# Pacifier-sucking and Breast-feeding: A comparison between the 1960s and the 1990s

Rune Lindsten, DDS, PhD Erik Larsson, DDS, Odont. Dr

#### ABSTRACT

**Purpose:** Pacifiers and their forerunners have been condemned in past centuries, probably beginning in the 17<sup>th</sup> and 18<sup>th</sup> centuries when alcohol and opiates were incorporated as fillings in sucking rags in Great Britain. Nowadays, the modern pacifier is criticized for reducing breast-feeding time and encouraging weaning. The purpose of this study was to analyze if pacifier-sucking has been detrimental to breast-feeding in the past few decades.

Methods: In the present study, 2 groups of young children born 30 years apart (1967 and 1995 to 1997) in the same geographic area were analyzed in the first 6 months of age regarding their sucking and feeding habits, including initial and prolonged pacifier-sucking and breast-feeding.

**Results:** Findings do not support the commonly held opinion that pacifier-sucking reduces breast-feeding time. In the 30 years that separate the 2 groups, the pacifier-sucking habit increased by 32% and prolonged use of a pacifier increased. At the same time, breast-feeding at 6 months old has increased 20-fold in the contemporary group (born between 1995 and 1997) as compared with the 1967 group.

**Conclusions:** The results suggest that mothers might be unable to satisfy their child's sucking urge through breast-feeding alone, and that they use the pacifier as a supplement. Pacifier use does not negatively affect the prevalence of breast-feeding.

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Pacifiers are frequently used to satisfy the sucking urge of infants in most Western cultures. Several publications describe the various shapes of these pacifiers and the advantages and disadvantages of their use.<sup>1</sup> Designs of present-day pacifiers have their origins in the mid-19<sup>th</sup> century when rubber came into use.<sup>2</sup>

Before the introduction of modern pacifiers, various substitutes were available, including rag bags, strips of gauze, or some other thin cloth knotted to enclose various foodstuffs inside the bag. These rag bags contained pieces of bread, grain, meat, or fish and have been used throughout Europe and in Russia. The various foods were moistened in the infant's mouth or by using honeyed milk.<sup>3,4</sup> The rag bags used by the Finns and Lapps contained pieces of fat, which would be appropriate considering the cold weather in these areas.

Sucking rags have probably been in use for a long time, but their existence has been documented only in the last 500 years. They were most likely put into young children's tombs with other familiar objects from the child's surroundings such as clay vessels and tooth-sticks. But because of the degradable nature of the rags, none have been found in these tombs.

Dr. Lindsten, associate professor, head, Department of Orthodontics, The Institute for Postgraduate Dental Education, Jonkoping, Sweden, and Dr. Larsson, professor emeritus, University of Oslo, Oslo, Norway.

Correspond with Dr. Lindsten at <u>rune.lindsten@lj.se</u>

Besides being used to satisfy the child's sucking urge, the sucking rags were sometimes filled with a mixture containing honey. Even intensive suckers would be able to derive satisfaction from the taste of the honey for a minute or so, and honey is known for being able to alleviate pain. It was often given to children before minor surgeries such as ritual circumcision.<sup>3</sup>

Three to four hundred years ago, sucking rags fell into disfavor. In the 17<sup>th</sup> and 18<sup>th</sup> centuries, urban populations in the UK grew rapidly, due in part to industrialization and higher birth rates. At the time, it had become common to quiet a hungry or sick child by adding alcohol and even opiates to the filling in the sucking rags.<sup>5,6</sup> As a result, comments from medical circles on the need for sucking rags were generally highly critical.

In the early 20<sup>th</sup> century, most baby books condemned the rubber pacifier for being dirty, a menace to health, and a cause of mouth disfigurement, thrush, and digestive disturbances.<sup>7</sup>

A more recent finding in favor of pacifier use is the risk reduction of sudden infant death syndrome when using pacifiers at the time of sleep.<sup>8</sup>

Despite the current popularity of pacifiers, some circles still criticize their use, but for a different reason. Some studies<sup>9-16</sup> have claimed that the pacifier disturbs breastfeeding and may result in earlier weaning. One of the "10 steps to successful breast-feeding" in the World Health Organization/UNICEF joint statement *Protecting*, *Promoting*, and Supporting Breast-feeding: The Special Role of Maternity Services<sup>17</sup> recommends not giving pacifiers to breast-feeding infants.

Unfortunately, these recommendations were based on studies<sup>9-16</sup> of children who were only followed until they were weaned. There is no published report of the longitudinal relationship between weaning and the use of pacifiers. Artificial sucking habits have been investigated in one area of southwest Sweden for more than 30 years. Feeding and sucking habits were recorded for 2 groups of children born about 30 years apart.

The purpose of the present study was to analyze if pacifier-sucking has been detrimental to breast-feeding in the last decades.

#### **METHODS**

The patients for the present study consisted of data on 2 groups of children. The first group born in 1967 was part of a general health evaluation made at the age 4, in 1971. Of the 4,050 children born in 1967 in Skaraborg County (southwest Sweden), 3,563 consented to be part of the study and were investigated.<sup>18</sup> The children were examined by teams of doctors and dentists, and their mental and physical development was charted through interviews with their guardians. These interviews were conducted by specially trained nurses at the county child health centers. Whether the child had been breast-fed and for how long was an essential part of the interview. The child's present

and previous sucking habits were recorded by the dentist carrying out the dental examination. The study's dental results were published in  $1975.^{18}$ 

The second group consisted of 60 girls who took part in a longitudinal study<sup>19</sup> in which they were followed from birth until 3 years of age. All parents of girls born in one district in Falköping (a city in Skaraborg County) between June 1995 and September 1997 were invited to participate in the study. The parents understood that participation in the study was voluntary. Sixty parents consented to enroll their children in the study. Data concerning feeding and sucking habits were collected in interviews with the parents. An orthodontist and an orthodontic assistant conducted the first interview when the child was between 1 and 5 months old. The interview took place at the local health center in conjunction with a routine health evaluation of the child. In general, an orthodontist and 1 of 2 orthodontic assistants conducted 4 more interviews and, when possible, intraoral examinations until the girls were age 3 at the orthodontic clinic.

The 2 groups of children in this study have similar socioeconomic backgrounds and grew up in the same geographic area.

The following data were evaluated: initial sucking habits; sucking habits at age 3 (1995-1997 group) and 4 years (1967 group); and breast-feeding history. Children who were both breast- and bottle-fed were recorded as being breast-fed. The groups were compared using chi-square analysis. The level of significance was set at P<.05.

#### RESULTS

Of the 3,563 children born in 1967 who consented to take part in the study, 214 failed to appear at some of the interviews, were wrongly encoded, or had incomplete records. Data for 3,349 children (83% of the total) were analyzed.

In the 1967 year group, 55% of the children had initially started a pacifier-sucking habit. At 4 years of age, 20% were still pacifier suckers.

All 60 girls from Falköping in the 1995 to 1997year group consented to participate. Most of the 9 who dropped out before age 3, dropped out because they had moved out of the district.

Of the 60 girls born between 1995 and 1997, 72% were initial pacifier suckers. Only 4 stopped before age 3 and 65% were still sucking pacifiers at age 3.

Breast-feeding (although not exclusively) for more than 6 months was more common in children born between 1995 and 1997 than in children born in 1967 (P<.001; Table 1). Development of an initial pacifiersucking habit was also more common in children born between 1995 and 1997 than in children born in 1967 (P<.01; Table 2), as was the use of pacifiers at 3 to 4 years old.

### DISCUSSION

Comparing children's sucking habits over a 30-year time span in a modern society revealed that the use of pacifiers does not negatively affect the prevalence of breast-feeding. This is further confirmed when comparing the prevalence of breast-feeding in the national official statistics and the prevalence of pacifier-sucking found in the present study.<sup>20</sup> (Table 3)

Initial pacifier-sucking is about as common among boys as among girls,<sup>21</sup> and prolonged sucking is more common among girls.<sup>18,21</sup> But considering the large differences in prevalences of breast-feeding at age 6 months and of pacifier-sucking between the 2 groups in this study, this gender difference should be of no practical importance. Although the Falköping group (born between 1995 and 1997) was small compared to the 1967 group, the data identified current trends in sucking habits and breast-feeding.

The present study's findings do not support the commonly held opinion that pacifier-sucking reduces breastfeeding.<sup>9-17</sup> In the 30 years separating the 2 groups, the

Table 1. Breast-feeding for Less Than or More Than 6 Months in the Groups Born 30 Years Apart (1967 and 1995–1997)

Duration of breast- feeding (mos)	Birth group		P-value	
	1967	1995-1997		
>6	127	43	.001	
<6	3,222	17		

Table 2. Development of an Initial Pacifier–sucking Habit in the Groups Born 30 Years Apart (1967 and 1995–1997)

Initial pacifier-	Birth group		P-value
sucking habit	1967	1995-1997	
Yes	1,825	43	.01
No	1,524	17	

Table 3. Percentage of Children Who Were ExclusivelyBreast-fed at 6 Months Old (From Official Statistics ofSweden) and Percentage of Children Who Developed anInitial Pacifier-sucking Habit (From the Present Study)

	Birth group	
	1967 (%)	1996 (%)
Exclusively breast-fed at 6 months of age	11	43
Development of initial pacifier-sucking habit	54	72

initial pacifier-sucking habit increased by 32%. At the same time, breast-feeding at 6 months old had become 20 times as common in the contemporary group (born between 1995 and 1997). The data at age 3 years (1995-1997 group) and 4 years (1967 group) should not be further analyzed because of the age difference. From an American study of pacifier use, the prevalence can be calculated to decrease between 3 to 4 years of age from 22% to 9%<sup>22</sup>. If the same relative decrease is applied to the present study, the contemporary group would still have a larger prevalence of pacifier-sucking at 4 years of age (27% vs 20%). These figures are only included here to show that the prolonged use of pacifiers did not decrease during these years.

Victora et al.<sup>23</sup> and Kramer et al.<sup>24</sup> suggested that pacifier-sucking could indicate that the mother may be having problems with breast-feeding or is attempting to increase the intervals between nursing. It has also been suggested that another reason for the higher prevalence of artificial sucking habits in contemporary populations is that the child's sucking urge is not completely satisfied.<sup>25</sup> For instance, nomadic !Kung San women breastfeed their babies for 3 to 4 years, and according to Konner and Worthman,<sup>26</sup> the children suckle on average every 13 minutes when awake.

Currently, Swedish mothers are well informed about breast-feeding. But modern life makes it difficult for women to follow the traditional way of rearing babies by carrying them around and giving them an opportunity to nurse when they want. Hence, the remaining sucking urge must somehow be satisfied.

Despite some sporadic condemnation of pacifier use by several professionals, mothers have become fond of the practice. Modern mothers know about the advantages of breast-feeding, and they are anxious to do their best for the baby. In many cases, however, they realize that babies' sucking urges increase with time and that it will be more and more of a problem to satisfy that urge. There could be various explanations for such an observation. When mothers return to work, they may find it inconvenient to nurse or allow their babies to suck. Mothers' motivations to breast-feed differ depending on ethnic and social backgrounds. A US Public Health report<sup>27</sup> observed that low-income, low-education, African American, Hispanic, and American Indian/Alaskan Native mothers had the lowest breast-feeding rates. The American Academy of Pediatrics recommend that pacifier use is best avoided during the initiation of breast-feeding and used only after breast-feeding is well established.<sup>28</sup> They do not disapprove of the use of pacifiers thereafter.

Another commonly held opinion is that the sucking urge disappears at 6 months of age.<sup>29</sup> According to Gray,<sup>30</sup> however, who studied breast-feeding practices among nomadic Turkana pastoralists in Kenya, breastfeeding time increased from 8 to 11 minutes per hour between 8 and 19 months of age. Larsson also reported that several parents reported an increase in artificial sucking habits at  $1\frac{1}{2}$  years of age.<sup>19</sup>

The pacifier, on the other hand, may have some negative effects.<sup>18,19</sup> If the habit continues to 4 years old, the impact on the occlusion may be more severe than if the habit ceases earlier.<sup>22,31</sup> The prevalence of pacifiersucking, particularly prolonged pacifier-sucking, has increased significantly in Sweden, along with the number of children with posterior crossbites. By educating parents, Larsson succeeded in getting them to reduce the time their children used the pacifier, which significantly decreased the incidence of crossbites.<sup>19</sup>

There is a negative correlation between thumb- and pacifier-sucking habits. A higher prevalence of pacifiersucking corresponds to a lower prevalence of thumbsucking.<sup>32</sup> This might seem irrelevant. A prolonged sucking habit, however, will have a negative impact on the anterior facial and dental development of some children.33,34 Children with a prolonged sucking habit usually suck their thumb or finger, and breaking the habit is more difficult when the child uses a thumb or finger compared to a pacifier.<sup>21</sup> So a thumb- or finger-sucking habit should not be promoted over use of a pacifier if long-term dentofacial development is a concern on a group level. The American Academy of Pediatric Dentistry recommend an evaluation of non-nutritive sucking habits for children beyond 3 years old with subsequent intervention to cease the habit if indicated.35

Although numerous studies have reported a correlation between early weaning and pacifier-sucking, present findings do not support the suggestion that pacifiersucking reduces a child's desire to breast-feed. Our data indicate that breast-feeding and initial and prolonged pacifier-sucking have increased in the last 30 years.

## **CONCLUSIONS**

Based on this study's results, the following conclusions can be made:

- 1. Use of a pacifier by the infant can be a great help to breast-feeding mothers. Criticizing the judicious use of the pacifier is not justifiable.
- 2. Parents should reduce the time the child uses the pacifier as much as possible but not to the point that the child risks developing a thumb-sucking habit as a substitute.
- 3. The transverse relationship in the canine area should be checked at 2 to 3 years old, particularly in pacifier suckers, to avoid the development of a posterior crossbite.<sup>19</sup> If interfering contacts are present, the parents should be advised to further reduce the time the child uses the pacifier.
- 4. Mothers need to be aware that they should not initiate the use of a pacifier until it is obvious that the baby needs to suck more.

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