Acta Alimentaria, Vol. 32 (4), pp. 341–352 (2003)

MOTHER'S ATTITUDES AND BEHAVIOUR TOWARDS INFANT FEEDING: AN EXPLORATORY STUDY IN POLAND

A. SWIECICKA[a,*], W. VERBEKE[b], M. JEZNACH[a] and J. VIAENE[b]

[a] Department of Organisation and Economics of Consumption, Faculty of Human Nutrition and Consumer Sciences, Warsaw Agricultural University (SGGW), Ul. Nowoursynowska 159 c, 02-776 Warsaw. Poland
[b] Department of Agricultural Economics, Ghent University, Coupure links 653, B-9000 Gent. Belgium

(Received 18 October 2002, accepted: 2 April 2003)

This paper reports on a preliminary and exploratory study on mother's attitudes and behaviour towards infant feeding in Poland. The aim of this study was to explore the impact of demographic and socio-economic factors on mother's choice of breastfeeding and attitude towards baby ready food. Primary cross-sectional data were gathered through a sample survey research. The choice for breastfeeding is found to be associated with lower income, whereas no significant effects of mother age and education are observed. With respect to attitude towards baby ready foods, younger mothers were found to attach significantly more importance to advertising and information on the product label. They also rely more on specialised information from paediatricians with respect to infant feeding. Generally, the findings point towards a greater need for information related to infant feeding among younger and economically less-favoured mothers.

Keywords: consumer behaviour, infant feeding patterns, Poland, survey

A good, correct diet, appropriate for age is important particularly in the beginning of the children's life, since it has a fundamental impact on their future growth and development. Current infant feeding guidelines recommend exclusive breastfeeding (only breast milk with no other foods or liquids) during the first six months of life, followed by breast milk and complementary foods (solid and semi-solid food) from six months of age on (WHO/UNICEF, 2002). Breastfeeding is considered to be the most appropriate way of providing ideal food for healthy growth and development of infants in the first half year of life. In addition, breastfeeding is shown to have a unique biological and emotional influence on the health of both mother and child (WHO/UNICEF, 1989).

SELLEN (2001) recently reported that young child-feeding practices rarely conform to current global recommendations, which yields public health nutrition policy concerns and raises the need for proper assessment of infant feeding practices and influencing factors. In practice, complementary foods are introduced between the age of four and six months for the majority of infants (SOCHA, 2002; WHO/UNICEF, 1990). This stage of life is defined as the weaning time, which means getting accustomed to foods other

* To whom correspondence should be addressed.
Fax: +48-228-473745; e-mail: aswieci@yahoo.com; jeznachm@alpha.sggw.waw.pl

0139-3006/2003/$ 20.00

than milk (new tastes, flavours and home meals) and stopping of breastfeeding (CAMERON & HOFVANDER, 1983; SOCHA, 2002). Weaning foods, based on vegetable and fruit purees, soft egg dishes, cereal foods, minced meat, and ready meals, are widely available in convenient pre-cooked portions in cans or glass containers.

Despite the dietary recommendations, the final choice of a particular feeding pattern depends on the mothers. Many studies indicate that a large number of mothers in wealthy countries ignore feeding guidelines. Results of a British survey showed that 90 percent of the mothers introduced other foods apart from breast milk or milk formula by the age of four months, and a quarter of them did so already by the age of eight weeks (FOSTER et al., 1997). Similar results were obtained in the Euro-Growth study (FREEMAN et al., 2000). The majority of examined infants were breastfed at the age of one month (74%). However, only 25 and 15 percent of European infants were still breastfed exclusively at the ages of three and four months, respectively. Despite recommendations about the introduction of solid foods to the infant's diet beyond the age of four months, more than half of the Euro-Growth infants consumed some solids already by the age of three months. In a similar study conducted in Hawaii, NOVOTNY and co-workers (2000) revealed that 45% of the infants were still breastfed at the age of six months and 16% at the age of one year.

There is evidence that availability of commercial infant foods plays a significant role in the young children's diet. The results of DONALD study (KERSTING et al., 1998), investigating the level of consumption of commercial infant food products by German infants, showed that many mothers did not follow the paediatrics recommendations. Many mothers fed their children with baby ready-to-eat foods already by the age of three months (approximately 20 percent of the infants). Consumption of baby ready foods appeared to be highest at the age of nine months. Indeed, infant food company's guidelines deviate from public health recommendations. According to Gerber (the major Polish infant food company) guidelines, the feeding plan for new-born babies (up to three months of age) includes breast milk exclusively or milk formula when breastfeeding is not possible. Starting at the age of three month, the single-ingredient, easy-to-swallow solid foods should be introduced into the child's diet. The older the child, the more sophisticated, more varied should the diet be (GERBER, 2002).

The approach towards childbearing and child caring (and also child feeding) has been changing nowadays. According to European statistics, a declining number of births is observed (EUROSTAT, 2002). Women put off the decision about childbirth. For example, the average mother's age of birth of the first child increased in Poland from 23.5 years in 1990 to 24.2 years in 2000 (GUS, 2002). Total fertility rate in 2000 in Poland was approximately 1.3 children per woman. The majority of women decided about the childbirth between 25 and 29 years of age (92.2 percent of live births in 2000). Clearly, Polish women are prone to delaying childbearing and finally they decide on one child. Female employment status was shown to be the major determinant of the presence and number of children in households in the United Kingdom. Employed women scheduled children significantly later in life and had fewer children compared to

non-employed women (KALWIJ, 2000). This tendency is strongly intertwined with social and economic changes in societies. Women are more interested in achieving a higher level of education and accessing to career-type jobs (NACHHD COUNCIL, 1999).

Any changes of infants feeding and the introduction of complementary foods earlier than recommended are associated with many person- and environment-related factors. This was exemplified by WILLIAMS and co-workers (1999) who reported that Canadian mothers attributed their preference for breastfeeding primarily to personal choice, whereas preference for formula feed was attributed to socio-environmental factors. Several studies showed that infant feeding choices are significantly associated with demographic circumstances. The British Infant Feeding Survey, conducted in 1995 and repeated in 2000 in Great Britain (England and Wales, Scotland and Northern Ireland), demonstrated that British women who breastfed a previous child were most likely to continue to breastfeed after the first few weeks, as were mothers educated beyond the age of 18 and women in non-manual social class groups. In reference to the survey carried out in 2000, a relationship between mother's age and breastfeeding rates for the first-time mothers was revealed. Older, higher educated mothers, belonging to social classes I and II (non-manual labour), were found to be the most likely to breastfeed (DEPARTMENT OF HEALTH U.K., 1995, 2000). In line with these findings, DE LA HUNTY and co-workers (2000) demonstrated that younger, lower educated mothers belonging to manual working social classes were less likely to breastfeed and furthermore were less likely to follow the feeding recommendations. For instance, using milk as main drink too early, giving fat-reduced milks at a young age, using feeding bottles too long without supplementary vitamins. In line with these findings, NOVOTNY and co-workers (2000) found that late weaning in Hawaii was associated with, among other factors, previous breastfeeding experience, college education and older maternal age. Reversibly, mothers employed full-time outside the home were more likely to early weaning.

Also NORTHSTONE and co-workers (2001) revealed that younger mothers were more likely than older mothers to introduce lumpy solids before six month of age. Finally, an Australian survey estimating rates of breastfeeding in the first year of life conducted in 1995 (DONATH & AMIR, 2000), revealed that a higher socio-economic status of the family was linked with higher rate of breastfeeding. A slightly contradictory relationship between mother's level of education and infant feeding pattern was observed in the Philippines (GUILKEY & STEWART, 1995). The likelihood of exclusively feeding commercial food relative to exclusive breastfeeding was higher among better-educated mothers. Furthermore, Philippine mothers who worked outdoors for wages were found to be less likely to breastfeed exclusively.

The rationale for this research lies in the importance of infant feeding practices from a public health and policy point of view, as well as in the urgent need to study variations in infant feeding patterns (NOVOTNY et al., 2000; SELLEN, 2001). By lack of such studies in Poland, the general aim of this research is to gain insights in mother's attitude and behaviour towards infant feeding, more specifically the choice for breastfeeding versus ready baby food in Poland.

The baby food industry in Poland has started to develop in the early nineties when the process of transition from the central-planned to the market-oriented economy began. The situation before the economic reform as well in baby food as in other food sectors was not investigated very well. The low quality of products, the absence of responsiveness to market signals and the lack of feedback through the food chain from consumers to producers were considered as serious constraints on the successful development of the food processing sector (POLISH-EUROPEAN COMMUNITY – WORLD BANK TASK FORCE, 1990; HENSON & SEKULA, 1994; KOWRYGO et al., 1995). Nowadays, Poland is well advanced in the process of transition and it is in the final stage for joining the European Union, which has a great impact on its food chains from producers, over industry to consumers (VERBEKE & VIAENE, 1998; JANUSZEWSKA et al., 2000). Finally, studies have shown that consumers in transition economies have also become fully aware of food quality, food safety and health issues (BIACS, 2001; BÁNÁTI & LAKNER, 2002; MOON et al., 2002), which strongly impacts their domestic food industry. The Polish baby food market is now well developed and supplied with a wide variety of assortments. It is considered to be very similar to the high-developed European countries. Several companies with different shares of foreign capital dominate the baby ready food market. The leading producers on Polish market are Alima Gerber, Ovita Nutricia and Hipp, with market shares approximating 60%, 30% and 6%, respectively.

A specific objective of this study is to explore the impact of socio-demographic factors, like mother's age, education and economic status on mother's attitude and behaviour. Based on the previously mentioned insights from literature, three specific hypotheses are set forth: the choice for breastfeeding is significantly associated with mother's age (hypothesis 1), education level (hypothesis 2) and economic status (hypothesis 3), in that older age, better education and higher income increase the likelihood to breastfeed. Relationships between socio-demographic variables and attitude, information usage and perception – that will be investigated in this paper – are considered as empirical issues. First, providing insights into the market for baby food in Poland sets the scene. Next, the research methodology and empirical findings are presented and discussed.

1. Materials and methods

As the study is aimed to explore mother's attitude and behaviour towards infant feeding, a quantitative research design was chosen. Primary cross-sectional data were gathered through a sample survey research. The survey was based on a formal, structured questionnaire in which data were collected using a self-administered method. Respondents were asked to complete the questionnaires on their own, in optional time and place. The questionnaire was divided into several parts, concerning infant feeding

choice, purchase of baby ready foods (place of purchase, factors influencing purchase, brand choice), importance of external and internal sources of information, and socio-demographic characteristics.

The survey was realised between March and May 2002 in Poland. The target population of the survey consisted of mothers of infants and young children aged up to 36 months. Respondents were selected by means of non-probability judgmental sampling (MALHOTRA, 1996). The choice of mothers as respondents was based on their role as the major person responsible for purchasing food and cooking in the household. The overall number of delivered questionnaires was 200. From these, 169 were sent back (gross response rate of 85%), though only 100 were fully and correctly completed (valid response rate of 50%).

The final sample consisted of 35% of mothers under 25 years old, the same percentage of respondents was between 25 and 30 years and 30% of mothers were above 30 years of age. From the sample of mothers, 56% had one child, whereas 44% had two or more children. The sample consisted of 6% of mothers with infants up to six months, 23% of mothers with young babies from seven to 12 months, 39% of mothers with children at the age 13 to 24 months and 32% with children aged from 25 to 36 months. From the total sample, 12% had vocational education, 40% secondary education, 18% uncompleted university and 30% have completed university. Related to place of living, 38% of respondents lived in Warsaw, 21% in rural areas, 28% in small cities and 13% in major cities other than the capital of Warsaw. With respect to net per capita monthly income in the family, 20% declared the lowest income (<500 PLN or 125€), 43% between 500 and 1000 PLN and 125–250€, 24% between 1000 and 1500 PLN/250–375€, and 13% above 1500 PLN or 375€. With this composition, the sample includes a wide variety of consumers with respect to socio-economic variables, though without being statistically representative for the Polish population.

2. Results

The empirical results of the research are described in three parts. The first part deals with the infant feeding behaviour in terms of the way of feeding, type of products used, frequency of product usage and place of purchase. The second part presents attitude towards infant feeding in terms of influencing factors, quality perception and motivations for purchase. In the third one, usage and perception of information sources related to infant feeding are investigated.

2.1. Infant feeding behaviour and hypotheses testing

The majority of mothers (53%), who were asked about the present children feeding practices, claimed that they fed their children combining breast milk, home-made food and baby ready food. Within the investigated sample, 35% declared the usage of foods except breast milk, thus combining baby ready food and home-made food. A minority

of the sample (7%) combined breastfeeding and baby ready food; 3% of them linked breastfeeding and home-made food and finally 2% used only baby ready food products. For testing the formal hypotheses, respondents were regrouped into two categories, depending on whether they breastfeed their children or not. From the total sample of mothers, 63% claimed to include breastfeeding in their infant feeding habits.

The association between mother's age and choice for breastfeeding was not significant within the sample (P=0.857), thus leading to the rejection of hypothesis 1 for the investigated case (Table 1). Similarly, hypothesis 2 about the potential impact of mother education on choice for breastfeeding was to be rejected (P=0.203). Although the association between education and breastfeeding was statistically insignificant, a higher rate of breastfeeding was observed among the lower educated compared to higher educated mothers (Table 1). The association between mother's income and choice for breastfeeding appeared significant (P=0.000). However, the direction of association is opposite to hypothesis 3: the choice for breastfeeding was found to be significantly higher among the lowest income group (73%), versus the medium (54%) and high income (31%) groups (Table 1). Explanations for these findings are provided in the discussion section.

Among baby ready food products, desserts in jars (87%) and vegetable puree in jars (61%) were the most purchased. Also more than half of the sample used soups (57%) and dinner portions in jars (51%). About 30% of the respondents declared that they used desserts in jars once a day and almost 28% of the sample used them from two to three times a week. With respect to consumption of vegetable purees, about 38% of the mothers declared their usage to be from two to three times a week and more than 26% of them once a day. A similar frequency of usage was noticed for soups. Dinner portions were used once a day by 29% of the respondents and from two to three times a week by 28% of the sample. No significant differences in the frequency of feeding particular type of products between different socio-economic and demographic variables like mother's age, number of children, place of living and income, were discovered.

Table 1. Hypothesis tests: choice for breastfeeding and socio-demographic characteristics of mothers

Mothers' characteristics	Choice for breastfeeding Sample average: 63% yes	Test statistics
H1: Age	<25 years 62.9% 25–30 years 60.0% >30 years 66.7%	χ^2= 0.31; P=0.857; df=2
H2: Education level	Under 18 years 68.6% Above 18 years 56.3%	χ^2= 1.62; P=0.203; df=1
H3: Income	<1000 PLN (250€) 73.0% 1000–1500 PLN 54.2% >1500 PLN (375€) 30.8%	χ^2= 16.65; P=0.000; df=2

When asking about the favourite brand of baby food products, mothers indicated Gerber as the brand bought most frequently (67%), which largely corroborates actual market shares. The second choice of mothers was Ovita Nutricia (45%) and the third Hipp (21%). The most stated reasons for brand preference related to children's taste preferences (mentioned by 56% of the respondents). Other motivations for brand preference related to previous experience and satisfaction (about 20%), perception of high quality (about 19%), the best composition of product (about 19%) or because these brands are perceived as trustworthy (15% of the respondents).

Mothers were also asked to indicate the outlet where they usually purchase the baby ready food products. In response to this question, the majority of respondents indicated hyper- and supermarkets (69%) and food stores (59%) as the most preferred place of purchase. Choosing food store as a place of purchase was more common among younger (below 25 years old) mothers (74%), as compared to the middle age group (from 25 to 30 years old; 57%) and the oldest mothers (above 30 years old) (43%) (χ^2=6.475; P=0.039; df=2). Logically (since a matter of availability), hyper- and supermarkets were significantly more frequented by respondents from big cities (91% versus 54% for people living in smaller towns and rural areas; χ^2=15.63; P=0.000; df=2). Similarly, hyper- and supermarkets were more preferred by mothers with higher education (79% versus 59% for mothers without education after the age of 18; χ^2=4.76; P=0.029; df=1). The frequency of choosing the specialised baby shop was significantly higher by mothers with two or more children (30%) than by mothers with one child (11%) (χ^2=5.677; P=0.017; df=1). Additionally, mothers with two or more children were more used to purchase baby ready food in a pharmacy (23%) than mothers with one child (7%) (χ^2=4.970; P=0.026; df=1). Finally, no significant differences in the choice of place of purchase depending on other demographic or economic variables were observed.

2.2. Attitude towards infant feeding and ready food products

Mother's attitude towards infant feeding was assessed through investigating their perception on 14 product attributes. Mothers were asked to indicate the level of importance attached to the attributes on 5-point scales, where 1 meant very low importance and 5 very high importance. As the most important factors respondents indicated product safety (92% reported very high importance), naturalness of product (90%), children preference according to taste (79%), information on the product label (66%), and convenience of usage (50%). On the contrary, respondents indicated advertisements as the least important factor during their decision-making (45% reported very low importance).

Differences in attribute importance scores between respondent groups were assessed through statistical comparison of mean scores. No differences were revealed depending on mother education. A tendency was observed that the lowest income group attached more importance to the price of infant food products than the higher income group (t=1.73; P=0.087; df =98). ANOVA F-tests and post hoc comparison of means

revealed significant differences related to mother age. Mothers aged above 30 years attached significantly less importance to advertising (F=4.82; P=0.010) and information on the product label (F=4.63; P=0.012) in comparison with the younger mothers. Mothers aged below 25 years attached more importance to size of the unit pack (F=3.37; P=0.039) and availability at the point of sales (F=2.81; P=0.065), but less importance to convenience (F=3.34; P=0.040) (Fig. 1).

Finally, differences in subjective importance levels depending on infant feeding choices were investigated by means of independent samples *t*-tests. A tendency was discovered that mothers who breastfed attached less importance to taste than mothers who did not breastfeed (t=–1.780, P=0.078, df=98). No other differences depending on infant feeding choice were discovered (all other P>0.10).

Respondents were also specifically asked about quality perception of baby ready food. Therefore, mothers were asked how they personally distinguish high quality through choosing their most distinctive quality attributes. In respondent's opinion the certificates of institutions (96%) (i.e. IMID – Mother and Child Institute, PZH – Polish Institute of Hygiene) and naturalness of product (85%) (manufactured on basis of fresh, raw materials, without preservatives) were considered as the most distinctive quality attributes. None of the respondents considered price as an indicator of high quality. In response to this question no significant differences between different kind of respondent groups (socio-demographic or behavioural) were observed.

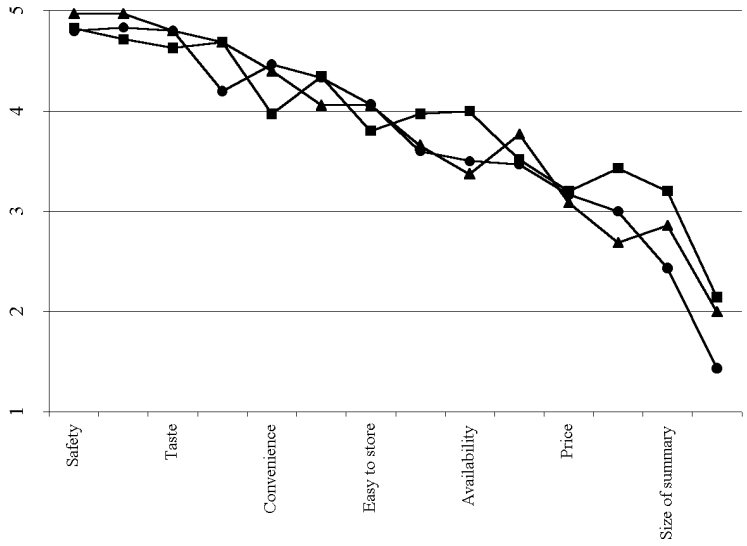

Fig. 1. Factors influencing mother's purchase decision, average scores on 5-point scale (1: very low importance; 5: very high importance) for three mother age categories. ■: Mother age <25 years; ▲: mother age 25–30 years; ●: mother age >30 years

Within the investigated sample, 19% indicated high quality as the main reason for buying preferred brands. Within the group of mothers aged beyond 25 years this percentage amounted to 31% versus only 3% in the group of younger mothers (χ^2=8.34; P=0.015; df=1). Additionally, significant differences in indication of motivations for purchase of particular brands were discovered depending on the infant feeding choice. Almost 19% of the investigated sample chose brands because of good composition of ingredients in a product. Within the group who breastfed their child this percentage amounted to 25% of mothers versus 6% in the group of mothers who did not breastfeed (χ^2=5.02; P=0.025, df=1). No effect of other demographic or behavioural variables on brand choice and preference was observed.

2.3. Use and perception of information

Mothers were asked to indicate the most important sources of information about baby food and infant feeding patterns. The majority of the respondents (61%) indicated to rely strongly on their own experience when deciding about the baby food purchase. More than half of the mothers (57%) paid a lot of attention to information on the product label, and/or indicated to follow their family, friends and colleagues opinion (55%). Own experience and family were also indicated as essential sources of information for mothers investigated in The Babybus Survey (GFK POLONIA, 2000). Pharmacist and shop-assistant were the least popular sources of information in this case (3% and 9%, respectively).

Significant associations between mother's age and usage of the paediatrician's opinion as a source of information were discovered (χ^2=5.189*;* P=0.075; df=2). Within the total sample 43% used paediatrician's opinion as a source of information with regard to child feeding. Within the group of the youngest mothers (below 25 years old) 46% relied on paediatrician's opinion, within the middle group (from 25 to 30 years old) 54% used to do so, versus only 27% in the group of the oldest mothers (aged beyond 30 years).

With regard to information on product labels, the most important cues indicated by respondents were expiry date (96%), certificate evidence (75%), age range (55%), presence of artificial dyes and flavour supplements (50%). A clear effect of income on perception of label information (the cue price) was observed. Within the lowest income group 29% considered the indication of price as important on the product label. This percentage amounted to 17% within the middle income group, whereas none of the respondents in the high-income class indicated prices as an important label indicator (χ^2=5.65; P=0.055; df=2).

Finally, the effect of mothers' education level on the perception of indicators of ingredient controls (specially examined fruit and vegetables) was discovered (χ^2=4.64; P=0.031, df=1). The higher educated mothers (after the age of 18) attached more importance to this source of information (42% in the higher educated group versus 22% in the lower educated group).

3. Conclusions

Infant feeding patterns are widely recognised to have a fundamental impact on children growth and development, particularly in the beginning of life. Despite widespread and clear dietary recommendations, infant feeding patterns rarely conform to recommendations and tend to be strongly dependent on mother's personal socio-demographic characteristics and attitudes. Previous empirical research revealed that the choice of feeding patterns and purchase of baby food products are determined by person related factors (mother's age), lifestyle and value of time, attitude to work and occupation, social and cultural factors (level of education, social class) and finally marketing stimuli. All published previous research was carried out in countries other than Central and Eastern European Countries (CEECs). Despite the lack of similar empirical evidence in CEECs, it is noticed that the baby ready food sector is developing dynamically in Poland. Therefore, the aim of this research was to explore infant feeding behaviour and attitude towards infant feeding among Polish mothers.

The research described in this paper yields three conclusions. First, the choice for breastfeeding is found to be associated with family income, i.e. breastfeeding is more practised among the lower income groups in Poland. Contrary to studies in the U.K., Australia, Hawaii and the Philippines, no significant effects were found of mother age and education (despite a tendency of more breastfeeding among the lower educated) on the decision to include breastfeeding in the Polish infant feeding pattern. Second, clear socio-economic differences with respect to mother's attributed importance towards baby ready food characteristics were discovered. Younger mothers were found to attach significantly more importance to advertising, information on product labels, but less to the convenience aspect. Third, with respect to information, higher educated mothers (education after the age 18 years) more significantly rely on control indicators on the baby ready food labels. Not surprisingly, the lowest income group attaches significantly more importance to the indication of price as an information cue on product labels. Finally, specialised information from paediatricians is more advocated by younger as compared to older mothers. Generally, the research findings point towards a greater need for specific information related to infant feeding among younger and economically less-favoured mothers.

The presented preliminary study constitutes the first of a series of studies into infant feeding practices in Poland to be implemented during 2002–2004. Its nature is clearly exploratory and limitations related to the small and not statistically representative sample should be kept in mind. Therefore, former conclusions are to be further verified based on larger quantitative studies, which hopefully will help filling the existing gap of infant feeding research from a behavioural perspective in CEECs.

References

BÁNÁTI, D. & LAKNER, Z. (2002): The food safety issue and the consumer behaviour in a transition economy: A case study of Hungary. *Acta Alimentaria, 31*, 21–36.

BIACS, P.A. (2001): New trends for the new millennium in food quality and safety. *Acta Alimentaria, 30*, 1–2.

CAMERON, M. & HOFVANDER, Y. (1983): *Manual on feeding infants and young children.* Oxford University Press, New York, p. 23.

DE LA HUNTY, A., LADER, D. & CLARKE, P.C. (2000): What British children are eating and drinking at the age 12–18 months. *J. human Nutr. Dietetics*, *13*, 83–86.

DEPARTMENT OF HEALTH U.K. (1995): *Infant feeding.* www.doh.gov.uk; 10.07.2002.

DEPARTMENT OF HEALTH U.K. (2000): *Infant feeding survey 2000.* www.doh.gov.uk; 10.07.2002.

DONATH, S. & AMIR, L.H. (2000): Rates in breastfeeding in Australia by state and socio-economic status: Evidence from the 1995 National Health Survey. *J. Paediat. Child Health*, *36*, 164–168.

EUROSTAT (2002): *Families and births*. www.eurostat.org; 05.07.2002.

FOSTER, K., LADER, D. & CHEESBROUGH, S. (1997): Infant feeding 1995: A survey of infant feeding practices in the United Kingdom. Stationary Office, London.

FREEMAN, V., VAN'T HOF, M. & HASCHKE, F. (2000): Patterns of milk and food intake in infants from birth to age 36 months: The Euro-Growth Study. *J. pediat. Gastr. Nutr.*, *31*, S76–S85.

GERBER (2002): *The Gerber feeding plan*. www.gerber.com/feedplan; 10.07.2002.

GFK POLONIA (2000): *Results from the babybus survey*. Personal communication.

GUILKEY, D.K. & STEWART, J.F. (1995): Infant feeding patterns and the marketing of infant foods in the Philippines. *Econ. Dev. Cult. Change*, *43*, 369–399.

GUS (2002): *Polish Official Statistics, Females fertility in 1960–2000*. www.stat.gov.pl, 5.07.2002.

HENSON, S. & SEKULA, W. (1994): Market reform in the Polish food sector: Impact on food consumption and nutrition. *Fd Policy*, *19*, 419–442.

JANUSZEWSKA, R., VIAENE, J. & VERBEKE, W. (2000): Market segmentation for chocolate in Belgium and Poland. *J. Euromarketing*, *9* (3), 1–25.

KALWIJ, A.S. (2000): The effects of female employment status on the presence and number of children. *J. Popul. Econ.*, *13*, 221–239.

KERSTING, M., ALEXY, U., SICHERT-HELLERT, W., MANZ, F. & SCHOCH, G. (1998): Measured consumption of commercial infant food products in German infants: Results from the DONALD Study. *J. pediat. Gastr. Nutr.*, *27*, 547–552.

KOWRYGO, B., ZBRZEZNA, I. & BERGER, S. (1995): Variations in food patterns – milk group – among selected groups of the Polish population. -in: FEICHTINGER, E. & KÖHLER, B. (Eds) *Current research into eating practices: contributions of social sciences.* AGEV Publication Series, Vol. 10. Umschau Zeitschriften Verlag, Frankfurt am Main.

MALHOTRA, N.K. (1996): *Marketing research: an applied orientation*. Prentice Hall, New York, pp. 365–366.

MOON, W., FLORKOWSKI, W.J., BEUCHAT, L.R., RESURRECCION, A.V., PARASKOVA, P., JORDANOV, J. & CHINNAN, M.S. (2002): Demand for variety in an emerging market economy. *Appl. Econ., 34*, 273–581.

NACHHD COUNCIL (1999): Report: Demographic and behavioural Sciences, III A, Family and Fertility, June.

NORTHSTONE, K., EMMETT, P., NETHERSOLE, F. & THE ALSPAC TEAM (2001): The effect of age of introduction to lumpy solids on foods eaten and reported feeding difficulties at 6 and 15 months. *J. hum. Nutr. Dietetics*, *14*, 43–54.

NOVOTNY, R., HLA, M.M., KIEFFER, E.C., PARK, C.B., MOR, J. & THIELE, M. (2000): Breastfeeding duration in a multiethnic population in Hawaii. *Birth-Iss. Perinat. C., 27* (2), 91–96.

POLISH-EUROPEAN COMMUNITY – WORLD BANK TASK FORCE (1990): *An agricultural strategy for Poland*. Report of the Polish-European Community World Bank Task Force. The World Bank, Washington.

SELLEN, D.W. (2001): Comparison of infant feeding patterns reported for non-industrial populations with current recommendations. *J. Nutr., 131*, 2707–2715.

SOCHA, J. (2002): *Zywienie a rozwoj dziecka w pierwszym roku zycia.* (Feeding and child's growth in the first year of life.) Akademia Gerber, Warsaw.

VERBEKE, W. & VIAENE, J. (1998): Consumer behaviour towards yoghurt in Belgium and Poland: A survey in two regions. *Br. Fd J.*, *100*, 201–207.

WHO/UNICEF (1989): *Protecting, promoting and supporting breastfeeding.* The special role of maternity services, Joint WHO/UNICEF Statement, Geneva.

WHO/UNICEF (1990): Innocenti declaration on the protection, promotion and support of breastfeeding in the 1990s: A global initiative. Florence, Italy.

WHO/UNICEF (2002): *Guidelines on feeding*. www.childinfo.org/eddb/brfeed; 20.06.2002.

WILLIAMS, P.L., INNIS, S.M., VOGEL, A.M.P. & STEPHEN, L.J. (1999): Factors influencing infant feeding practices of mothers in Vancouver. *Can. J. publ. Health*, *90*, 114–119.