

Factors influencing breastfeeding for working mothers

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SUMMARY: Yılmaz G, Gürakan B, Akgün S, Özbek N. Factors influencing breastfeeding for working mothers. Turk J Pediatr 2002; 44: 30-34.

In order to evaluate the relation between breastfeeding and working conditions a descriptive study was conducted on 301 working mothers. Seventy-seven percent of mothers breastfed their infants four months and longer, and the mean breastfeeding period was 6.2 ± 3.4 months. Forty-one percent of mothers started weaning before four months of age.

The multifactorial analysis of independent factors significantly influencing breastfeeding time were, in decreasing order of significance, breastfeeding conditions at work, maternal leave period, mother's smoking habit and the use of breastpump. For weaning period, these factors were the use of breastpump, breastfeeding leave at work and maternal leave period.

In conclusion, in order to support breastfeeding at work, maternal leave period must be prolonged, and breastfeeding conditions at work must be improved.

Key words: breastfeeding, working mothers, maternal employment.

Due to increasing urbanization and modernization, the number of working mothers has increased tremendously in our country in recent years. The mother's duties both at work and home may negatively affect her breastfeeding¹. Mothers who work at private and government services are required to return to work at most eight weeks after delivery. This early return to work leaves breastfeeding mothers in a difficult position. Such women may start weaning earlier than the 4th month, and may prefer a formula diet more than expected.

The authors could not find a study in the literature investigation the relation between breastfeeding and maternal employment in Turkey. It appears that necessary precautions must be taken to ensure adequate breastfeeding by working mothers.

In this study the factors possibly influencing breastfeeding by working mothers were investigated through questionnaires.

Material and Methods

Working mothers, who applied to the Department of Pediatrics of Başkent University in Ankara between November 1998 and April 1999 and who had children aged 15 months to three years, were asked to complete a questionnaire about their breastfeeding history. Three hundred and one mothers out of 340 (88%) consented to answer the questionnaire. The questionnaire included mother's age; educational level; family income; mother's employment; maternal leave period; part-time vs. full-time employment; breastfeeding conditions at work; the use of breastpump; smoking habit; support for breastfeeding by health care providers family and peers (bystanders); and the place of delivery. The mothers were divided into three groups according to their employment:

1. Independent jobs.
2. Government service.
3. Private service.

The effect of these parameters on breastfeeding and weaning were investigated using unifactorial and multifactorial statistical analysis. For unifactorial analysis, Student's t test and chi-square test were used. For multifactorial analysis, regression was done. The significance was taken as $p = 0.05$.

Results

The age distribution, education and income of the study group are summarized in Table I.

Table I. Age Distribution, Education and Income of the Working Mothers

| | | |
|-----------|-------------|-----|
| Age | ≤ 25 years | 141 |
| | > 25 years | 160 |
| Education | University | 158 |
| | High school | 143 |
| Income | US \$ 1000 | 43 |
| | US \$ 1000 | 258 |

Seventy-seven percent of the mothers breastfed their infants four months or longer. The mean breastfeeding time was 6.2 ± 3.4 months. Weaning before four months of age was determined in 40.5% of mothers.

One hundred and forty-one mothers were 25 years old or younger, and 160 were older than 25 years. The mean breastfeeding times were 6.0 ± 3.1 months and 6.4 ± 3.6 months, respectively. Weaning before four months of age was determined in 39% (55/141) and 41.9% (67/160) of mothers, respectively. According to the age groups, breastfeeding times and weaning periods were not significantly different (for breastfeeding, Student's t test, $t = 0.947$, $p = 0.344$; for weaning, chi-square test, $\chi^2 = 0.256$, $p = 0.613$).

One hundred and fifty-eight (52.5%) mothers had university degree and 143 (47.5%) were high school graduates. The mean breastfeeding times were 6.9 ± 3.4 months and 5.5 ± 3.2 months, respectively. Weaning before four months of age was determined in 37.3% (59/158) and 44.1% (63/143) of mothers, respectively. The mothers with a university degree breastfed their infants significantly longer than the others, whereas there was no difference between weaning periods of these groups (breastfeeding time: Student's t test, $t = 3.593$, $p = 0.000$; weaning period: chi-square test, $\chi^2 = 1.404$, $p = 0.236$).

Forty-three mothers (14.3%) had a monthly income of less than US \$ 1000, whereas 258 (85.7%) earned more than \$ 1000 monthly. Their mean breastfeeding times were 5.5 ± 3.4 months and 6.4 ± 3.4 months, respectively, with no significant difference found. However, 42% of mothers with a higher income and 63% of mothers with a lower income started weaning at the 4th month of age or later; this difference was statistically significant. Mothers with a high income started weaning significantly later than those with a lower income (breastfeeding: Student's t test, $t = 1.57$, $p = 0.116$; weaning: chi/square test $\chi^2 = 6.453$, $p = 0.011$).

Twenty-seven percent of mothers worked at private service, 18% worked independently, and 55% worked at government service. Table II shows the conditions at work according to employment groups. Part-time vs. full-time work, maternal leave period of longer than 16 weeks, and rate of breastfeeding at work are shown according to employment groups. With respect to employment groups, breastfeeding times and weaning periods were significantly different (Table III).

Table II. Conditions at Work According to Employment Groups

| Employment groups | n | Part-time (%) | > 16 weeks maternal leave | Breastfeeding at work |
|-------------------|------------|---|---|---|
| Independent jobs | 53 (18%) | 25 (49%) | 35 (36%) | 28 (47%) |
| 2. Government | 167 (55%) | 18 (35%) | 54 (56%) | 21 (35%) |
| 3. Private | 81 (27%) | 8 (16%) | 6 (8%) | 11 (18%) |
| Total | 301 (100%) | 51 (100%) | 95 (100%) | 60 (100%) |
| Statistics | | Chi-square, $\chi^2 = 41.8$, $p = 0.000$. The 1 st group is significantly different from both the 2 nd and 3 rd groups ($p < 0.05$). | Chi-square, $\chi^2 = 51.09$, $p = 0.000$. All groups are significantly different from each other ($p < 0.05$). | Chi-square $\chi^2 = 43.65$, $p = 0.000$. The 1 st group is significantly different from both the 2 nd and 3 rd groups ($p < 0.05$). |

Table III. Relation Between Breastfeeding times and Weaning Period According to Employment Groups

| Employment groups | n | Mean breastfeeding time (months) + SD | Weaning before 4 months of age | Weaning at 4 th month of age or later |
|-------------------|---|---------------------------------------|---|--|
| 1 Independent | 53 (18%) | 8.1 ± 3.6 | 16 (30.2%) | 37 (69.8%) |
| 2 Government | 167 (55%) | 6.3 ± 3.2 | 62 (37.1%) | 105 (62.9%) |
| 3 Private | 81 (27%) | 4.9 ± 3.0 | 44 (54.3%) | 37 (45.7%) |
| Total | 301 | 6.2 ± 3.4 | 122 (40.5%) | 179 (59.5%) |
| Statistics | Analysis of variance, F = 15.572, p = 0.000. All groups are significantly different from each other (p < 0.05). | | Chi-square test, $\chi^2 = 9.546$, p = 0.008. The 3 rd group is significantly different from the 1 st and 2 nd groups (p < 0.05). | |

Mothers who could breastfeed at work breastfed significantly longer than those who could not (8.9 ± 2.8 months vs. 5.6 ± 3.2 months, Student's t test, t = 7.34, p = 0.000). Eighty-five percent of mothers who could not breastfeed at work and 53% of mothers who could breastfeed at work started weaning at the 4th month of age or later; this difference was statistically significant (chi-square test, $\chi^2 = 20.26$, p = 0.000).

Forty-eight percent of mothers had a maternal leave period of 8 weeks or less, 20.9% had 9-16 weeks, and 31.6% had more than 16 weeks. Maternal leave period significantly influenced both breastfeeding time and weaning period (Table IV).

Seventy-one (24%) of the mothers were smokers. The mean breastfeeding time for smokers was 4.8 ± 3.1 months, and that for non-smokers was 6.7 ± 3.3 months. This difference was statistically significant (Student's t test, t = 4.252, p = 0.000). Forty-nine percent of smokers and 63% of non-smokers started weaning at the 4th month of age or later; this difference was statistically significant (chi-square test, $\chi^2 = 3.989$, p = 0.046).

Table V shows the relation between the use of a breastpump and both breastfeeding time and weaning period.

Sixteen percent of mothers worked part-time. Part-time working mothers breastfed their infants significantly longer, and weaned significantly later than full-time working mothers (Table VI).

Table IV. Relation Between Breastfeeding Times and Weaning Period According to Maternal Leave Period

| Maternal leave period | n | Mean breastfeeding time (months) + SD | Weaning before 4 months of age | Weaning at 4 th month and later |
|-----------------------|--|---------------------------------------|--|--|
| ≤ 8 weeks | 143 (47.5%) | 5.6 ± 3.6 | 73 (51%) | 70 (49%) |
| 9-16 weeks | 63 (20.9%) | 5.9 ± 2.6 | 18 (28.6%) | 45 (71.4%) |
| > 16 weeks | 95 (31.6%) | 7.5 ± 3.2 | 31 (32.6%) | 64 (67.4%) |
| Total | 301 | 6.2 ± 3.9 | 122 (40.5%) | 179 (59.5%) |
| Statistics | Analysis of variance, F = 9.769, p = 0.000. The > 16 wk group is significantly different from both ≤ 8 wk and 9-16 wk groups (p < 0.05). | | Chi-square test, $\chi^2 = 12.761$, p = 0.002. The ≤ 8 wk group is significantly different from both 9-16 wk and > 16 wk groups (p < 0.05). | |

Table V. Relation Between Breastfeeding Times and Weaning Period According to the Use of Breastpump

| | n | Mean breastfeeding time (months) + SD | Weaning before 4 months of age | Weaning at 4 th month or later |
|---------------------|--|---------------------------------------|--|---|
| Without breast pump | 124 | 4.3 ± 3.4 | 88 (71%) | 36 (29%) |
| 9-16 weeks | 177 | 7.6 ± 2.9 | 34 (19.2%) | 143 (80.8%) |
| Statistics | Student's t test, t = 9.392, p = 0.000 | | Chi square test, $\chi^2 = 81.043$, p = 0.000 | |

Table VI. Relation Between Breastfeeding Times and Weaning Period According to Part-time vs. Full-time Work

| | n | Mean breastfeeding time (months) + SD | Weaning before 4 months of age | Weaning at 4 th month and later |
|------------|---|---------------------------------------|--|--|
| Full-time | 250 (84%) | 5.9 ± 3.4 | 109 (43.6%) | 141 (56.4%) |
| Part-time | 51 (16%) | 7.8 ± 2.9 | 13 (25.5%) | 38 (74.5%) |
| Total | 301 | | 122 (40.5%) | 179 (59.5%) |
| Statistics | Student's t test, $t = 9.392$, $p = 0.000$ | | Chi square test, $\chi^2 = 81.043$, $p = 0.000$ | |

Mothers getting breastfeeding leave at work had a mean breastfeeding time of 7.5 ± 2.8 months, whereas those without breastfeeding leave had a mean of 4 ± 3.5 months. This difference was found to be statistically significant (Student's t test, $t = 6.907$, $p = 0.000$). The rates of early weaning for mothers with and without breastfeeding leave were also significantly different (37% versus 81%, respectively) (chi-square test, $\chi^2 = 61.60$, $p = 0.000$).

The mean breastfeeding time of mothers who received support for breastfeeding by "bystanders" was significantly prolonged when compared to those who did not (8.9 ± 4.6 months vs. 4.5 ± 4.1 months, Student's t test, $t = 4.37$, $p = 0.000$). The supported mothers also started weaning at a significantly later time than the unsupported ones (19% versus 57%, respectively) (chi-square test, $\chi^2 = 28.77$, $p = 0.000$).

The following factors were included in the multifactorial analysis: mother's age, educational level, family income, mother's employment, maternal leave period, part-time vs. full-time employment, breastfeeding conditions at work, the use of a breastpump, smoking habit, support for breastfeeding "bystanders", and the place of delivery.

The multifactorial analysis of independent factors significantly influencing breastfeeding time were, in decreasing order of significance, breastfeeding conditions at work ($p = 0.000$), maternal leave period ($p = 0.000$), mother's smoking habit ($p = 0.001$), the use of breastpump ($p = 0.008$), and part-time work ($p = 0.009$).

The multifactorial analysis of independent factors significantly influencing weaning period were, in decreasing order of significance, the use of a breastpump ($p = 0.000$), breastfeeding leave at work ($p = 0.000$), maternal leave ($p = 0.003$), and support for breastfeeding by "bystanders" ($p = 0.02$).

Discussion

Mothers are active both at home and at work, and are unable to receive the necessary personal support due to fragmented city life in Turkey. Furthermore, in our country the mothers working at private and government services receive a maternal leave of only six weeks after normal delivery, and eight weeks after cesarean section. This maternal leave is insufficient for the exclusive breastfeeding period to continue. Our study demonstrated that 47.5% of mothers had maternal leave of eight weeks or less, and with a shortened maternal leave, the weaning period started significantly earlier and breastfeeding continued for a significantly shorter period. We also showed timing of return to work had a more negative effect than the number of hours worked. The 1988 National Mother and Child Health Study in the United States determined that working did not affect the decision by the mother to breastfeed, but that mothers returning to work early breastfed their infants for a shorter period and started weaning earlier than four to six months^{2,3}.

In this study we determined that 40.5% of mothers started weaning before four months of age. This figure is much lower than the rate determined by the Turkish Demographic and Health Survey^{4,5}. The higher educational level of our patients versus the average seen in Turkey may have resulted in their weaning later. It has also been shown by others that as the length of maternal education increased, so did her breastfeeding time³. Additionally, our study group had a high ratio of high-income families (85.7% > \$ 1000 monthly income) and older mother (47% > 30 years of age). Several studies have proven that higher income and older age of mother led to a higher rate of using breastmilk^{3,6}. However, the 1993 Turkish Demographic and Health Survey revealed that breastmilk insufficiency and weaning were closely related to living area and maternal

education. It also showed that in urban areas where mothers had higher education and income, the ratio of breastfed children was low, early weaning was common, and there was a high rate of abandoning breastfeeding due to insufficient breastmilk¹.

The Baby-Friendly Hospital Initiative (BFHI) was launched by WHO and UNICEF in 1991 at the International Pediatric Association Conference in Ankara. Our results suggest that the decisions made in this conference with the objective of enabling mothers to breast feed exclusively for around six months and to continue breastfeeding for as long as the mother and baby want might have had positive impressions upon the medical staff of our hospital.

Mothers with independent employment had flexibility in terms of the time of returning to work and working hours; therefore, they had longer maternal leave, a higher rate of part-time work, and a higher rate of breastfeeding at work. These mothers breastfed their infants for a longer period of time than seen in the other employment groups. The shortest breastfeeding and highest rate of early weaning was determined in mothers working in private service. Higher pressure induced by the private service on the mother might provoke early cessation of breastfeeding and early weaning. Increasing control on the mother by her working environment may diminish the baby-mother relationship, and thus decrease breastfeeding. Our study revealed that breastfeeding conditions at work was the strongest parameter independently influencing breastfeeding time.

We also showed that mothers using a breastpump breastfed their infants longer and started weaning later than those who did not use breastpumps. A breastpump is a supplementary instrument that the mother uses to replace the missed feedings during work hours. It significantly prolongs the breastfeeding period^{7,8}.

A considerable percentage of our mothers (24%) were smokers. Smoking mothers breastfed significantly shorter and started weaning earlier

than the non-smoking mothers. These results were comparable to previous reports in literature^{9,10}.

In conclusion, despite the lower mean breastfeeding time (6.2 ± 3.4 months) when compared to the mean of Turkey (12 months), our study group had a higher rate of late weaning compared to figures in the literature and the average of Turkey. This was thought to be related to the higher level of education and income, and to the higher rate of mothers above 30 years of age. Better conditions at work for breastfeeding, longer maternal leave period, and increased use of maternal leave without a salary will obviously support breastfeeding for working mothers.

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