# PREFERENCES AND CONSUMPTION FREQUENCY OF MILK AND MILK PRODUCTS AMONG ADOLESCENTS AGED 13-15 YEARS AND THEIR MOTHERS 

Marzena Jeżewska-Zychowicz<br>Department of Organization and Consumption Economics, Warsaw Agricultural University, Warsaw

Key words: consumption, preferences, frequency of consumption, milk, milk products


#### Abstract

The aim of the study was to evaluate and compare the preferences and the frequency of consumption of milk and its products among adolescents and their mothers. The examined population included 449 adolescents aged 13 to 15 years ( 262 girls and 187 boys) and their mothers from the Warsaw and Garwolin regions.

The dairy products preferred the most, and the most frequently consumed, by adolescents included fruit-fermented milk beverages, ripening cheeses, milk and plain homogenous cheeses. Whereas the mothers indicated ripening cheeses, plain fresh cheeses, fruit-fermented milk beverages and milk as the most preferred and the most frequently consumed dairy products.

There were observed differences in preferences and frequency of dairy products consumption between adolescents and their mothers. The differences in the preferences referred, to a high extent, to processed cheeses, plain fresh cheeses and cream, whereas in the frequency of consumption - to processed cheeses, cream and plain homogenous cheeses. Girls tended to be more similar than boys to their mothers in respect of preferences as well as the frequency of dairy products consumption.


## INTRODUCTION

Studies into the preferences and frequency of consumption of various groups of products are considered as the best and most reliable way of planning and evaluating the quality of nutrition [Gawęcki et al., 1994; Baryłko-Pikielna et al., 1997].

A knowledge of preferences of different products, particularly those of vital importance to health, and their links with eating behaviours will make it possible to fully evaluate nutrition in terms of food preferences. The adjustment of a nutritional model to expectations of the population, especially according to their preferences, will provide a chance to improve their nutritional and health status. Education should involve activities leading to changes in behaviours and preferences as well [Babicz-Zielińska et al., 2000; Ura-mowska-Żyto et al., 1996].

Children's food preferences and food intakes were shown to be related to those of their mothers [Skinner et al., 2002; Fisher et al., 2000]. Maternal influence has been found with milk consumption [Fisher et al., 2000], fat preferences and consumption [Fisher \& Birch, 1995], vegetable variety [Skinner et al., 2002], dietary restriction [Cutting et al., 1999], and food preferences in general [Fisher et al., 2000; Borah-Giddens \& Falciglia, 1993].

Milk and its products are of vital importance, particularly in the nutrition of children and adolescents. The consumption of milk and its products within these population
groups has been found to be insufficient [Hamułka et al., 2001; Sznajder \& Przepióra, 1999]. According to many authors, poor awareness of the role of dairy products for health as well as a lack of proper habits received from childhood are the major reasons for the low consumption of milk and milk products [Sawicki et al., 1997].

Preferences and consumption of milk and dairy products have been the subject of ample studies in Poland [Kowrygo \& Zbrzeźna, 1994; Babicz-Zielińska, 1999a; Wądołowska et al., 2002], but knowledge of this field is still insufficient, especially taking into account the family environment and its influence on preferences and consumption of milk and milk products.

The aim of the study was to evaluate and to compare the preferences and the frequency of the consumption of milk and its products among adolescents and their mothers.

## MATERIAL AND METHODS

The studies were carried out among adolescents aged 13 to 15 years and among their mothers. The examined population included 449 adolescents; 262 girls ( $58.4 \%$ ) and 187 boys $(41.6 \%)$ from the Warsaw and Garwolin regions. The population included $38.3 \%$ people living in rural areas and $61.7 \%$ persons living in Warsaw.

The preferences were determined for 12 groups of diary products (Table 1). The studies were carried out by the test method using a 5 -point hedonic scale, the edges of which

[^0]were given scores of 1 (very much disliked) and 5 (liked very much), and the neutral point in the middle was given a score of 3 .

The frequency of consumption was examined for the same groups of dairy products. The evaluation was made using a 3-point scale containing the following descriptions of consumption frequency: "never" (1), "sometimes" (2) and "often" (3).

The data obtained were used to calculate the mean degree of preferences and the mean frequency of consumption of the analyzed products for the total population and separately for the groups of girls and boys. The results of these calculations were used to make preferences and consumption frequency rankings in order of decreasing preference and consumption frequency. The $\tau$-Kendall's test was used to evaluate the influence of gender on the preferences and on the consumption frequency of milk and milk products. The evaluation of the correlation between preferences and consumption frequency was made based on the Kendall's correlation-rank coefficient $\left(\mathrm{r}_{\mathrm{k}}\right)$.

The statistical analysis was made with SPSS for Windows at a significance level of $\mathrm{p} \leq 0.05$.

## RESULTS AND DISCUSSION

The results for studies on dairy products preferences of adolescents are compiled in Table 1. Fruit fermented milk beverages ( $\bar{x}=4.12$ ) and ripening cheeses $(\bar{x}=4.08)$ were the products liked the most by the adolescents. Similar tendencies were observed in other studies on milk and milk products, for example among young women [Babicz-Zielińska, 1999b] and among adolescents aged 15 to 19 years [Wądołowska et al., 2002]. Moreover, the milk beverages with the fruit additives ( $\bar{x}=4.12, \mathrm{R}=1$ ) were ranked higher than plain fermented milk beverages ( $\bar{x}=3.45, \mathrm{R}=8$ ). Milk was declared to be a fairly liked product by the respondents. The lowest ranked in liking hierarchy were smoked cheeses and fungal flora-ripened cheeses. These products were also ranked low in studies carried out among female students [Babicz-Zielińska, 1999b] and among pupils aged 15 to 19 years [Wądołowska et al., 2002]. According to the Kendall's correlation-rank coefficient (0.85), it can be stated that the gender did not differentiate a preference for dairy products (Table 1). The differences observed between preference rankings of products in the case of girls and boys reached 1 point.

TABLE 1. Degree of liking of dairy products for the examined adolescents.

| Products | Total ( $\mathrm{N}=449$ ) |  |  | Girls ( $\mathrm{N}=262$ ) |  |  | Boys ( $\mathrm{N}=187$ ) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\bar{x}$ | SD | R | $\bar{x}$ | SD | R | $\bar{x}$ | SD | R |
| Fruit fermented milk beverages | 4.12 | 0.92 | 1 | 4.18 | 0.91 | 1 | 4.04 | 0.92 | 2 |
| Ripening cheeses | 4.08 | 0.98 | 2 | 4.10 | 0.92 | 2 | 4.05 | 1.06 | 1 |
| Milk | 3.85 | 1.12 | 3 | 3.82 | 1.16 | 4 | 3.90 | 1.05 | 3 |
| Plain homogenous cheeses | 3.83 | 1.08 | 4 | 3.91 | 1.10 | 3 | 3.72 | 1.05 | 4 |
| Processed cheeses | 3.63 | 1.05 | 5 | 3.67 | 1.01 | 6 | 3.56 | 1.11 | 5 |
| Flavoured homogenous cheeses | 3.60 | 1.07 | 6 | 3.68 | 1.04 | 5 | 3.49 | 1.10 | 6 |
| Plain fresh cheeses | 3.57 | 1.03 | 7 | 3.66 | 0.99 | 7 | 342 | 1.07 | 8 |
| Plain fermented milk beverages | 3.45 | 1.17 | 8 | 3.44 | 1.18 | 8 | 3.46 | 1.16 | 7 |
| Kefir | 3.19 | 1.22 | 9 | 3.10 | 1.23 | 10 | 3.33 | 1.21 | 9 |
| Cream | 3.09 | 0.93 | 10 | 3.13 | 0.91 | 9 | 3.03 | 0.96 | 10 |
| Smoked cheeses | 2.82 | 1.19 | 11 | 2.79 | 1.21 | 11 | 2.86 | 1.15 | 11 |
| Fungal flora-ripened cheeses | 2.61 | 1.34 | 12 | 2.63 | 1.37 | 12 | 2.59 | 1.30 | 12 |
|  |  | - |  |  |  | $=0.8$ | p<0.00 |  |  |

N - numbers of respondents, $\bar{x}$ - mean degree, SD - standard deviation, R - rank of liking degree

TABLE 2. Frequency of consumption of dairy products for the examined adolescents.

| Products | Total ( $\mathrm{N}=449$ ) |  |  | Girls ( $\mathrm{N}=262$ ) |  |  | Boys ( $\mathrm{N}=187$ ) |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\bar{x}$ | SD | R | $\bar{x}$ | SD | R | $\bar{x}$ | SD | R |
| Ripening cheeses | 2.50 | 0.62 | 1 | 2.52 | 0.59 | 1 | 2.48 | 0.66 | 2 |
| Milk | 2.48 | 0.63 | 2 | 2.49 | 0.64 | 2 | 2.46 | 0.62 | 1 |
| Fruit fermented milk beverages | 2.41 | 0.61 | 3 | 2.48 | 0.57 | 3 | 2.31 | 0.66 | 3 |
| Plain homogenous cheeses | 2.21 | 0.65 | 4 | 2.25 | 0.64 | 4 | 2.16 | 0.66 | 4 |
| Processed cheeses | 2.06 | 0.65 | 5 | 2.06 | 0.64 | 6 | 2.04 | 0.65 | 5 |
| Plain fresh cheeses | 2.05 | 0.58 | 6 | 2.08 | 0.61 | 5 | 2.00 | 0.54 | 6 |
| Flavoured homogenous cheeses | 2.01 | 0.66 | 7 | 2.05 | 0.65 | 7 | 1.95 | 0.66 | 9 |
| Plain fermented milk beverages | 1.96 | 0.71 | 8 | 1.93 | 0.72 | 8 | 1.99 | 0.71 | 7 |
| Cream | 1.89 | 0.55 | 9 | 1.92 | 0,52 | 9 | 1.84 | 0.59 | 10 |
| Kefir | 1.82 | 0.69 | 10 | 1.74 | 0.67 | 10 | 1.96 | 0.70 | 8 |
| Smoked cheeses | 1.56 | 0.69 | 11 | 1.55 | 0.67 | 11 | 1.57 | 0.67 | 11 |
| Fungal flora-ripened cheeses | 1.54 | 0.69 | 12 | 1.54 | 0.69 | 12 | 1.54 | 0.68 | 12 |
|  |  | - |  |  |  | =0. | <0.00 |  |  |

N - numbers of respondents, $\bar{x}$ - mean degree, SD - standard deviation, R - rank of liking degree

The results of studies on the frequency of dairy products consumption among adolescents are presented in Table 2. Ripening cheeses, milk and fruit fermented milk beverages were consumed the most frequently. The lowest positions in the frequency hierarchy were occupied by smoked cheeses and fungal flora-ripened cheeses. Similar results were found in a study carried out among a population aged 15 to 19 years [Wądołowska et al., 2002]. There was a significant similarity between the frequency of milk product consumption in the groups of girls and boys. Differences in ranks were observed only in the case of kefir and flavoured homogenous cheeses, and equalled 2 points. Girls declared a more frequent consumption of flavoured homogenous cheeses and more seldom consumption of kefir than boys.

The preference ranking and the consumption frequency rankings of dairy products in regard to respondents' gender are presented in Table 3. The correlation between preference and consumption frequency of the analysed products was very high, as shown by correlation-rank coefficient $\mathrm{r}_{\mathrm{k}}=0.88$ for the total population, $\mathrm{r}_{\mathrm{k}}=0.94$ for girls and $\mathrm{r}_{\mathrm{k}}=0.82$ for boys. The observed difference between the preferences and the consumption frequency in the total popula-
tion referred to fruit fermented milk beverages which had the highest rank in the preference hierarchy and the third place in the consumption hierarchy. Fruit fermented milk beverages and flavoured homogenous cheeses were less frequently consumed, though more liked. Milk and plain fresh cheeses were more frequently consumed by girls, though less liked. Boys liked much more flavoured homogenous cheeses, though they consumed them less frequently. The opposite situation was with plain fresh cheeses and fruit fermented milk beverages. The differences between the rankings for the consumption frequency and the ranks for liking degree did not exceed 2 points, except one product in the boys' hierarchy (flavoured homogenous cheeses - 3 points). The values for two products placed at the bottom of ranking list were the same. Smoked cheeses and fungal flora-ripened cheeses were not preferred as well as not often consumed by respondents, which supported the results achieved in the studies of Wądołowska et al. [2002].

The preferences and consumption frequency of dairy products among mothers of the examined adolescents are shown in Table 4. Among the most liked dairy products, mothers declared ripening cheeses ( $\bar{x}=4.02, \mathrm{R}=1$ ) and plain

TABLE 3. Correlations between ranks of consumption frequency and liking degree for dairy products among the examined adolescents.

| Products | Ranks |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total ( $\mathrm{N}=449$ ) |  | Girls ( $\mathrm{N}=262$ ) |  | Boys ( $\mathrm{N}=187$ ) |  |
|  | F | P | F | P | F | P |
| Ripening cheeses | 1 | 2 | 1 | 2 | 2 | 1 |
| Milk | 2 | 3 | 2 | 4 | 1 | 3 |
| Fruit fermented milk beverages | 3 | 1 | 3 | 1 | 3 | 2 |
| Plain homogenous cheeses | 4 | 4 | 4 | 3 | 4 | 4 |
| Processed cheeses | 5 | 5 | 6 | 6 | 5 | 5 |
| Plain fresh cheeses | 6 | 7 | 5 | 7 | 6 | 8 |
| Flavoured homogenous cheeses | 7 | 6 | 7 | 5 | 9 | 6 |
| Plain fermented milk beverages | 8 | 8 | 8 | 8 | 7 | 7 |
| Cream | 9 | 10 | 9 | 9 | 10 | 10 |
| Kefir | 10 | 9 | 10 | 10 | 8 | 9 |
| Smoked cheeses | 11 | 11 | 11 | 11 | 11 | 11 |
| Fungal flora-ripened cheeses | 12 | 12 | 12 | 12 | 12 | 12 |
|  | $\mathrm{r}_{\mathrm{k}}=0.88 ; \mathrm{p}<0.001$ |  | $\mathrm{r}_{\mathrm{k}}=0.94 ; \mathrm{p}<0.001$ |  | $\mathrm{r}_{\mathrm{k}}=0.83 ; \mathrm{p}<0.001$ |  |

F - frequency of consumption, P - preferences
TABLE 4. Preferences and frequency of consumption of dairy products for the mothers of the examined adolescents.

| Products | Preferences $(\mathrm{N}=449)$ |  |  | Frequency of consumption $(\mathrm{N}=449)$ |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\bar{x}$ | SD | R | $\bar{x}$ | SD |  |
| Ripening cheeses | 4.02 | 0.91 | 1 | 2.41 | 0.61 |  |
| Plain fresh cheeses | 4.01 | 0.84 | 2 | 2.34 | 0.59 | 1 |
| Fruit fermented milk beverages | 3.86 | 1.01 | 3 | 2.35 | 0.66 | 4 |
| Milk | 3.83 | 1.00 | 4 | 2.40 | 0.60 | 3 |
| Plain homogenous cheeses | 3.79 | 0.96 | 5 | 2.12 | 0.65 | 2 |
| Cream | 3.73 | 0.86 | 6 | 2.24 | 0.58 | 7 |
| Plain fermented milk beverages | 3.71 | 1.09 | 7 | 2.13 | 0.70 | 5 |
| Flavoured homogenous cheeses | 3.68 | 1.01 | 8 | 2.06 | 0.66 | 6 |
| Kefir | 3.58 | 1.11 | 9 | 2.04 | 0.69 | 8 |
| Processed cheeses | 3.50 | 1.03 | 10 | 1.97 | 0.59 | 9 |
| Smoked cheeses | 3.27 | 1.17 | 11 | 1.75 | 0.69 | 10 |
| Fungal flora-ripened cheeses | 3.22 | 1.31 | 12 | 1.81 | 0.74 | 12 |

N - numbers of respondents, $\bar{x}$ - mean degree, SD - standard deviation, R - rank of liking degree and frequency of consumption
fresh cheeses ( $\bar{x}=4.01, \mathrm{R}=2$ ). Ripening cheeses were also the most frequently consumed dairy product ( $\bar{x}=2.41$, $\mathrm{R}=1$ ), with milk being second in this hierarchy ( $\bar{x}=2.40$, $\mathrm{R}=2$ ). The lowest ranks in the hierarchy of preferences and consumption frequency were given, similarly as among the adolescents, for smoked cheeses and fungal flora-ripened cheeses. The correlation between preferences and the consumption frequency of the analysed products was very high, as shown by correlation-rank coefficient $\mathrm{r}_{\mathrm{k}}=0.82$. Only in the case of three products, i.e. plain fresh cheeses, milk and plain homogenous cheeses, there were observed differences between preferences and the consumption frequency, equalling 2 points. Plain fresh cheeses and plain homogenous cheeses were less frequently consumed, though more liked. Milk was more frequently consumed, though less liked.

The correlations between preferences of mothers and their children are presented in Table 5. For the total population, the correlation-rank coefficient $\left(\mathrm{r}_{\mathrm{k}}=0.58\right)$ indicated the existence of some differences between both variables. The highest differences in the hierarchy of liking dairy products
(5 points) were observed in the case of processed cheeses and plain fresh cheeses. Children placed processed cheeses much higher on the list of liked products $(\mathrm{R}=5)$ than their mothers $(\mathrm{R}=10)$ and mothers placed plain fresh cheeses $(\mathrm{R}=2)$ higher than their children $(\mathrm{R}=7)$. The differences between mothers and children's preferences also applied to cream (4 points). Mothers liked cream much more than their children. The differences in the preference hierarchy of mothers and their children did not exist in the case of kefir $(\mathrm{R}=9)$, smoked cheeses $(\mathrm{R}=11)$ and fungal flora-ripened cheeses $(R=12)$. The gender of the child differentiated the existence of differences in the preferences for dairy products among mothers and their children - the correlation-rank coefficient for girls and boys equalled 0.64 and 0.58 , respectively. The differences in the liking degree between girls and their mothers related to more products than between boys and their mothers. They were observed in the case of seven products, but for five of them the difference equalled only 2 points. The highest differences in the hierarchy of liking dairy products were observed, similarly to the whole population, in the case of processed cheeses and plain fresh

TABLE 5. Correlation between ranks of liking degree for dairy products among the examined adolescents and their mothers.

| Products | Ranks of liking degree |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total ( $\mathrm{N}=449$ ) |  | Girls ( $\mathrm{N}=262$ ) |  | Boys ( $\mathrm{N}=187$ ) |  |
|  | A | M | A | M | A | M |
| Fruit fermented milk beverages | 1 | 3 | 1 | 3 | 2 | 3 |
| Ripening cheeses | 2 | 1 | 2 | 1 | 1 | 2 |
| Milk | 3 | 4 | 4 | 4 | 3 | 4 |
| Plain homogenous cheeses | 4 | 5 | 3 | 5 | 4 | 5 |
| Processed cheeses | 5 | 10 | 6 | 10 | 5 | 10 |
| Flavoured homogenous cheeses | 6 | 8 | 5 | 7 | 6 | 6 |
| Plain fresh cheeses | 7 | 2 | 7 | 2 | 8 | 1 |
| Plain fermented milk beverages | 8 | 7 | 8 | 6 | 7 | 8 |
| Kefir | 9 | 9 | 10 | 9 | 9 | 9 |
| Cream | 10 | 6 | 9 | 7 | 10 | 6 |
| Smoked cheeses | 11 | 11 | 11 | 11 | 11 | 11 |
| Fungal flora-ripened cheeses | 12 | 12 | 12 | 12 | 12 | 12 |
|  | $\mathrm{r}_{\mathrm{k}}=0.58 ; \mathrm{p}=0.009$ |  | $\mathrm{r}_{\mathrm{k}}=0.64 ; \mathrm{p}=0.004$ |  | $\mathrm{r}_{\mathrm{k}}=0.58 ; \mathrm{p}=0.009$ |  |

A - adolescents, M - mothers
TABLE 6 . Correlation between ranks of consumption frequency for dairy products among the examined adolescents and their mothers.

| Product | Ranks of consumption frequency |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Total ( $\mathrm{N}=449$ ) |  | Girls ( $\mathrm{N}=262$ ) |  | Boys ( $\mathrm{N}=187$ ) |  |
|  | A | M | A | M | A | M |
| Ripening cheeses | 1 | 1 | 1 | 1 | 2 | 4 |
| Milk | 2 | 2 | 2 | 2 | 1 | 1 |
| Fruit fermented milk beverages | 3 | 3 | 3 | 3 | 3 | 3 |
| Plain homogenous cheeses | 4 | 7 | 4 | 7 | 4 | 7 |
| Processed cheeses | 5 | 10 | 6 | 10 | 5 | 10 |
| Plain fresh cheeses | 6 | 4 | 5 | 4 | 6 | 2 |
| Flavoured homogenous cheeses | 7 | 8 | 7 | 8 | 9 | 9 |
| Plain fermented milk beverages | 8 | 6 | 8 | 6 | 7 | 6 |
| Cream | 9 | 5 | 9 | 5 | 10 | 5 |
| Kefir | 10 | 9 | 10 | 9 | 8 | 8 |
| Smoked cheeses | 11 | 12 | 11 | 12 | 11 | 12 |
| Fungal flora-ripened cheeses | 12 | 11 | 12 | 11 | 12 | 11 |
|  | $\mathrm{r}_{\mathrm{k}}=0.64 ; \mathrm{p}=0.004$ |  | $\mathrm{r}_{\mathrm{k}}=0.66 ; \mathrm{p}=0.003$ |  | $\mathrm{r}_{\mathrm{k}}=0.44 ; \mathrm{p}=0.046$ |  |

A - adolescents, M - mothers
cheeses. The differences in the liking degree between boys and their mothers related to fewer products in comparison with girls, but they were characterized by higher values. Boys placed plain fresh cheeses eighth in the hierarchy and their mothers placed them first, cream was tenth for the boys and sixth for their mothers. The difference between boys and their mothers' preferences in the case of processed cheeses was similar to the total population.

The correlations between mothers and their children's frequency of eating dairy products are presented in Table 6. For the total population, the correlation-rank coefficient ( $\mathrm{r}_{\mathrm{k}}=0.64$ ) indicated some differences between both variables. The highest differences in the hierarchy of consumed dairy products were observed in the case of processed cheeses (5 points) and cream (4 points). Children consumed processed cheeses more frequently $(\mathrm{R}=5)$ than their mothers ( $\mathrm{R}=10$ ), and mothers placed cream in the ranking of consumption frequency $(R=5)$ higher than their children $(R=9)$. The differences between the frequency of consumption of ripening cheeses, milk and fruit fermented milk beverages, which were products placed at the top of the rankings, were not observed among mothers or their children The gender of child differentiated the frequency of consumption of some dairy products among mothers and their children - the cor-relation-rank coefficient for girls equalled 0.67 and for boys it equalled 0.44 . The differences between boys and their mothers referred to more products than between girls and their mothers. The highest differences in the girls and boys' hierarchies of consumption frequency were observed, similarly to the whole population, in the case of processed cheeses and cream. Moreover, boys more seldom consumed $(\mathrm{R}=6)$ plain fresh cheeses than their mothers $(\mathrm{R}=2)$.

The comparison of differences between mothers and their children's preferences and the frequency of consumption of dairy products indicated a higher similarity in the frequency of consumption of these products than in liking. Thus, it can be stated that mothers, to a higher degree, influenced children's behaviours than preferences concerning dairy products. In studies on preferences and behaviours concerning milk and milk products, mainly such factors influencing them as freshness, taste, quality, need for healthy nutrition, custom, effect of beauty etc. were taken into consideration [Wądołowska et al., 2002; Maruszewska et al., 2001]. The influence of family factors has rarely been taken into account, which makes the discussion of achieved results difficult. Nevertheless, an overview of literature has shown the important role of family, and especially the role of mother, in shaping behaviours and preferences towards dairy products. Auld et al. [2002] claimed that a barrier to milk consumption among young girls was the limited expectation within families for drinking milk. Simultaneously, mothers were more likely to encourage their daughters to drink milk than fathers. Fisher et al. [2000] found that young girls were more likely to choose milk if they see their mothers making this choice.

## CONCLUSIONS

The dairy products preferred the most, and the most frequently consumed, by adolescents included fruit fermented milk beverages, ripening cheeses, milk and plain homogenous cheeses. Mothers indicated ripening cheeses, plain
fresh cheeses, fruit-fermented milk beverages and milk as the most preferred, and the most frequently consumed, dairy products.

The preferences of dairy products and the frequency of their consumption were significantly correlated within the mothers' population, adolescents and in the groups of boys and girls. The correlations between preferences and consumption frequency in the above-mentioned groups were statistically significant and strong as well.

There were differences observed in the preferences and frequency of dairy products consumption between adolescents and their mothers. The differences in the preferences referred, to a high extent, to processed cheeses, plain fresh cheeses and cream, and in the frequency of consumption to processed cheeses, cream and plain homogenous cheeses. Girls tended to be more similar than boys to their mothers, in respect to preferences as well as the frequency of dairy product consumption.

There was a higher similarity in frequency of dairy products consumption observed than in preferences between mothers and their children. It can be stated that mothers, to a greater degree, influenced children's behaviours than preferences of milk and its products.

## REFERENCES

1. Auld G., Boushey C.J., Bock M.A., Bruhn C., Gabel K., Gustafson D., Holmes B., Misner S., Novotny R., Peck L., Pelican S., Pond-Smith D., Read M., Perspectives of intake of calcium-rich foods among Asian, Hispanic, and White preadolescent and adolescent females. J. Nutr. Educ. Behav., 2002, 34, 242-251.
2. Babicz-Zielińska E., Przysławski J., Wądołowska L., Schlegel-Zawadzka M., Preferences and choice factors for fats among female students. Pol. J. Food Nutr. Sci., 2000, 9/50, 1, 51-55.
3. Babicz-Zielińska E., Preferences and conumption frequency of diary products among young women. Żywność, 1999a, 3, 20, 130-138 (in Polish).
4. Babicz-Zielińska E., Studiem into dietary preferences and choince factors in selected consumer groups. Wyd. WSM, Gdynia, 1999b (in Polish).
5. Baryłko-Pikielna N., Matuszewska I., Szczecińska A., Radzanowska J., Consumer responses and sensory characteristics of low-fat and full-fat soft margarines and mixed spreads. Pol. J. Food Nutr. Sci., 1997, 6/47, 4, 129-140.
6. Borah-Giddens J., Falciglia G.A., A meta-analysis of the relationship in food preferences between parents and children. J. Nutr. Educ., 1993, 25, 102-107.
7. Cutting T.M., Fisher J.O., Grimm-Thomas K., Birch L.L., Like mother, like daughter: familiar patterns of overweight are mediated by mothers' dietary disinhibition. Am. J. Clin. Nutr., 1999, 69, 608-613.
8. Fisher J.O., Mitchell D.C., Smicklas-Wright H., Birch L.L., Maternal milk consumption predicts the trade off between milk and soft drinks in young girls' diets. J. Nutr., 2000, 131, 246-250.
9. Fisher J.O., Birch L.L., Fat preferences and fat consumption of 3- to 5 -year-old children are related to parental adiposity. J. Am. Diet. Assoc., 1995, 95, 759-764.
10. Gawęcki J., Czarnocińska J., Wróblewska D., Food preferences and dietary fiber intake In health subjects and subjects with obesity and arteriosclerosis. Żyw. Człow. Metab., 1994, 21, 117-123 (in Polish; English abstract).
11. Hamułka J., Wawrzyniak A., Gronowska-Senger A., Kowalczyk J., Consumption assessment of milk and milk products as a source of calcium and riboflavin among school children. Żyw. Człow. Metab., 2001, 28, Suppl., 403-409 (in Polish).
12. Kowrygo B., Zbrzeźna I., Evaluation of preferences for milk and milk products consumption. Przegl. Mlecz., 1994, 3, 73-76 (in Polish).
13. Maruszewska M., Przysławski J., Bolesławska I., Preferences of university students for milk and milk products consumption. Żyw. Człow. Metab. 2001, 28 Suppl., 410-417 (in Polish).
14. Sawicki A., Rutkowska U., Zdrójkowska B., Krześniak J., Dębiński A., Kunachowicz H., Calcium intake through milk and milk products and osteoporosis in women. Żyw. Człow. Metab., 1997, 24, 63-73 (in Polish; English abstract).
15. Skinner J.D., Carruth B.R., Bounds W., Ziegler P., Reidy
K., Do food-related experiences in the first 2 years of life predict dietary variety in school-aged children? J. Nutr. Educ. Behav., 2002, 34, 310-315.
16. Sznajder M., Przepióra A., Milk consumption among school children - results of questionnaire surveys. Przeg. Mlecz., 1999, 5, 149-154 (in Polish).
17. Uramowska-Żyto B., Kozłowska-Wojciechowska M., Jarosz A., The impact of the education on the consumer behaviour with respect to the choice of edible fats. Żyw. Człow. Metab., 1996, 23, 128-148 (in Polish; English abstract).
18. Wądołowska L., Babicz-Zielińska E., Schlegel-Zawadzka M., Przysławski J., Czarnocińska J., Preferences, consumption and choice factors for milk and its products among school children. Pol. J. Food Nutr. Sci., 2002, 11/52, 2, 81-86.

Received February 2004. Revision received March and accepted May 2004.

# PREFERENCJE I CZĘSTOTLIWOŚĆ SPOŻYWANIA MLEKA I JEGO PRZETWORÓW WŚRÓD MLODZIEŻY W WIEKU 13-15 LAT I JEJ MATEK 

Marzena Jeżewska-Zychowicz<br>\section*{Katedra Organizacji i Ekonomiki Konsumpcji, Szkoła Gtówna Gospodarstwa Wiejskiego, Warszawa}

Celem badań była ocena oraz porównanie preferencji i częstotliwości spożywania mleka i jego przetworów wśród młodzieży i jej matek. Badaną populację stanowiło 449 uczniów w wieku 13-15 lat, w tym 262 dziewcząt i 187 chłopców, oraz ich matek z Warszawy i gminy Garwolin.

Do produktów mlecznych najbardziej preferowanych i najczęściej spożywanych przez badaną młodzież należały mleczne napoje fermentowane owocowe, sery dojrzewające, mleko i serki homogenizowane. Wśród najbardziej lubianych i najczęściej spożywanych produktów mlecznych matki badanych wymieniły sery dojrzewające, sery twarogowe, mleczne napoje fermentowane owocowe oraz mleko (tab. 1, 2, 4).

Zaobserwowano różnice w preferencjach i częstotliwości spożywania produktów mlecznych pomiędzy dziećmi i ich matkami. Największe różnice w preferencjach odnosily się do serów topionych i twarogowych oraz śmietany, natomiast w przypadku częstotliwości spożywania różnice dotyczyły przede wszystkim serów topionych, śmietany i serków homogenizowanych. Dziewczęta wykazywały większe podobieństwo, niż chłopcy, do swoich matek zarówno pod względem preferencji jak i częstotliwości spożywania produktów mlecznych (tab. 5, 6).


[^0]:    Author's address for correspondence: Marzena Jeżewska-Zychowicz, Department of Organization and Consumption Economics, Warsaw Agricultural University, ul. Nowoursynowska 159c, 02-787 Warszawa, Poland; tel: (48 22) 8439041 ext. 112 91; fax (48 22) 847 27 83; e-mail: jezewska@alpha.sggw.waw.pl

