal education and age of pacifier withdrawal.

Conclusion: Unhealthy oral habits such as prolonged pacifier use and the caries prevalence can be reduced with the regular dental check-ups and higher levels of mother education. So we recommend that children should start dental visits at an early age and maintain visits at regular intervals.

Keywords: Pacifier use, Dental caries, Maternal education, Dental visits.

could serve primarily to satisfy instinctive needs^{2,4} while pacifier use at 4 years or older is considered as an extended habit. The World Health Organization and the American Academy of Pediatrics have condemned pacifier use due to the negative impact on breastfeeding and child health⁵. Non-nutritive sucking (NNS) with pacifiers in various forms has been used by humans for possibly thousands of years. NNS can soothe infants and young children, assist with transitioning to sleep, alleviate the discomfort of teething, and provide comfort during stressful episodes. The dental literature has focused on the changes created by pacifier use on the occlusion and perioral tissues.¹⁻⁵ Pediatric dentists should be aware of the risks and benefits of pacifier use.

L'Hoir MP, Engelberts AC stated that Pacifiers also may reduce the threat of sudden infant death syndrome (SIDS) because its use increases upper airway muscle tone and reduce the likelihood of airway collapse during sleep⁶. In fact, the American Academy of Pediatrics (AAP) recommends that babies up to 1 year old can use pacifiers at bedtime and naptime. Zhang et al⁷ explained that mothers tend to be more involved than fathers in child care. Maternal education may play a vital role in the improvement of oral health habits⁸.

So, the present study aims to analyse both the separate and combined influences of maternal education level and visits to the dentist on prolonged pacifier use and the caries incidence.

METHODS

The Study was conducted in the Department of Pediatric and Preventive Dentistry, P.M.N.M Dental college and hospital, Bagalkot, Karnataka. The mothers of 100 children were divided into 3 groups as group I – mothers with low educational level, group II – mothers with medium educational level & group III – mothers with high educational level. The average child's age at the time of survey was 5.91 years ranging from four to eight years. Mother's educational level was characterized based on the highest official academic degree obtained by the mother as - low (who finished primary schooling only), medium (who obtained pre – university degree) or high (who were graduated). Mothers completed a structured questionnaire including socio-demographic items (age, gender, educational level) and questions about their child's dental history and oral health habits (Frequency of dental check-ups, Age of pacifier withdrawal, Oral health problems). The child's visit to the dentist for regular check-ups was assessed by asking the question – “Did you bring your child to the dentist for periodic check-ups?” The age at which the child stopped using the pacifier was indicated by the parents that were asked “How old (years or months) was your child at age of pacifier withdrawal?” Then the educational level of mother, frequency of dental check-ups, Age of the pacifier withdrawal of the child and DMFT/deft scores of the child were compared using World Health Organisation criteria, 1983.

STATISTICAL ANALYSES

Descriptive (means and standard deviations) and inferential statistics were calculated. Data were analysed by means of common procedures of comparisons of means, such as Analysis of Variance (ANOVA) and t tests. The effect of maternal education on the age, at which pacifier usage was stopped, was assessed with a one way analysis of variance (ANOVA). A two way factorial ANOVA was used to explore the interaction between maternal education and dental check-ups on age of pacifier withdrawal.

RESULTS

In this study, it was observed that the age of pacifier withdrawal was significantly affected by maternal educational level. The mean age of pacifier withdrawal decreased as maternal education level increased as shown in Table 1. There was no significant difference between medium and high maternal education level in age of pacifier withdrawal. The frequency of dental check-ups was found high with higher maternal education level as shown in Table 2. The caries incidence was less in the children of the mothers with high maternal education compared to children of the mothers with medium and low educational level as shown in Fig 1. ($p < 0.05$).

DISCUSSION

References of modern pacifiers, called “coral teeth rings” or “sugar tits”, date back to the

end of 15th century and the beginning of 16th century^{2, 7, 12}. As some authors have pointed out, the process of industrialization and modernization of the society, which requires participation of females in the labour force, has entailed a reduction in breast feeding and it has made children more likely to adopt to the habit of sucking fingers and pacifiers.¹³ The current study highlights the importance of pediatric dental visits in promoting proper oral health care specifically among parents with low education. The results revealed joint effects of maternal educational level and regular check-ups on the age of pacifier withdrawal. Low maternal education and infrequent dental visits prolonged pacifier use¹⁴. Regular visits to the dentist can significantly decrease the age at which pacifier is withdrawn among children of mothers with low and intermediate educational levels. Conversely, children who do not regularly receive dental check-ups tend to use the pacifier longer. Therefore, pacifier use relies on an important interaction between maternal education and regular dental visits rather than maternal educational level alone.⁸ North et al⁹ found that mothers with a minimal education level were more than twice as likely to give their child a pacifier compared to mothers with a university degree.

Age of pacifier withdrawal	Low level	%	Medium level	%	High level	%
6 months	0	0.00	1	2.50	2	6.67
1 year	1	3.33	2	5.00	8	26.67
1.5 years	2	6.67	3	7.50	14	46.67
2 years	6	20.00	17	42.50	4	13.33
2.5 years	7	23.33	12	30.00	1	3.33
3 years	14	46.67	5	12.50	1	3.33
Total	30	100.00	40	100.00	30	100.00
Chi-square=35.3347, p=0.0001*						

Table 1. Comparison of educational levels of mothers with the age of pacifier withdrawal of their children

Frequency of Dental Check-ups	Low level	%	Medium level	%	High level	%
3 months	4	13.33	4	10.00	6	20.00
6 months	5	16.67	10	25.00	14	46.67
1 year	9	30.00	12	30.00	6	20.00
2 years	12	40.00	14	35.00	4	13.33
Total	30	100.00	40	100.00	30	100.00
Chi-square=11.1499, p=0.0838						

Table 2. Comparison of educational levels of mothers with frequency of dental check-ups of their children

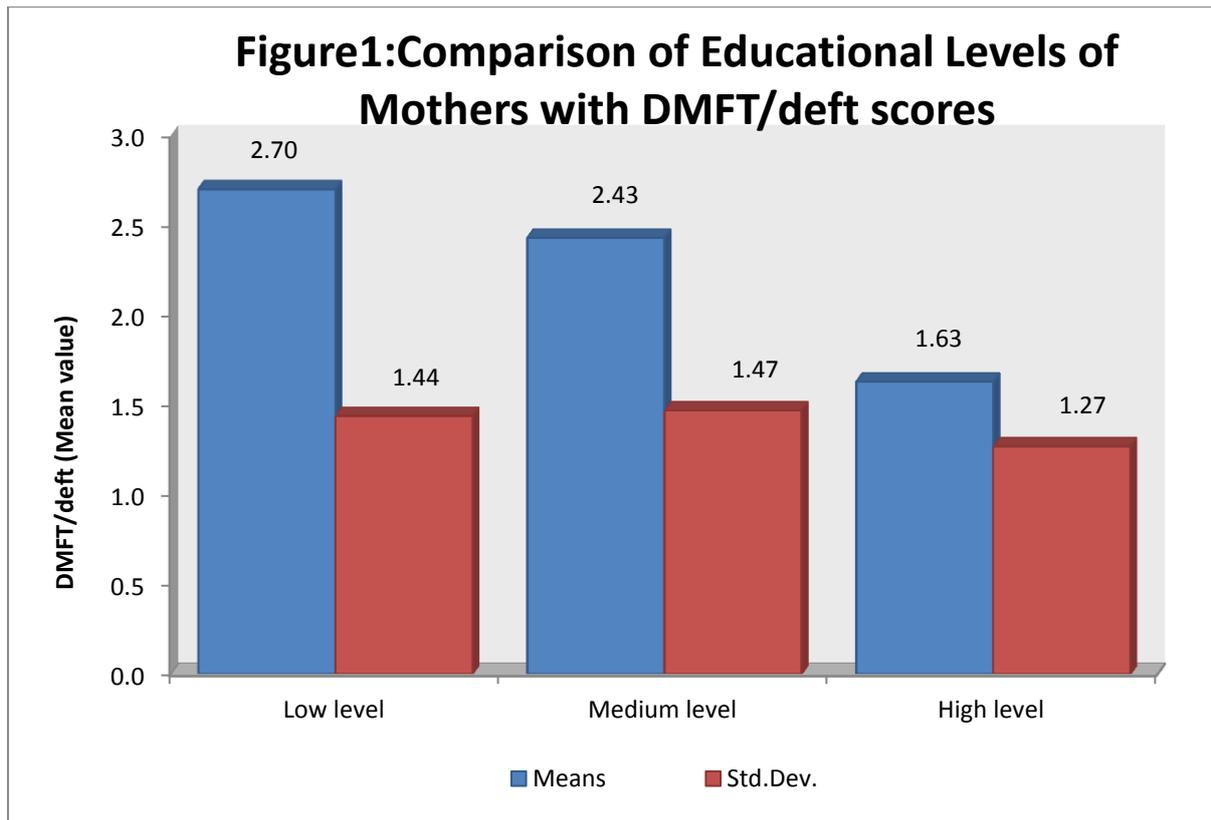


Fig1. Comparison of educational levels of mothers with DMFT /deft scores of their children

However, there are contradictory studies showing that a higher parental¹⁰ or maternal⁴ education was associated with a prolonged pacifier habit. Previous research has found that maternal education significantly affects the use of dental care services and child dental health.¹¹ Children of mothers with a low education level tend to visit the dentist less frequently.

Oral health care information alone does not necessarily change unhealthy habits. A study has found that mothers of at risk pre-school children had only superficial knowledge, attitudes & behaviours about their child's dental health, in spite of regular visits to pediatric dentist¹⁵. Previous researchers have found an association between social factors &

pacifier use. For example, North et al⁹ reported that socially disadvantaged mothers were more likely to allow their children to use a pacifier. The use of pacifiers as a means to control negative behaviours (eg; crying or fussing) in short term¹⁶ is a common practice. Topic of pacifier use has received considerable attention and contradictory results have frequently lead to further discussions¹⁷, few studies have previously taken into account the relationship between maternal education & pacifier use. In particular, dental advice to the high risk groups of dental caries should be offered during dental consultations.¹⁸ Pediatric dentists should be made aware of their influence on patient knowledge and behaviours.⁵ They can provide parents & caregivers with reliable information on

maintaining good oral health habits starting in early childhood. The advice given by dental professionals has been shown to be the most efficient method for decreasing pacifier use; however it may also be the one least often practiced. The current study highlights that children of mothers with low educational level had increased caries incidence in their children compared to the children of the mothers with medium and high educational level. And this is in relation to the study done by Nazan Kocatas Ersin and Nesrin Eronat which states that the children with lower maternal education possess high risk for caries¹⁹.

CONCLUSIONS

1. The age of pacifier withdrawal significantly varies with educational level of mothers.
2. Higher the maternal educational level, lesser the age of pacifier withdrawal
3. Regular dental visits can also moderate the negative contribution of low maternal education to the age pacifier withdrawal; indicating the critical role of early dental visits, particularly for children of mothers with low and medium education levels.
4. Paediatric dental care practitioners play a vital role in the promotion of healthy oral habits and child oral health care.

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