Abstract

Objective: To compare two groups of school age girls from different social strata were compared in terms of their perception and knowledge about breastfeeding.

Methods: A structured questionnaire was applied to all 346 4th to 8th grade girls attending two schools, a private one, whose students belonged to the upper class (School A), and a public one, whose students belonged to the lower class (School B).

Results: About 90% of the girls reported having been breastfed and more than 98% had seen a mother breastfeeding. Only 14% of girls from School A and 26% from School B (p = 0.01) exclusively offered their breast or their breast and a bottle when playing with dolls. More than 80% of the girls stated that they would like to have a normal delivery and to breast-feed their child for more than 6 months, but 46% of the girls from School A and 32% from School B stated that they would be ashamed to breastfeed in public. About 90% of the girls considered human milk to be the best food for the baby, but only a small portion of them recognized other more specific advantages. Less than 1/3 would choose exclusive breastfeeding and about 60% would offer a pacifier to the baby.

Conclusions: Girls from both social strata are aware of the fact that breastfeeding is the best diet for a newborn baby, but are not aware of its specific advantages. Exclusive breastfeeding is not incorporated into the knowledge of most of these girls, since most of them consider offering water, tea, juices and a pacifier to be adequate practices. Teaching about breastfeeding at school should emphasize these concepts.


Introduction

The World Health Organization estimates that each year a million and a half deaths could be avoided by means of maternal breastfeeding. Even so, despite great efforts towards the promotion of maternal breastfeeding, gains in terms of the incidence and prevalence of maternal breastfeeding have not been as great as is to be desired. An analysis of data from 94 countries indicates that currently only 35% of children are fed exclusively at the breast, during the period between 0 and 4 months of age, and that the duration of exclusive maternal breastfeeding is shorter than that proposed by the World Health Organization in practically every country in the world.

In Brazil, despite 96% of women starting breastfeeding, only 14.7% breastfeed exclusively during the period from...
4 to 6 months, and that the median of exclusive breastfeeding duration was only 1 month.\textsuperscript{5,6}

Thus the importance of policies to encourage maternal breastfeeding is evident. The mother’s decision on whether to breastfeed or not and for how long to breastfeed is controlled by multiple factors, such as motivation, family support, cultural support, pre and post natal education, in addition to appropriate training on maternal breastfeeding technique.\textsuperscript{7} One means of implementing such diverse aspects simultaneously is education.\textsuperscript{8}

Recently two large reviews have been published which deal with interventions intended to increase maternal breastfeeding rates. Fairbank et al.\textsuperscript{9} analyzed 59 studies looking at the promotion of breastfeeding take-up. Among successful interventions prenatal training in small groups, changes to hospital practices, such as the implementation of collective wards, publicity campaigns, multiple interventions and expectant mother counseling programs, this last only effective with motivated mothers, may all be cited. Oliveira et al.\textsuperscript{10} analyzed interventions intended to extend the breastfeeding period. The 37 studies analyzed indicated that effective strategies combine information, assistance and support, and were prolonged and intense activities. Among interventions offered solely during the prenatal period, education in groups was the only effective strategy. All other strategies required a postnatal complement to demonstrate themselves effective.

Despite the fact that prenatal training groups were effective,\textsuperscript{9,10} teaching could begin much earlier.\textsuperscript{11} If children received appropriate information on breastfeeding from school age on, when girls came to become mothers they would possibly be more motivated to breastfeed, and, in the case of boys, more likely to support such a maternal decision.

In order to be able to teach maternal breastfeeding in a manner appropriate to schools it is important to obtain certain information on the previous knowledge of these children. This study aimed to evaluate school age girls and to compare two groups from different social strata, with respect to their knowledge and perception of maternal breastfeeding.

Materials and methods

For information gathering, two schools in the city of Ribeirão Preto were selected. One is private (Colégio Pequeno Príncipe), with a monthly fee greater than two minimum monthly salaries, which was considered representative of a high socioeconomic class, hereon identified as HS (high social class school). The other school (Escola Profª Neuza Miquelutti Marzola) is part of the public system, located in a district which, according to city zoning data, is inhabited by working class people with low social and economic levels, for ends of this study it will be referred to as LS (lower social and economic class school).

The socio-economic classification was ratified using the Olsen and Frisch\textsuperscript{12} modified\textsuperscript{13} criteria, which assesses the occupation of the person responsible for the nucleus of the child’s family, who could be the mother, father, grandfather, etc. and divides them into four categories: (1) includes managers, executives and businessmen; (2) includes administrators and middle-level employees, (3) contains qualified and semi-qualified workers; (4) refers to unqualified workers, students and the unemployed. This information was requested on the form filled out by the children.

The schools were visited and arrangements were made with their administrations as to the best method of collecting the data. After obtaining the authorization of the Education Secretary of the Municipality of Ribeirão Preto, of the parents and of the school administrations, both schools allocated, on days convenient to them, specific periods during which the questionnaire was applied. Each class was given a brief explanation of the objectives of the study, and a guarantee that their answers would remain absolutely anonymous. It was clearly demonstrated that no part of the questionnaire could lead to the identification of the respondent. There were also informed that if any student did not feel comfortable responding to the questions, she could leave them blank. The boys were removed from the class and the girls were given sufficient time to fill out the form. To each girl a structured form was given, with 17 questions with multiple choice answers, eight of which also had an open section for replies at greater length. The questionnaire was created by the authors of the study and applied to 10 children of the same age group to that intended for the study, with the aim of correcting possible comprehension difficulties.

All of the girls in attendance on the day of interview and who attended the 4th through 8th grades responded to the questionnaire. Due to contingencies on the day of the interview, no girls from the fourth grade of the LS could be evaluated. On interview days one girl from the 8th grade and two from the 7th were absent from the HS. From the LS, three students from the 8th grade, two from the 7th, two from the 6th and one from the 5th grade were absent.

The study was authorized by the Principals of the schools involved and by the Education Secretary of the municipality of Ribeirão Preto.

Results

Three hundred and forty-six girls were interviewed, 149 from the HS and 197 from the LS. These girls were aged between 9 and 15, with averages and standard deviations of age per school and the distribution of the girls interviewed across the various grades of the basic cycle can be found in Table 1. The girls at the LS were around six months older than those at the HS (p < 0.01). The distribution across the grades of the basic cycle was not uniform even when the
absence of the 4th grade girls from the LS is taken into account.

Social class proved to be exactly as predicted when selecting the schools. No student at the HS was classified at level 4 (86% levels 1 and 2), and at the LS, all of them were classified as levels 3 or 4 (15% classified as level 3, and 85% level 4). It can thus be confirmed that the social levels of these girls were different.

**Previous experience of breastfeeding**

Only one student reported that she was a mother (LS) and was excluded from the analysis.

The majority of girls at both the schools (98.6% at the HS and 99.4% at the LS, p = 0.58) had already witnessed a mother feeding. Nevertheless, a greater proportion of girls at School B had seen breastfeeding in their own home (p = 0.001) or in public (p = 0.02), when compared with School A. Also statistically significant was the difference between the groups, when an evaluation was made of who was observed breastfeeding. Of the students at the LS, 98% had observed their own mother or another close relative offering her breast to her child, while 85% of the girls at the HS reported the same fact (p < 0.001).

Previous experience with breastfeeding while at play was investigated by means of a question on the behavior of girls playing with dolls. The answers are to be found in Table 2.

In both groups, only a small percentage of those interviewed offered the breast exclusively or the breast and bottle when playing with dolls, with the girls at the LS describing this behavior with a statistically higher frequency than those at the HS.

Still with respect to previous experience, there was no statistically significant difference between children who reported having been breastfed when infants. Around 90% of the girls in both groups reported such experience.

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### Table 1 - Age and number of girls interviewed in each classe of both schools

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (Mean SD) - years</td>
<td>12.1 ± 1.62</td>
<td>12.7 ± 1.27</td>
<td>&lt; 0.01†</td>
</tr>
<tr>
<td>Age range - years</td>
<td>(9 to 15 years)</td>
<td>(10 to 17 years)</td>
<td></td>
</tr>
<tr>
<td>Number of girls/class</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fourth grade</td>
<td>30</td>
<td>–</td>
<td>&lt; 0.01†</td>
</tr>
<tr>
<td>Fifth grade</td>
<td>27</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Sixth grade</td>
<td>24</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Seventh grade</td>
<td>30</td>
<td>48</td>
<td></td>
</tr>
<tr>
<td>Eighth grade</td>
<td>38</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>149</td>
<td>196</td>
<td></td>
</tr>
</tbody>
</table>

* Student t test.
† χ² test, comparing the distribution per class.

### Table 2 - Previous playing activity regarding breastfeeding performed by the girls interviewed in the high social class school (School A) and in the low social class school (School B)

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>While playing with dolls, they pretend to be breastfeeding</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Using a bottle</td>
<td>1,22 (75%)</td>
<td>1,21 (62%)</td>
<td>0.01†</td>
</tr>
<tr>
<td>On their breast*</td>
<td>1 (0.7%)</td>
<td>9 (5%)</td>
<td>0.01†</td>
</tr>
<tr>
<td>Both*</td>
<td>20 (13%)</td>
<td>41 (21%)</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>16 (11%)</td>
<td>23 (12%)</td>
<td>0.86†</td>
</tr>
</tbody>
</table>

† Fisher’s exact test, assessing the presence or absence of the variable.
* The answers "on the breast" and "both" were considered together in the analysis.

### Expectations of birth and breastfeeding

The majority of the girls from both schools (79% at the HS and 83% at the LS) would like their delivery to be normal. Similarly, 83% of the girls at the HS and 87% of those at the LS would like to breastfeed their children. If we add those girls who would give mixed feeding, these values come very close to 100%. There was no difference between the schools in these respects. However, 46% of the girls at the HS and 32% of the girls at the LS reported that they would be embarrassed to breastfeed in public, and in this respect there is a significant difference between the groups (p = 0.01).

With respect to the period of breastfeeding that the girls would desire for their possible children, Table 3 synthesizes the replies obtained at the two schools. Observe that the majority of girls would prefer to feed at the breast for six months or more. There was no difference between the groups.
Knowledge of human milk and breastfeeding

The closed questions on the girls’ knowledge about human milk and the act of breastfeeding are presented in Tables 4 and 5. Despite the collection of answers to the question “Why is human milk good?” having discrepancies between the groups (Table 4), observe that the main replies were similar between the girls of both schools. Around 90% of the girls considered human milk the best food for babies, although only a small proportion of them recognized other more specific advantages. Of these, the greater protection offered by human milk was referred to by the greatest number of girls (54% from the LS and 30% from the HS), and in greater proportion at the LS (p < 0.01). Only a very small percentage of the girls pointed to possible negative factors associated with human milk.

In terms of the advantages of breastfeeding for the mother (Table 5), most often recognized was the drawing closer of mother to newborn, referred to by more than 70% of the girls at both schools, followed by the fact that it is pleasurable for the mother. The possible negative factors involved were little mentioned, with a little more than 10% of the girls at both schools referring to the possibility of injuring mammaries, and close to 10% (14% at the HS and 7% at the LS) referring to fear of breast alterations. In this respect, the girls at the HS are more worried (p = 0.046).

Conduct other than breastfeeding
The girls were questioned about the necessity of offering the child anything more than the breast from the first month of life, their replies are to be found in Table 6. Some discrepancies of behavior can be observed between the schools. A greater percentage of girls at the HS opted for exclusive breastfeeding (p = 0.02), and a greater proportion of girls at the LS opted for offering water and/or tea.

Table 4 - Knowledge of the girls interviewed in the high class school (School A) and in the low class school (School B) about human milk

<table>
<thead>
<tr>
<th></th>
<th>School A</th>
<th>School B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What do you think about giving human milk to the baby?</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>It is not good</td>
<td>3 (2%)</td>
<td>174 (89%)</td>
<td>0.72†</td>
</tr>
<tr>
<td>It is not strong enough</td>
<td>3 (3%)</td>
<td>105 (54%)</td>
<td>&lt; 0.01†</td>
</tr>
<tr>
<td>My mother used to feed me her milk</td>
<td>36 (18%)</td>
<td>36 (18%)</td>
<td>0.35†</td>
</tr>
<tr>
<td>It makes the baby more intelligent</td>
<td>23 (12%)</td>
<td>23 (12%)</td>
<td>0.48†</td>
</tr>
<tr>
<td>It protects the baby</td>
<td>105 (54%)</td>
<td>105 (54%)</td>
<td>&lt; 0.01†</td>
</tr>
<tr>
<td>Other</td>
<td>7 (4%)</td>
<td>7 (4%)</td>
<td>0.14†</td>
</tr>
</tbody>
</table>

* More than one answer is possible.
† Fisher’s exact test, assessing the presence or absence of the variable.
‡ Not calculated due to the size of the sample.

Table 3 - Ideal breastfeeding period according to the girls interviewed in the high class school (School A) and in the low class school (School B)

<table>
<thead>
<tr>
<th>For how long would you breastfeed?</th>
<th>School A</th>
<th>School B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 months</td>
<td>27 (18%)</td>
<td>29 (15%)</td>
<td>0.46†</td>
</tr>
<tr>
<td>Up to 6 months</td>
<td>82 (55%)</td>
<td>92 (49%)</td>
<td>0.15†</td>
</tr>
<tr>
<td>Up to 1 year or longer</td>
<td>40 (27%)</td>
<td>68 (36%)</td>
<td>0.13†</td>
</tr>
</tbody>
</table>

† Fisher’s exact test, assessing the presence or absence of the variable.
Another practice investigated was the use of pacifiers. In addition to the question of whether or not to offer a pacifier there was an open response for reasons. Table 7 summarizes the choice for or against the use of a pacifier and the main reasons given.

It was found that at both schools the majority of girls consider offering a pacifier to their children. The main reasons given by the girls at both schools are very similar and do not differ statistically, with the exception of the reason for offering a pacifier or not “if you don’t they’ll suck their fingers”. the comparison of which between the two schools attained statistical significance (p = 0.03), but the small number of replies limits the analysis. It should be pointed out that these responses were collected by means of an open question, and were therefore spontaneous.

**Discussion**

In order to adequately plan policies to stimulate maternal breastfeeding, it is essential to ascertain the level of knowledge and the expectations of future mothers. Young schoolchildren are an extremely important educational target, when maternal breastfeeding is being considered, but, nevertheless there is little work analyzing the knowledge of these adolescents and it was this which motivated the present study.11,15

The girls from two schools representing different social strata were chosen for evaluation, with the intention of detecting possible differences in knowledge associated with social class.

All of the girls from the fourth to the eighth grade of the basic cycle who were present on the day were interviewed. None of the girls refused to fill out the questionnaire and, on
Table 7 - Option anc reasons to offer or not the pacifier according to the girls interviewed in the high class school (School A) and in the low class school (School B)

<table>
<thead>
<tr>
<th>Reason</th>
<th>School A</th>
<th>School B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you give a pacifier to the baby? Why?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would not give</td>
<td>49 (35%)</td>
<td>78 (41%)</td>
<td>0.13†</td>
</tr>
<tr>
<td>It is not good for health or for the teeth</td>
<td>28 (20%)</td>
<td>46 (24%)</td>
<td>0.35†</td>
</tr>
<tr>
<td>It is difficult to stop using it</td>
<td>13 (9%)</td>
<td>16 (9%)</td>
<td>0.84†</td>
</tr>
<tr>
<td>I would give</td>
<td>91 (65%)</td>
<td>100 (59%)</td>
<td>0.13†</td>
</tr>
<tr>
<td>Because it calms down the baby</td>
<td>34 (24%)</td>
<td>63 (33%)</td>
<td>0.07†</td>
</tr>
<tr>
<td>The baby needs it, or likes it or it is good</td>
<td>19 (14%)</td>
<td>25 (13%)</td>
<td>1.0†</td>
</tr>
<tr>
<td>The baby sucks its fingers otherwise</td>
<td>9 (6%)</td>
<td>3 (2%)</td>
<td>0.03†</td>
</tr>
</tbody>
</table>

† Fisher’s exact test, assessing the presence or absence of the variable.

the contrary, showed themselves very interested in the questions posed and the possible findings of the study. The distribution by age and grade was not perfectly alike for both schools, but these discrepancies were not considered sufficiently relevant to interfere with the analysis.

With the reduction in size of the family unit and a greater proportion of mothers working away from the home, it was first asked whether the girls were exposed to the act of breastfeeding. It was found that more than 98% of the girls from both schools had been in the presence of a breastfeeding mother. However, the proportion of these experiences which took place in the girls’ own homes was smaller among girls from higher social classes, although, even so, 85% of these girls had had the opportunity to witness their mother or another close relative breastfeeding. Also related to the subject of family example, around 90% of the girls from both schools reported having been themselves feed at the breast for a certain time. This data, while not quantifying the intensity of exposure, indicates that our girls continue to have contact with maternal breastfeeding in their homes.

Considering that playing is a form of preparation for the activities which will be developed during adult life, the behavior of the girls during the playing with dolls phase was analyzed. The results were expected, but even so, disappointing. Less than 14% of the girls at the HS and 26% of the LS girls raised the doll to their breast, a statistically significant difference. In other words, the habit was to feed the doll, which represents their child, by means of a bottle. It is interesting associate this finding with another, which is that 46% of the HS girls and 32% of the LS reported that they would be embarrassed to breastfeed in public. This finding, within its own inherent limits, gives us an indication that feeding at the breast doesn’t appear to be a very natural thing to these girls, and this is a point which could be better dealt with in educational terms. Another point is that some type of action could be taken with respect to the fact that many dolls continue to be sold with bottles and pacifiers.

We found that around 80% of the girls would like to have a normal delivery and that more than 80% would like to breastfeed their children. If we also consider those who opted for mixed feeding the proportion reaches close to 100%. More than 80% of them would opt to breastfeed for 6 months or more. These responses were irrespective of social class. The other side of the coin is that in this age group around 20% of the girls need to be better informed about appropriate birth and breastfeeding.

On the subject of human milk, despite around 90% of them having claimed that human milk is the best food for the infant, few girls recognized that milk can protect the baby16,17 (30% at the HS and 54% at the LS), and even less that human milk could “make the baby more intelligent” (9% for HS and 12% for LS).18,19 The teaching of the many different beneficial effects of human milk should be emphasized.15 Few girls pointed out failures of human milk.

A similar picture is painted when the act of breastfeeding is evaluated (Table 5). The majority of the girls recognize that feeding at the breast brings mother and baby closer, and a smaller percentage (48% at the HS and 39% at the LS) considered it to be pleasurable. Other possible advantages, particularly the facts that it is cheaper and more practical, were rarely pointed out, as has been described by other authors.20,21 Possible negative factors of breastfeeding were little mentioned. It cannot be too often repeated that, in teaching, including that about breastfeeding, it is always important to offer realistic facts and expectations. For example, a high expectation that breastfeeding will be
pleasurable can be frustrated in the first few days after delivery, when difficult periods of mother-child adaptation may occur. This very delicate time when feeding is establishing, there may be a sensation of incapacity or inadequacy in the face of a higher expectation that breastfeeding will be pleasurable.22

Despite opting frequently for feeding at the breast, the girls are not sufficiently aware of the advantages of exclusive breastfeeding.23 Only 36% of the girls at the HS and 24% of those at the LS would take this option, with a frequent option being the offer of water, tea, fruit juices from the first month. The same has been reported by authors assessing adults.24

The same lack of knowledge was demonstrated with respect of the use of pacifiers. The majority of them would offer a pacifier to their child. The reasons offered for giving a pacifier to children were diverse, but the majority justified the need for a pacifier as calming the baby, or because the child likes it and that’s good. As a curiosity it is mentioned that two of the LS students justified the use of the pacifier as being “a right of the child”. Despite 35% of the girls at the HS and 41% of those at the LS opting not to offer a pacifier, the main reasons were dental alterations and the suffering caused when the child is later separated from the pacifier. There was not a single response which associated the pacifier with maternal breastfeeding, for good or bad, indicating ignorance of the possible negative association between the use of pacifiers and maternal breastfeeding.25

Concluding it can be said that the girls from both social strata know that maternal breastfeeding is the best diet a newborn can receive during the first year of life. Observe, however, that there are still many aspects which should be clarified and taught. Cultural support of breastfeeding appears to be inadequate. The majority of girls does not offer the breast to their dolls and would be embarrassed to breastfeed in public, indicating that the act of breastfeeding is not considered a perfectly natural position by these girls. Furthermore, dolls continue to be supplied with bottles. Another relevant point is that the practice of exclusive maternal breastfeeding is not incorporated into the knowledge of the majority of these girls. The offer of water, tea and juices is still considered by them to be appropriate. The girls did not associate pacifiers with problems with breastfeeding. Teaching on breastfeeding at schools should certainly emphasize these concepts. It would be very interesting to assess the knowledge of the boys with respect to maternal breastfeeding.

References


School girls' perception and knowledge... – Nakamura SS et alii

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