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As of 1991, when it got its independence from Yugoslavia, Macedonia introduced another political system, being geographically and politically part of rapidly changing Eastern Europe. The economy developed in a more capitalistic direction and naturally, this had an impact on the health care system. The previous health care system had many good aspects, but all such social initiatives were afforded from government budgets, a strategy, which brought the economy close to collapse. Due to the economic crisis, Macedonia developed a new transitional health care system. With the introduction of this system, Macedonia had to destroy some attractive principles of the previous system: the socialistic basis of health care disappeared and some medical services is no longer free. Macedonia is now in a situation where every citizen has to pay for some medical services. This causes some dilemmas for both health workers and government.

Within the new system there is no general consensus as to whether health care will be provided wholly or partly by the state, or not at all. Private health care initiatives promoted by the World Bank are now proposed, based on the assumption that competition forces higher quality (Goldman, 1996). It is asserted that the current state system should be retained, but its payment mechanism modified. As Macedonian society passes through a severe economic crisis and social structures polarise and become rigid, social inequalities in health care tend to increase.

A high poverty rate, poor access to the health services, problems with the water supply and other factors which can contribute to inappropriate infant nutritional practices are present in the rural areas of the country. Considering the fact that infants are a very vulnerable group, study on mothers’ practices regarding infant nutrition is an important issue. Given the wide discrepancy between urban and rural area in general and in consequence infant nutrition, I decided to study infant nutritional practices in rural areas of Macedonia.

1.2 Problem description

The health and nutritional status of the children in the Republic of Macedonia, although close to standards of the developed world, is still affected by a number of problems, resulting from poor economic development, environmental constraints and inadequate child care (Branca, Pastore, Rossi, Sette, 1999).

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1 Macedonia: Per Capita Income: $2500; GDP: $2.2 billion (1993 est.); GDP Growth: 14.7%
The infant mortality rate was 22.7 per thousand live births in 1995, largely accounted for by intestinal and respiratory infections. Child immunisation rates are high, and the country maintains a sound record of achievements, with the exception of a short period after independence (1991) when the supply of vaccines was interrupted. In 1996 DPT III had been regularly administrated to 96.6% of children, Polio III to 97.4% and MMR to 97.8% of children under one year of age.

The majority of the urban population (64%) has access to safe piped water from a main supply, although in the rural population only 20% have such access.

The nutritional status of Macedonian children, particularly in early infancy, has created some concerns. Although acute forms of malnutrition do not seem to be a public problem, marginal forms, particularly as far as micronutrients are concerned, may occur in some population groups. According to clinicians and to public health specialists, anaemia seems to be a public health concern, although no quantitative information exists. A clinical study (Gocevska et al, 1997) on 100 infants aged 1-12 months showed a 25.6% prevalence of mid/moderate anaemia attributed to improper child feeding practices, i.e. use of cow's milk feeding within the first few months of life. Other causes of anaemia may be attributed to B-thalassemia, gluten sensitive enteropathy and folate deficiency. Iron deficiency is likely to be a major cause of anaemia, as diagnosed children promptly responded to treatment with iron and folic acid supplements. According to the 1994 Multiple Indicator Cluster Survey, signs of rickets were present in 16% of the children examined. In a selected sample of 150 children affected by rickets, insufficient exposure to sun was detected (Gocevska et al, 1998). No information is available on the vitamin A status of children. Clinical studies showed decreased serum retinol in children affected by repeated infections (Poeva S. and Stavri.K, personal communication). A survey carried out in 1995-1996 showed the presence of thyroid enlargement in 18% of the children (Karanfilski B. et al, 1998). However, the median urinary excretion of iodine is 11.7 mg/l, indicative of good iodine intakes, as a result of a salt fortification policy.

Children's feeding practices may be responsible for the nutritional problems observed. In 1994 78% of infants below four months were predominantly breast-fed, but only 8% of the children investigated were exclusively breast-fed. Furthermore, diluted cow's milk is widely used to feed infants and fruit and vegetables are not commonly used as complementary foods.
nation wide survey MICS \(^2\) conducted in November 1999 by UNICEF and the Ministry of
health of the Republic of Macedonia showed an overall good nutritional situation of mothers and
children. However, the results showed widespread micro-nutritional problems which, although not
vere, should be dealt with by dietary modifications and improvements. Mild and moderate
anemia was observed in 26% of the children (6-59 months). The prevalence of anaemia was
significantly higher in rural children (29%, of which 2% severe cases) compared to children living
in urban areas (23%, of which less than 1% severe cases). Half of the children studied had low
levels of ferritin with significant higher prevalence among rural children (54%). In rural areas
there were cases of iron deficiency (17%) were more common than in urban areas (11%). There were
no cases of iron overload. A low height-to-age ratio was observed in 7% of the entire sample of
765 children at age between six and 59 months, with a higher proportion in rural areas (9%) than
in urban areas (6%). Observed rickets signs varied with the chosen method of detection. Frontal
and parietal bossing was present in 15% of the children, more often in rural areas. The analysis of
the distribution by age did not identify any particularly vulnerable age.

The vast majority of children under two years of age were being breast-fed, at least partially
(72%). In rural areas, exclusive breast-feeding was less common than in urban areas. Predominant
breast-feeding increased up to age of three months, when 50% of the children in urban areas and
7% of children in rural areas were fed in this way. After the age of three months predominant
breast-feeding dropped progressively as in urban and in rural areas as well. Breast-feeding patterns
were different among different ethnic groups; Macedonians practised breast-feeding than the mean
for the population. The prevalence of ever breast-fed children among the Macedonians was 81.2
while the same prevalence was 94.1 among the Albanians. The prevalence of exclusive breast-
feeding showed differences among different ethnic groups as well: 32% of children were
exclusively breast-fed among the Macedonians against 36% amongst the Albanian population.
The prevalence of predominant breast-feeding in children from 0 to 24 months was lower among
Macedonians (23.9%) than among the Albanians (28.5%).

One fifth of the children were using infant formula, usually as a substitute for breast milk, with no
differences found between urban and rural areas. Cow’s milk was used as an alternative to breast
milk for infants under six months in 5% of the cases in urban areas, but 12% in rural areas. Cow’s

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\(^2\) Multiple Indicator Cluster Survey in Macedonia with Micronutrient Component
milk became a major food after the age of six months, but it is worth pointing out that even in the second year of age, one fifth of the children were not consuming it.

3 Justification for the study

The Multiple Indicator Cluster Survey conducted by UNICEF and the Ministry of Health of the Republic of Macedonia in November 1999 was carried in two strata, urban and rural, on 1036 households and included 1765 children under five years. The survey showed a significant difference in children and mothers health between the two strata:

- higher proportion of low height-for-age was observed in rural areas
  - Among rural children there was a significantly higher prevalence of mild and moderate anemia
  - Rural children had lower values of ferritin, and there were severe cases of iron deficiency
  - Signs of rickets among children in rural areas were more frequently present

Considering the fact that the nutritional status of rural children has created more concern, I chose to concentrate my study on this group. From interviews conducted in the villages, I realised that infant feeding practices were not according to WHO/UNICEF recommendations, which could possibly lead to micro-nutritional problems.

Inadequate care practices in the household, insufficient resources or support for appropriate feeding practices at community and government levels might be at the root of this problem. Infant feeding practices tend to be undervalued or overlooked, by busy mothers as well as health authorities perhaps because they are daily, time consuming and repetitive activities primarily formed by women.

Literature review

In any particular country or community there is always a range of factors—social, cultural, personal and economic—which influence whether, and for how long, women breast-feed their
infants; how they can explain a failure to breast-feed to themselves and to others; and how they wean their infants (Helman, 1998).

The WHO and UNICEF recommend 4-6 months exclusive breast-feeding for infants. Ideally, all infants should be fed exclusively on breast-milk from birth to about six months of age. Some infants may require complementary foods earlier, but not before four months of age. Breast-feeding should continue into the second year of life, and in populations with high rates of infection with childhood diseases preferably into the third year of life.

Breast milk has added qualities, which promote better child survival chances: it contains antibodies that protect the child from infection, it is a source of low-cost complete food, and it is sterile and has antiallergenic properties. Still, despite medical advice that for a variety of physiological and emotional reasons ‘breast is best’, breast-feeding has declined in most countries in the world this century (Helman, 1998).

The synergism of malnutrition and illness point to the importance of breast-feeding as a safe and complete source of nutrient, particularly in early infancy and among the children of poor families when the infective dose is expected to be heavy as a result of unsanitary and contaminated environment, and crowding as a result of large family size (Zablan, 1996). Any other food or drinks can be a source of contamination. Bottled milk may be contaminated by unsterilized bottles and unsafe water and thus can cause diarrhoea and other infections. Advertising from firms in the industrialised countries has promoted less nutritious, and more expensive, artificial foods such as infant formula foods (Helman, 1998:50). Due to high cost of infant milk formula, dilution or resorting to inferior commercial milk substitutes may reduce the infant’s nutrition intake (Zablan, 1996).

Studies that distinguish between exclusive and partial breast feeding show that high percentages of infants in developing countries are at present breast-fed for very short periods (Tontisirin and Yamborisut, 1995). The lack of exclusive breast-feeding, in addition to deteriorating socio-economic conditions, water contamination, and problems with immunisation all pose threats to infant health.

The recommended period of 4 to 6 months exclusive breast-feeding is a general advice but it takes
into consideration following the individual infant growth as well. “Growth is the most sensitive and readily measured factor of health and nutrition for the individual child” (Tontisirin and Yamborisut, 1995). If a child is growing well with breast milk there is no need for the introduction of complementary food. But if a child starts to lose weight at the age of 4 months with exclusive breast-feeding, this means the breast milk is not enough and the reasons that can explain the growth faltering of the child will have to be investigated.

Because of the exclusive nature of a young infant’s diet and the limited ability of the digestive tract to deal with excessive intakes of some nutrition, feeding of the young must adequately match nutrient needs. When introducing weaning foods there could be negative effects from timing and from the types of foods used. This process has great geographical and cultural variations (Tontisirin and Yamborisut, 1995). Early introduction of cereals and vegetables can interfere with the absorption of breast-milk. On the other hand, prolonged exclusive breast-feeding can result in growth faltering since breast milk alone cannot be expected to cope with the child’s growing needs beyond 4-6 months. A triple mix is recommended as appropriate weaning practice. It is based on cereals, proteins from vegetable sources, animal proteins and vitamins. It is important that the food is semisolid and has high energy density because the child should continue with the breast-feeding. Consumption of a large volume reduces the frequency of suckling and consequently reduces breast-milk output.

Socio-economic conditions can contribute to poor child nutrient status. Dietary patterns in Macedonia are based on a high consumption of grain, beans and vegetables. The social situation affects the nutritional status by decreasing the ability to buy meat and milk products due to the high price (Petrusevska, 1996).

Ielman (1998) describes a variety of biological, social and cultural factors in addition to low income, which can contribute to the child’s poor nutrition. These include: differences in maternal age, experience, competence and attitudes to child rearing; the support networks available to others; the influence of the composition of the family; decisions on how household resources are to be allocated; and traditional infant feeding practices. Furthermore, a contaminated environment due to the lack of sewage and garbage disposal, and inadequate primary health care, both contribute to frequent childhood diarrhoea, and other causes of poor health.
Misperceptions about appropriate weaning practices may cause young children's health to deteriorate. In rural areas, low education of mothers, taboos, and inappropriate customary food practices seem to be significant causes of malnutrition in young children (Tontisirin and T'amborisut, 1995). To solve these problems it is crucial that harmful beliefs and practices should be gradually and carefully modified while supporting the beneficial traditions.
Objectives

1 General objective

The overall objective of this study is to explore socio-economic, cultural, behavioural and service factors contributing to infant nutrition patterns in rural areas of Macedonia.

The study compares infant nutritional practices of rural mothers of different ethnic backgrounds, to identify and describe different cultural factors and beliefs about infant nutrition, which may influence the health and well being of infants. Initial observations showed a difference in general practices for two villages: Mlado Nagorichane (predominantly Macedonian) and Morane (predominantly Albanian) which became the study areas. The feeding practices in both villages appeared to essential problems. Thus, the general objectives of the study were formulated as follows:

- To describe maternal practices regarding breast-feeding and complementary feeding
- To identify factors leading to inappropriate feeding patterns.

2 Specific objectives

- To describe mothers’ practices regarding:
  - Breast-feeding
  - Bottle feeding
  - Complementary feeding
  - Patterns of feeding sick children
- To describe mothers’ perceptions and beliefs influencing infant nutritional practices
- To describe the influence of:
  - Family composition on child care
  - Household resources
  - Mothers’ workload on infant care
  - Mothers’ education on child care
• To identify resources for support the adequate infant nutrition and care at health service levels
3 Methodology

3.1 The type of study

This study is qualitative, based on focused ethnographic interviews with key and core informants. The design is exploratory: practices, perceptions and needs of mothers from different ethnic backgrounds with regard to infant nutrition in rural areas are described and compared. This is to determine cultural factors, which influence infant nutrition and well being. Problems regarding infant nutrition and the possible causes are also described.

3.2 The Study's duration and location

Research was conducted over a 6-week period, from 15-May to 30-July 2000. The selection of the study population was done with logistic help from a local development NGO, The Macedonian Centre for International Co-operation (MCIC), which is an active party in sustainable development of human resources in Macedonia.

The two villages were randomly sampled and their features are representative of the rural population Macedonia. However a noteworthy point regarding villages of predominantly Macedonian ethnicity is that the population is generally elderly. In direct relation to this study a large proportion of mothers is not of child-baring age.

Urban migration amongst the Macedonian population was greater than among the Albanian population during the period following the Second World War. Migration was mainly a result of industrialisation in the post-war period 1945...1960s. Thus, many of the rural areas with a predominantly Macedonian population are almost without young people. In consequence, the choice of study site was made from a small number of villages that have families with young mothers.
Map of the Republic of Macedonia

Rural areas of the research

Villages Mlado Nagorichane and Morane
Dictated by this factor, villages of predominantly Albanian ethnicity were compared to suitable Macedonian villages and short-listed. The final choice was determined by a comparison of:

- Population size and demographics
- Service availability
- Health service availability
- Economic conditions

The source of this information was data collected and studies conducted by MCIC on the demography of Macedonia, presents a more detailed demography showing the prevalence of ethnic group by population strata.

Both villages selected in the study are approximately at the same distance from the nearest town. In both, there is a dispensary, with a GP and a nurse working only in the morning. Both villages are of similar size (approximately 1500 inhabitants), one predominantly Macedonian (Mlado Nagorichane) and the other with predominantly Albanian population (Morane).

Both villages are of a dispersed type with some houses near to one another, but mostly between 500 to 1000 meters apart. The village road is a poor dirt track. Some houses can only be reached on foot or by jeep.

The water supply of both villages is inadequate failing to meet national standards. Generally, in

1 Macedonian Centre For International Co-operation
1 UNI CEF, 1999, Multiple Indicator Cluster Survey in FRY Macedonia with Micronutrient Component
rural areas the water supply is not chlorinated. During summer, when there is a shortage in the water supply, cases of contagious water-borne and other associated diseases increase.

The village of *Mlado Nagoricane* is located in the northern Macedonia, 11 km from the major town of Kumanovo (see map 1), with an altitude of 440m above sea level. It spans both banks of the river Pchinya. The houses are dispersed over an area of 48,1 km². Agricultural land occupies the greater part of the village (85% of 4500 ha). The remaining is occupied by surrounding woods and meadows. The main means of income are farming and cattle-breeding. In the village there is an elementary school, a health centre, a post-office, a veterinary station, three shops and a restaurant. There is an old church from the seventeenth century. Mlado Nagoricane is not a small settlement but its population is decreasing. In 1961 there were 3414 inhabitants, 3387 Macedonians and 25 Serbians. In 1994 the number decreased to 1452, 1448 Macedonians and 36 Serbians. These figures are an indication of the migration to urban areas, mostly of the young.

The village of *Morane* is a big settlement situated in the Southern part of Skopje valley, on the road between Skopje and Zelenikovo (see map 1), with an altitude of 310m above sea level. Situated 15km from the capital Skopje, it occupies an area of 14,6 km². Agricultural land occupies 738ha, with a comparable surface of woods and meadows. The main means of income is farming. In the village there is an elementary school, a health centre, a post-office, a veterinary station, four shops, two restaurants and the ruins of a 13th century monastery.

Currently the predominant population is ethnic Albanian and increasing, in 1961 there were 879 inhabitants, 375 Albanians, 281 Turks, 201 Macedonians and 25 Serbs. In 1994 the number of inhabitants increased to 1287 inhabitants with 1201 Albanians, 73 Turks and only 11 Macedonians.

1.3 The study population, data collection techniques and sampling procedures

I conducted in-depth interviews with ten mothers from each village. In the village of Mlado Nagoricane there were ten mothers with children from 0 to 18 months. I got their names and addresses from the village mayor. The interviews took place at their homes and were recorded on tape.
In the village of Morane there were 21 mothers with children from 0 to 18 months. I also got a list with their names and addresses of the mothers from the village mayor. I interviewed every second mother from the list. The interviews were conducted at mothers’ homes, tape recorded and translated from Albanian into Macedonian. All the mothers were informed about the subject of the interviews and willing to take part. The data was obtained by using an interview guide (see Annex 1).

I tried to approach the problem from different sides concurrently. The research was not limited to in-depth interviews with mothers. I included interviews with the health staff responsible for mother’s education e.g. the local doctor in each of the villages, and one paediatrician from the Consulting Centre for mothers working on the UNICEF programme for promotion of exclusive breast-feeding.

The main feature of family life in rural areas is the extended family. Considering the fact that life in extended families still preserves the traditional way of living, the influence of the older family members (mother and father-in-law) is significant. During the interviews with the mothers, I noticed the impact mothers-in-law had. They give advice on infant care and nutrition to their daughters-in-law. Their authority is in general accepted and well respected. Keeping in mind that the decisions of young mothers to breast-feed and wean their infants is made consciously or unconsciously under the influence of their mothers-in-law or their mothers, I decided to make an FGD with several mothers-in-law. I informed all mothers-in-law from the interviewed families of the purpose of the discussion. Considering the fact that all these women are working in the fields or are occupied with their household duties I chose a religious holiday, the day of the Saviour, 6th of June, when villages generally do not work. Of the ten families all had a mother-in-law, except one; two were not available, probably because of family engagements over the holiday, so seven mothers-in-law were present at the FGD. The schoolyard appeared the most suitable place for the meeting and they agreed to this.

We talked about the following items:

- Practices regarding infant nutrition and care and their explanation
- Perceptions and beliefs about breast-feeding and infant care
- Changes in attitude towards traditional practices and beliefs
3.4 Bias in the research

Six weeks were available for fieldwork. This limited the study to sampling two villages. Although the selected villages had the characteristics of an average Macedonian rural area, the limited number of the informants possibly created a bias.

The selection in favour of women was due to the nature of the research targeting children under 18 months, whose caretaker is, by cultural allocated gender roles, the mothers. The male members of the interviewed families were unreachable as during the day time they were at work and some were uninterested or unwilling to discuss these issues with me.

Another limitation of the study is that nutrient and micronutrients status of the children could not be measured.
Research findings and interpretations

1.1 Description of sample

In each of the two villages (Mlado Nagoricane and Morane) I conducted in-depth interviews with ten mothers and a FGD with six mothers-in-law.

In the village of Mlado Nagoricane the youngest mother was 18 years old, and the oldest 27. The average age was 22.9 years. Nine of them were officially married and one not. All mothers were Macedonia Christians. Two had a secondary education, eight had an elementary school education and one had not completed elementary school. All the informants were housewives, except one who worked at the textile factory in the nearest town. None of them had more than two children, yet five had two children, three were with one child while two had one child and were pregnant with the second. The average number of children per family was 1.4. The youngest child was one month old and the oldest 18 months, with an average age of 10.9 months.

With a national unemployment rate of 40%, the socio-economic status of all the interviewed families was low, with only one of the mothers employed; in six families the husband was employed. In the four remaining families one of the income sources was the father in law’s pension and three families received social aid. Additional sources of income for the families were farming and holding livestock for family needs.

In the village of Morane the youngest mother was 18 years old, and the oldest 35, with an average age of 27.6. All the mothers were married, either officially, eight, or unofficially, two. The ethnic background of all was Albanian, and all adhered to the Moslem faith. Four had an elementary school education and six had an incomplete primary school education, so the educational level of the mothers was lower than in the village of Mlado Nagoricane. All informants were housewives. Three of them had one child, one had two, two had three children, two had four, and one of them had six children. The average number of children per family was 2.8. The youngest child was one month old and the oldest 18 months old. The average age of the children was 12.6 months.

None of the interviewed mothers was employed. In five families the husband was employed.
five families one of the income sources was the father-in-law's pension. None of the interviewed families in this village got social aid. The main source of income of these families was farming; they were all holding livestock for family needs. Therefore the village of Morane was more traditional than the village of Mlado Nagoricane.

4.2 Living conditions

4.2.1 The composition of the family

In rural areas, extended families are more common than the nuclear families. That was the case in the both villages. In the village of Morane 9 of the ten families were extended and only one was nuclear. Mlado Nagoricane also had nine extended families and one nuclear family. Interviews and observations suggested that life in extended families had a favourable impact on childcare and nutrition.

It is worth mentioning that the family size of the extended families in the village of Mlado Nagoricane is smaller than in the village of Morane. The average number of members was 5.7. Family size ranged between six an eight members in the village of Mlado Nagoricane. Morane had an average family size of 13.7; the family size ranged between 11 and 22 family members. The larger family size indicates a more traditional way of living in Morane. The extended families of Mlado Nagoricane consisted of father and mother-in-law, their son, his wife and their children, and a younger brother, or a sister of the husband. Usually, in these families, only the oldest son and his wife live with his parents, while his younger brothers live separately. I would like to point out that in both communities, the daughters after marriage never stay in the family house with their parents. The extended families of the village of Morane consisted of the father and mother-in-law, their sons with their wives and their children, and usually younger unmarried brothers or sisters. The younger female members of an extended family in both villages help in taking care of the children, while the male members work in the fields or outside the house with senior family members.

All the households were headed by a man. The men have primary responsibility for the family income. In both communities men bought food and everything necessary for the household. But the mother-in-law carried the responsibility regarding housework and cooking. The female
members did the food distribution. In both communities children had priority.

In the mother’s absence, the mothers-in-law take care of the children. In the Albanian community there were more infant care takers available, all the sisters-in-law were responsible for the children. Mothers’ decisions in matters of childcare and nutrition depends to a large extent on advise from their mothers-in-law.

1.2.2 Workload of the mother

Nineteen out of twenty mothers were housewives. The pattern of daily household activities reveals that these women carry a great workload. Even the only person who got a steady job, was engaged in domestic work.

*Viki, mother of 18 months old daughter and 6 months pregnant from the village of Mlado Nagoricane* told me: ”I work in two shifts. I share the housework with my mother-in-law. I wake up early because I have to milk the cow and to feed the chickens. My mother-in-law helps me a lot with the child, feeding her and looking after her while I’m at work.”

Mothers did all the domestic work and they took care of the children. None of them worked in the fields or outside the house while they were still breast-feeding the child.

I would like to point out that besides the biological functions of reproduction, and gender defined roles of child feeding, rearing and household chores, women are also responsible for food production. The typical daily activities of these women include:

- Cleaning the house and the yard
- Milking the cows
- Caring for poultry
- Food preparation
- Washing the kitchen utensils
- Feeding the cattle and the poultry
- Washing clothes for the whole family
- Drawing water during the summer period
The Macedonian households are smaller in size than the Albanian (see 4.2.2) with usually only the oldest son and his wife living with the parents. All domestic tasks are carried out by the daughter-in-law and her mother-in-law.

It is obvious that all informants, burdened with work, stated they had limited time to spend on childcare. Still, the children are exclusively women's obligation; there is no husband-wife division of obligations regarding infant care.

In the village of Morane where all the interviewed mothers of Albanian origin were housewives, they followed the same patterns of daily household activities but it seems that they were less burdened with work than the mothers of the village with a predominantly Macedonian population. The reason is clear: these households are larger and the everyday housework is shared between more women. Their way of living is also more traditional. The female members of the Albanian community didn’t leave the house yard without a male family member accompanying them.

_Neriman, mother of three children from the village of Morane_ said: “I and my sister-in-law share the work at home. While one of us is cooking, the other is with the children. We don’t work in the fields because our children are small. Our oldest sister-in-law works in the field because her children are older. We take care of them. But still, there is a lot of work at home as we are many people.”

### 4.2.3 Household resources

It was difficult to find simple indicators to measure economic wellbeing. According to the Multiple Indicator Cluster Survey carried out in November 1999 by UNICEF and the Ministry of Health of the Republic of Macedonia, only 20% of the women in rural areas are employed among the families with children under five.

There were 4 types of family income sources: farming, salary income, pension and social aid. None of the families lived on one single of the mentioned sources of income.

In the village of Mlado Nagorichane, with a predominant Macedonian population, there were no big economic differences between the interviewed families. I did not obtain sufficient reliable data on the plot size. Though almost all the families were occupied with farming it was insufficient as a source of income for living. Almost all the families had a cow or some goats, using their milk and...
meat for the family needs. Some had chickens and geese which they kept for meat and eggs for family use.

Although I didn’t obtain information regarding the height of their salaries and pensions it was obvious that that these incomes were insufficient to live on. Three families got social aid. However, none of the families got aid in food. The interviews and observations indicated that there was no lack of food.

In the village of Morane with a predominantly Albanian population, most of the interviewed families lived only on farming. The plot size of their farming land was big enough and the family didn’t need additional sources of income. By selling their farming products on the market, they obtained a cash income. In these extended families, the male children over seven years old were engaged in selling the farming products at the market, thus contributing to the household income. It is important pointing out that at least one member of these extended families lived and worked in the developed European countries, financially supporting his family at home.

Although one of the criteria for sampling these two villages was their similar economic conditions, I got an impression that the interviewed families in the village of Morane were slightly better off.

4.2.4 Water and sanitation

All households in both villages had a piped water supply in the dwellings but the supply was not constant. In the both villages there is no water during spring and summer periods.

In the village of Mlado Nagoricane during spring and summer, people used a protected dug-well which was easily accessible. The distance to the water source was between 100-500 meters. All the interviewed mothers boiled the water for drinking.

In the village of Morane the situation in summer and spring is similar. When there is no water, people used public tap water. The distance to the water source in this village was between 100 and 1000 meters. All the interviewed mothers boiled the water for drinking.

In the village of Mlado Nagoricane toilet facilities were located in the house in eight of the houses. During spring and summer they used covered latrines that were about 50m from their premises. The
other two houses used covered latrines for the whole year.

In the village of Morane all the households had toilet facilities. During the periods of lack of water the people used covered latrines which were usually 50 m from the premises.

4.2.5 Access to the health services

The two villages did not differ strikingly with respect to availability of health services. The village of Mlado Nagorichane is 15 km from the town of Kumanovo. The village had a health post situated in the centre of the village. The houses of the interviewed families were at different distances from the health post because of the dispersed nature of the village. There were a general practitioner and a nurse working in the health post. The GP was available for 3 hours in the morning and three hours in another village. The nurse worked from 7am until 2am. The health post provided primary health care and the vaccination the children.

The nurse of the health post visit expecting women once during the last trimester of the pregnancy. She is obliged to visit every newly born child once during the infant’s first and third month. Through the interview with the nurse I was informed that the health post didn’t provide any kind of transport for her visits, thus, she travelled by foot, even to make distant visits. This was unworkable in winter, because of the terrain and climate.

The health post had a scale to measure infants weight’s. This however; was done only at mother’s request. Despite their low salaries the health workers were very willing to work. Information about nutrition available to mothers at the health post was, however, poor and frequently incorrect. This suggests that the health professionals require further training to deliver correct and useful information to local mothers.

Mothers are obliged to take their newly born babies to the Consulting Centre for Mothers in the town of Kumanovo once during the first, third and the sixth month. It is 15 km from the village, public transport to the town is available. An important point is that these consultations are free of charge to all mothers. The children of all interviewed mothers had medical insurance. This means that paediatric services are free of charge as well. If medicines are prescribed, however; they should be paid for, except to individuals receiving social aid.
The village of Morane is located at 11 km from Skopje, the capital of Macedonia. The village has a health post. The working hours of the GP and the nurse are the same as those in the village of Mlado Nagorichane with the same services. The Consulting centre for mothers is in the nearest municipality of the town of Skopje, connected with public transport.

The children of all interviewed mothers in the both villages were medically insured and accordingly all their medical expenses were free of charge. Considering the economic status of the villagers from both study sites, however, the obligatory visits to the Consulting Centre for Mothers was a sizeable expense for the families. An important point is that villagers usually only ask for medical help when their children are sick or need vaccination.

1.3 Practices and perceptions regarding breast-feeding

All sampled children in both villages under 18 months of age have been breast-fed, at least partially. All the interviewed mothers intended to breast-feed their infants; firstly, because they had some idea that breast-feeding was healthier for the child. Secondly, because their mothers and their mothers-in-law were doing so.

Only two children, both in the village of Mlado Nagorichane were exclusively breast-fed till the age of 6 months. One of these mothers was not aware of the importance of exclusive breast-feeding; she said that she did it because her child refused to drink water. None of the children in the village of Morane was exclusively breast-fed. All infants had been receiving breast-milk together with other liquids (water and tea). Water and tea were introduced at the age of one week.

All the children in both villages were born in hospital. All mothers started breast-feeding within 12 hours of birth except one, whose baby was born by caesarean section. Half of them started breast-feeding within six hours after the delivery. They had been told to do so by the hospital staff. All the interviewed mothers breast-fed their infants at fixed intervals after the delivery, according to the routine of the hospital. After leaving hospital some mothers continued feeding their children at fixed intervals, they did so in hospital and so thought it was a good feeding practice.

However, breast feeding on demand was widely practised. Most of the mothers offered their
breast-milk to calm the child. The most common reason for stopping breast-feeding was the perception that the mother had insufficient milk to feed the baby (see 4.3.1).

Regarding the duration of the breast-feeding there was a clear difference between the two villages. The children in the village of Morane were breast-fed longer than the children of Mlado Nagorichane. The range of duration of breast-feeding was between three and six months in the village of Mlado Nagorichane while this was between one and a half and 18 months in the village of Morane. The mother who stopped breast-feeding after one and a half months stopped because of mastitis on her breasts and can be seen as an exception. Three mothers were still breastfeeding children who were 18 months old.

The explanation might be the more traditional way of living in the village of Morane. Living in larger households, mothers were sharing every day activities and thus they seemed less burdened than the mothers in the village of Mlado Nagorichane (see 4.2.3).

1.3.1 Reasons for stopping breast-feeding

Insufficient breast-milk

The most common reason given for stopping breast-feeding among the interviewed mothers was the perceived insufficient quantity and quality of breast milk. Insufficient breast milk was mentioned as a reason for stopping by three mothers from each village. Considering the fact that every mother could breast-feed her baby following delivery, this reason seemed unfounded in most cases.

_Violeta, 21 years old mother of 16 months old son from the village of Mlado Nagorichane_ mentioned the same reason: “I started feeding my baby with cow’s milk when he was four months old because I didn’t have enough milk. My mother in law said that my milk was weak and that was why the baby often cried. When I started giving him milk from a bottle with a nipple he liked it, he drank a lot and he refused suckling.”

_Nada, 19 years old mother of 10 months old daughter from the village of Mlado Nagorichane_ said: “When my daughter was three months old I took her to the Consulting Center for Mothers, because she was crying a lot although I kept her on my breast rather often. The nurse measured the baby and told me that she has gained only 200
grams for the last month. She told me that I probably didn’t have enough milk and recommended infant formula for the baby. The baby liked it and she drank it a lot. She didn’t want to suck my breasts and vigorously accepted the bottle with a nipple.”

Fatima, 20 years old mother of 11 months old daughter from the village of Morane said: “Nobody told me that I had insufficient breast milk, but I had that feeling. My breasts didn’t enlarge much and I was worried that the baby might be hungry. I wanted my baby to be well fed so I started giving her cow’s milk. She was four months old then.”

The other explanations of why mothers thought they did not have enough milk were:
- She felt baby was not satisfied after breast-feeding
- The baby suckled the breasts for too long
- There was no milk on pressure
- The baby did not defecate every day
- The baby cried frequently.

Dr. Biljana Ancevska, a paediatrician at the Institute for Mother and Child in Skopje, and a leading person in the promotion of exclusive breast-feeding in the Republic of Macedonia, said, none of the reasons given by mothers were valid. Hunger is not the only reason causing babies to cry. The duration of breast-feeding is different for each child. Even one defecation every few days is considered normal, because if all of the mother’s milk is consumed there is not waste produced. Mothers can not express their milk immediately because the oxytocin needs time to initiate the breast-milk production. Therefore mothers drew incorrect conclusions regarding how sufficient their quantity of milk was.

There are only two conclusive indicators that the baby is not getting enough milk:
- If the baby does not gain weight
- If the baby does not urinate at least six times during the day.

Support given to a mother in persisting with breast-feeding her infant is crucial to the mother’s confidence in her ability to continue. Appropriate care during pregnancy and childbirth is essential in building this confidence. In cases where mothers believe their milk is insufficient, they should be advised to breast-feed their babies more often, and not avoid night breast-feedings. It is important that mothers attend the Consulting Centre for Mothers with their children. The should be informed to be patient about their infant’s growth, so as not to draw incorrect conclusions from an
urly lack of significant weight gain, and so introduce transitional foods which will discourage babies from going on effort to suckle.

The milk is “weak”

Weak” milk was the reason for stopping breast-feeding for two mothers from the village of Nado Nagorichane and for one from the village of Morane. The first milk, colostrum, is yellow and thinner than mature breast-milk, so mothers had an idea mature milk was weak. Afraid the breast-milk would be inadequate for the well doing of their baby mothers started introducing infant formula or cow’s milk.

*Vesna, 20 years old mother of 5 months old son told me:*” My mother-in-law told me that my milk was weak. It looked thin, watery and bluish. That is why I started giving him infant formula. Yes, I started feeding him on a bottle with a nipple. He liked it and I was satisfied with his weight. But, my son refused suckling.”

“Mother’s milk is never thin. Even when it looks watery and bluish, it has all the components a baby needs,” Dr. Biljana Ancevska commented.

Mothers’ perceptions for stopping breast-feeding can be their own mistaken opinion, the opinion of close family members or mothers’in-law. Even health workers can influence mother’s opinion on insufficient breast-milk. That implies the need of education of mothers, mothers in law, as well as education of health workers.

The baby refuses suckling

Many babies are left with a dummy nipple in their mouths while their mothers are occupied with domestic work. Mothers think that their the babies are satisfied because they are calm. This is often a mistake. The baby gets used to a dummy nipple. It is the same case with a bottle with a nipple, which makes the sucking much easier for the baby than the breast sucking. So, it starts refusing sucking. The mother’s perception is then that her baby doesn’t like her milk and prefers the one from the bottle. Therefore she reduces the number of breast-feeds. One mother from each village mentioned this as a reason for stopping breast-feeding.

*Aslian 19 years old mother of a 12 months old daughter from the village of Morane* said: “When she was crying, the dummy nipple usually calmed her. She liked her bottle with a
nipple and drank all the milk I prepared for her. She preferred cow’s milk, she refused sucking my breasts.”

Using a bottle with a nipple and a dummy nipple keep the baby satisfied and calm. The baby can eat by itself from a bottle with a nipple. So, the mother can do her domestic work. This seems convenient for the mother, although she has to prepare the milk.

It’s worth pointing out the behaviour pattern of women with a Caesarean section.

Valentina 24 years old mother of 9 months old child from the village of Mlado Nagorichane: “I delivered my child with a Caesarian section. Because of that my baby was brought to me 6 days after the delivery. During that time my baby was fed with Infant Formula from a bottle with a nipple. I had a lot of problems with the breast-feeding. I got mastitis and I couldn’t express my milk because of the severe pain. Although I was very eager to feed my baby, I was not able to. I had difficulties with breast-feeding when I was back home; the child preferred the milk from the bottle. That’s why I stopped breast-feeding him rather early, when he was three months old.”

In hospitals where the mothers give birth, following delivery delayed mother-child contact is practised. It can be an important factor influencing unsuccessful breast-feeding. All interviewed mothers breast-fed their infants no earlier then 6 hours following delivery. The initiative “baby friendly hospitals” is accepted in the country, and will be broadly introduced in the near future.

“Breast-feeding is certainly possible after a Caesarean section. Health workers should give the mother extra help with the initiation of breast-feeding. Because the baby was not brought to her immediately after birth, the suckling reflex had been disturbed.” said Dr. Biljana Ancevska.

Other reasons

Additional factors, not explicitly mentioned by mothers but observed during the study were:

- Insufficient education on breast-feeding by the health workers
- Aggressive advertising by infant formula producers

All the mothers visited the Consulting Centre for mothers, yet, no one was informed of the benefits of exclusive breast-feeding, the disadvantages of the bottle-feeding and the use of a dummy, nor about appropriate complementary foods recommended by UNICEF. Most said they
received information on appropriate weaning practices, but they couldn’t reproduce the recommendations. Two of the mothers with a higher educational level stated that the information they got concerning complementary feeding was applicable. This suggests that the level of explanation was inappropriate, also that the health workers were not sufficiently motivated to cooperate and inform mothers who did not explicitly show interest; only mothers who themselves expressed an interest, received information. No mothers, in both villages, received any printed material concerning infant care and nutrition.

Furthermore, during the stay in hospital following the delivery, most mothers did not receive assistance from health workers regarding breast-feeding. Improved support should be given by medical stuff following delivery, but only a minority seems to help mothers to breast-feed. Lack of proper information and education on breast-feeding techniques mislead mothers, and they often drew unhelpful conclusions on how to feed their new child.

A significant factor, which can mislead mothers, is the omnipotuse marketing and advertising of infant formula and artificially produced milk. The Republic of Macedonia is not a producer of these products, they are imported from Croatian, Slovenian, Switzerland and other countries. They can be bought in most pharmacies and supermarket. They are freely available for sale and relatively inexpensive. The interviewed mothers who had experience with artificial milk products said that they had heard about the infant formula through the brochures they got in the pharmacy for free.

Vesna, 23 years old mother of 9 months old son from the village of Mlado Nagorichane said: “I have looked at the package of the infant formula. It is written that it contains all the vitamins and minerals that the baby needs.”

I have noticed that in the country, the distributors of infant formula sponsor magazines for mothers, displaying numerous aggressive advertisements for infant formula. There are advertisements nippled bottles as well as dummies with nipples. In order to gain coverage, distributors often sponsor many of the Congresses of Health workers. To solve these problems, mothers should be given access to well founded information, and not that predominantly aimed at furthering commercial infant formula. Secondly, the State should issue a legal code, regulating the use of Infant Formula, to be used only through the supervision of adequately trained and informed health workers.
A National Committee for breast-feeding support was launched in the country, in late 1999. The main purposes and aspects of this Committee is to co-ordinate the following activities:

- Initiative- Baby friendly hospitals started in November 1999
- A legal aspect: a code for breast-feeding protection
- Wide public promotion for breast-feeding education of mothers, health workers and population in general.

4 Practices and perceptions regarding the use of bottle

Seventeen out of twenty mothers said they had used a bottle with a nipple for feeding within the last 24 hours. Eight mothers from the village of Mlado Nagorichane and all ten mothers from the village of Morane used a bottle with a nipple to give water and tea to their infants, starting in the first week after the delivery. Fruit juices were given from a bottle with a nipple as well. All the interviewed mothers used a bottle with a nipple after they stopped breast-feeding.

In the mothers’ perception there is nothing wrong with bottle-feeding. All were satisfied with this method of feeding, because the child drank a lot of milk, ate by itself and got to sleep by itself. The mothers’ impression was that the child liked it.

_Vera, 21 years old mother of a 4 months old daughter from the village of Mlado Nagorichane_ said: “I’m satisfied with this way of feeding because since I started feeding my child with a bottle with a nipple it drank one and a half liter milk per day.”

_Gordana 21 year old mother of 13 months daughter from the village of Mlado Nagorichane_ said: “I’m satisfied with this way of feeding because the child is eating by itself and I can do my house work. My son gets asleep with the bottle, thus, I have time to work and I don’t need to spend time putting him to bed.”

“My five years old son still drinks milk from a bottle with a nipple. I know he is too big for a bottle with a nipple but he likes it and refuses drinking from a glass.” said _Flora, the mother of six children from the village of Morane_.

Mothers are not informed about the bad sides of this way of feeding. Instead of discouraging the mothers introducing bottle feeding, the baby packages they got after the delivery, among the other things, contain a bottle with a nipple.
1.4.1 Introduction of other liquids while breast-feeding

The early introduction of liquids other than breast-milk was a very popular custom in both rural areas. Water was introduced as early as the first week of life by eight mothers in the village of Mlado Nagorichane and by all of the mothers in the village of Morane. All of the interviewed mothers who introduced water thought that the baby was thirsty and should drink water. Their mothers-in-law thought the same, and they had fed their children in the same way, so that practice went on to the younger generation. I want to point out that none of the mothers, except one from the village of Mlado Nagorichane, was informed or advised by the medical staff in the hospital or in the Consulting Centre that the breast-milk contained the necessary water. Some of the mothers added a few drops of lemon in the water they gave to their infants. They told me several reasons for doing this: the lemon should be good for the bones, it should prevent babies from getting jaundice and it was considered good for the baby’s stomach.

Tea was used in the same way, in addition or as alternative to water. Only herbal teas were consumed (camomile and mint) because it was believed that those kinds of tea prevented belly aches and constipation. These herbs grow most in their yards. All of the interviewed mothers thought that when the baby got constipation it should get herbal tea, not knowing that a breast-fed child do not defecate so often.

Fruit juices are also popular. They were introduced at the average age of five months, in a range between four and six months in the village of Mlado Nagorichane while the same average was 4.3, in a range between three and five months in the village of Morane. The early introduction of fruit juices is due to the mothers’ perception that these juices are good for their infants because of the vitamins they contain. Buying these juices means expense for the family but it is done for the child’s well-being.

4.4.2 Vitamin supplementation

Vitamin supplements (AD drops) were commonly given to the infants from the first month of life. Only one mother from the village of Mlado Nagorichane and two from the village of Morane didn’t use them because they were not aware of the importance of their use.
Marija, 19 years old mother of two months old son from the village of Mlado Nagorichane said: “I don’t give him Ad drops because my mother-in-law said it is not necessary. We are bathing him in water with nuts lives, it makes the bones strong.”

Asljan 19 years old mother of one month old son, from the village of Morane said:” No, I don’t. But I swaddled him very tightly with his arms close to the body and his legs put together. It makes his bones grow strong and firm.”

1.4.3 Replacement feeding (breast milk substitution)

Breast milk substitute is any food being marketed or otherwise represented as a partial or total replacement for breast-milk, whether or not suitable for that purpose (UNICEF, 1999).

Cow’s milk (from home cows) was used as an alternative to breast-milk for infants under 6 months. It is a general perception that cow’s milk is good for children. Home cows milk is believed to be more healthy than pasteurised milk. Families that do not have cows (two from the village of Mlado Nagorichane and one from the village of Morane) buy this milk from their neighbours.

Cow’s milk became a major food after the age of six months for six children in the village of Mlado Nagorichane and five in the village of Morane. It is worth pointing out that almost all children had consumed it in the 24 hours before the interview. Seven children from the village of Mlado Nagorichane had consumed home cow’s milk in the 24 hours before the interview, one had consumed home goat’s milk and the remaining two were still breast-fed. In the village of Morane five of the children had consumed home cow’s milk in the 24 hours before the interview and the remaining five were still breast-fed.

Cow’s milk is used diluted with water and sugar added for infants under six months. One mother mentioned using goat’s milk prepared in the same way. The average onset of introducing cow’s milk was at 6.3 months in the village of Mlado Nagorichane in a range between four and nine months and at 3.4 in the village of Morane in a range between one and a half and five months (table 1).
Table 1. Age of introduction of home cow’s milk

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<th>Mlado Nagorichane</th>
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<tr>
<td>Average age in months</td>
<td>6.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Range in months</td>
<td>4-9</td>
<td>1.5-5</td>
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However, more mothers from the village of Mlado Nagorichane used cow’s milk as a breast milk substitute than in the village of Morane. Although introduced earlier in the village of Morane than in the village of Mlado Nagorichane the cow’s milk was used as additional food to breast-milk in the first village while in the second village it was used after the cessation of breast-feeding.

Fermented milk was not used in the first six months of life and therefore was not used as a breast-milk substitute.

Children were using infant formula, usually as a substitute for breast-milk. Infant formula was used as a transition to other foods at the cessation of breast-feeding. Two mothers from the village of Mlado Nagorichane introduced infant formula at their own initiative on the age of four months instead of cow’s milk while two mothers from the village of Morane replaced the home cow’s milk with infant formula at the age of five months on doctors recommendation. Both mothers from the village of Morane introduced the cow’s milk as early as at the second e.g. the third month and two months latter they replaced the cow’s milk with infant formula. Thus the average age of introduction of infant formula was one month earlier in the village of Mlado Nagorichane than in the village of Morane.

4.5 Practices and perceptions regarding complementary feeding

Complementary foods are foods given in addition to breast milk as a complement to breast milk (or a breast milk substitutes). They can be specially prepared soft foods (transitional foods) or family foods. The term ‘weaning’ is not longer recommended because it indicates the complete cessation of breast-feeding (UNICEF, 1999).

Complementary foods were given to children starting from the fourth to the fifth month. The early introduction of complementary food was mainly a result of the mother’s ambition to have plump children which was a synonym for healthy children. They were happy when their children accepted
the food cooked for the adult members of the family, thinking that it showed that the child grew well. The mothers’ perception was that it was more important to have a child who ate well, even if it often got common child’s diseases (diarrhoea, cough) than to have a puny child.

Fruit was the foodstuff that was introduced first (table 2). All interviewed mothers had introduced banana as a first fruit in spite of the fact that it was an expense for some families (banana is the most expensive fruit in the country). Apples, apricots, peaches are other fruits commonly given to children.

Vegetables were introduced one or two months later (table 2). The average age of introducing of vegetables was 6.3 months in a range between six and eight months in the village of Mlado Nagorichane while the same average was 5.8 months in a range between five and six months in the village of Morane. Carbohydrate rich foods (porridges, potatoes) were introduced in the second semester of life (above six months).

Biscuits were given earlier to the children in the village of Morane (table 2). The average age of introducing biscuits was 4.6 in a range between four and five months in the village of Morane while none of the mothers gave biscuits earlier than the 5th month in the village of Mlado Nagorichane.

Meat was introduced earlier in the village of Morane in a range between six and seven months while the same range was between seven and nine months in the village of Mlado Nagorichane (table 2). There were differences in the age of introducing of eggs as well (table 2). The range of introduction of eggs was between seven and eight months in the village of Mlado Nagorichane while the same was between five and seven in the village of Morane.

Porridges were less commonly use. Generally, mothers didn’t prepare special food for their infants. With few exceptions related to mothers’ higher education, what was mostly striking, was the mothers’ perception that babies didn’t need special food. Mothers were not aware of the importance of the quality of food and insist of the quantity of the food given to their infants. Most of them paid little or no attention to remember what they were giving to their infants progressively in months. The introduction of solid foods is commonly connected with the appearance of teeth. That is the explanation for the later introduction of solid food in some cases.
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<th></th>
<th>Mlado Nagorichane</th>
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<tbody>
<tr>
<td>Average age in months of introduction of fruits</td>
<td>5</td>
<td>4.3</td>
</tr>
<tr>
<td>Range in months</td>
<td>4 – 6</td>
<td>3 – 5</td>
</tr>
<tr>
<td>Average age in months of introduction of vegetables</td>
<td>6.3</td>
<td>5.8</td>
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<tr>
<td>Range in months</td>
<td>6 – 8</td>
<td>5 – 6</td>
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<tr>
<td>Average age in months of introduction of biscuits</td>
<td>5.4</td>
<td>4.6</td>
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<tr>
<td>Range in months</td>
<td>5 – 7</td>
<td>4 – 5</td>
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<tr>
<td>Average age in months of introduction of meat</td>
<td>8</td>
<td>6.6</td>
</tr>
<tr>
<td>Range in months</td>
<td>7 – 9</td>
<td>6 – 7</td>
</tr>
<tr>
<td>Average age in months of introduction of egg</td>
<td>7.7</td>
<td>6</td>
</tr>
<tr>
<td>Range in months</td>
<td>7 – 8</td>
<td>5 – 7</td>
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Table 2. Age of Introduction of complementary food

Table 2 shows a trend of earlier introduction of all types of complementary food in the village of Morane: fruits, vegetables, biscuits, meat as well as eggs.

The children started sharing the family meals (e.g. no separate cooking) earlier in the village of Morane than in the village of Mlado Nagorichane (table 3). Child feeding tended to follow the meal frequency of the adults in the household. Generally the main meal was taken once a day, usually at noon. What was left from this cooked meal was served for dinner. Although special food was not prepared for the children, the best of the family meal was given to them. Milk was considered as the best additional food for children, so mothers gave it to their infants as much as they could drink per day.
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<tr>
<td>Average age in months</td>
<td>9</td>
<td>7.5</td>
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<tr>
<td>Range in months</td>
<td>8 - 12</td>
<td>6 - 9</td>
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<td><strong>Table 3. The age at which children share completely in family meals (no separate cooking)</strong></td>
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According to UNICEF the children should share completely in the family meals after the age of eleven months. However, in both villages children share completely in the family meals too early according to their recommendations (table 3).

### 4.6 Patterns of feeding sick children

There were two children from the village of Mlado Nagorichane and four from the village of Morane with diarrhoea in the period of one month before the interview. One mother from the former village and three mothers from the second visited doctor. Mothers who did not visit a doctor said the reason was the disease was not serious. The mothers would be more concerned about their infants’ health if they would suffer from increased temperature. High temperature therefore is a bigger reason for the mother to take the child to the doctor than the number and the consistency of stools. What was striking was mothers’ ignorance of the fact that diarrhoea caused draining liquid from the body. Usually they gave mint tea to the sick infant but the reason for doing this is not to supplement the drained liquids but to “calm” the child’s belly. Mothers who modified the infants’ diet gave only light food: boiled potatoes and cooked rice. None of the interviewed mothers was aware of the fact that sick child needs extra food. On the contrary, in their perception it is better not to force the child to eat. There is a pattern of feeding the sick child only with rice water during the sickness if it suffers from diarrhoea.

Their explanatory models for the cause of diarrhoea were:

- It is from the water
- From the food which has gone bad (leftovers)
- The child’s belly got cold
- Teething
• The child drank milk from a gravid cow

Generally, they didn't connect diarrhoea with food hygiene. Coughs and colds are among the most prevalent childhood diseases. All mothers considered that temperature is a reason for medical attention. Although mothers didn't mention the more rapid breathing as a reason for asking medical help, hard breathing for them was a reason to take the child to a doctor. Perceived causes for cough and cold were:

• Cold weather
• Draft
• Changing the weather (warm then cold)

Mothers who visited a doctor followed the recommended advice regarding food and liquids and they paid special attention to the prescribed medicaments. It is worth pointing out that this same attitude towards the biomedicine was present among the mothers from the both villages.

4.7 Beliefs associated with breast-feeding and child care among the people in the villages

During the in-depth interviews with the mothers from the both communities I noticed the impact of the still preserved traditional ways of living. Thus, old beliefs and disadvantageous traditions consciously or unconsciously were still in practice among the population. In the rural areas because of the traditional way of living in extended families the authority and influence of the older members of the family was rather big. The young mothers kept on following cultural beliefs.

However, from the FGD with the mothers-in-law I got an impression that they themselves were changing their attitudes towards these cultural practices. They explained that in their young years they thought differently, because their way of life was not as it is today. The access to medical help in those days was difficult and being poor and ignorant of the modern ways of life they kept to their traditional roots. They said that today they are aware of the benefits of the changes in life so they are inclined to accept new ways of life. But it is rather difficult to cut the traditional ties and they still insist on keeping the old beliefs and tradition, not knowing that these sometimes can be harmful.
7.1 Beliefs associated with breast feeding

Beliefs associated with breast-feeding were still preserved in both study villages. Most of the mothers in both villages consiously or unconsciously practiced them, even those who said that they did not believe in their benefit.

In the FGD the mothers-in-law from the village of Morane brought up some of the prescribed behaviours associated with successful breast-feeding. After the delivery, the mother in law prepares a rich meal. The left crumbs are put under the mother’s pillow, so she will produce enough and good milk for the baby. When the mother comes home from the hospital, her mother in law bakes a loaf of bread prepared with breast-milk. This bread is taken to church. In this way the mother would have enough breast milk for her baby. During the breast-feeding period, the mother should not shake hands with people who are not members of the family. During the first days after the delivery the mother shouldn’t leave the house otherwise her milk will “run away”. A mother breast-feeding an infant should drink boza (drink made of flour and sugar) and tea from sweet basil in order to have enough milk.

The mothers-in-low from the village of Morane brought up some food taboos associated with successful breast-feeding. The mother should not drink coffee while breast-feeding otherwise the baby would be black. The mother should avoid lemon, otherwise her milk would be sour. The mother should avoid chilly food because her milk would be hot for the baby.

The mothers-in-low brought up a disadvantageous tradition that the first “yellow” milk should be avoided, because of its colour and density it doesn’t look like milk, and that is why it is not good for the baby. In reality, that is colostrum which is particularly reach in immunoprotective factors and some vitamins and minerals and therefore should not be discarded or withheld form infants in favour of prelacteal feeds.

The mothers-in-low from the village of Mlado Nagorichane agreed that if the young mother is emotionally irritated (angry or afraid) breast-feeding is not good for the baby. According to Michaelsen (1999) anxiety has a negative impact on milk secretion and can cause milk supply to fail, but it is not a reason for stopping breast-feeding. It may be an indication to improve
The FGD showed that it is believed that if the mother takes some medicaments she should not breast-feed the baby. Helsing and Vinther (1997) stated that most commonly used medicaments taken by the mother do not harm the baby. In most cases it is more harmful to stop breast-feeding than to continue while the mother is taking medications. In the rare cases where a medicine is known to have side effects in the baby, then there is usually a substitute medicine.

All the mothers-in-law from the village of Mlado Nagorichane agreed that if the mother and the baby are separated for a certain period, the expressed milk should be thrown away. “Expression of the breast-milk may be necessary if the mother is separated from the baby. Expressed breast-milk can be kept for 24 hours at 18-20 C in a shady place, for about 72 hours in a refrigerator and for about four months in a freezer” (Helsing, E. & Vinther, T., 1997:4).

The most common belief in both villages was that the mother shouldn’t breast-feed the baby if she doesn’t have enough milk at the moment. Vinther and Helsing (1997) pointed out that any mother who has fed her baby successfully in the past can at any time increase her milk supply. At this critical moment giving a bottle is not the solution. Supplementation often leads to real problems with the milk supply, because it results in less feeding from the breast and hence less stimulation of milk production.

Eighteen out of twenty mothers in both villages gave water to their babies since the first week. The explanation was the perception that each baby should drink water because babies are thirsty, as adults are. Practices that interfere with breastfeeding in the first four to six months, such as provision of supplementary fluids including plain water will displace the nutrient dense breast milk and will interfere with infant suckling and thereby compromise the establishment and continuation of breast milk. The breast milk consists enough amount of water for the baby’s needs.

A mother-in-law from the villages of Mlado Nagorichane suggested to her daughter-in-law to avoid breast-feeding while the baby had diarrhoea. She said: "If a baby get diarrhoea, instead of breast feeding only rice water should be given." Helsing and Vinther (1997) pointed out that if the baby has got diarrhoeal illness then it is very important to continue breast-feeding. The milk will...
provide anti-infective factors which will also assist with the re-hydration. It will also be providing the most digestible source of nutrients.

In the village of Morane mothers-in-law believed that if the mother is pregnant she should stop breast-feeding because the breast-fed baby takes the food from the expected one. It is interesting that the same belief can be found in other developing countries as well. Helsing and Vinther (1997) stated that breast-feeding during pregnancy is not harmful to either the baby or the foetus. The mother’s nutrient intake is preferentially utilised for the foetus and the milk and lastly for the mother herself.

4.7.2 Beliefs associated with infant care

During FGDs in both villages the mothers-in-law brought up some beliefs associated with infant care. They believed that unbaptised infants should not be taken out from their homes because they are not “protected”. Furthermore, during the first forty days the infants should be swaddled very tightly, their arms close to the body and their legs put together. Thus their bones grow strong and firm it is believed. The practice of swaddling babies, and the practice of keeping infants in doors, often for religious reasons, reduces sun exposure of the skin. A clinical study carried out in Macedonia, in a selected 150 children affected by rickets, detected insufficient exposure to sun as a major reason. Rickets is a problem in this area due to poor sun exposure during infancy and to a minor degree to poor nutrition. (Cocevska L., at al, 1997).

During FGD in the village of Morane mothers-in-law brought some prescribed behaviours associated with infant care which were in practice. They believed that baby’s diapers should not be squeezed otherwise the baby would have stomach-aches. They advised their daughters-in-law not to cut the baby’s nails till the age of one year because otherwise it is believed that it would become a thief. Till the baby is one year old its hair shouldn’t be cut otherwise its "luck" would be cut.

Mothers-in-law were not aware that some of the beliefs associated with infant care can be harmful for the baby. They believed that during the first months the mother should put an egg in the bathing water because it is healthy for the skin of the baby. Furthermore, the first baby’s bath at home should be in salty water thus, when it grows up, his sweat wouldn’t smell badly. Bathing in salty water can harm the babies’ skin, and bathing with an egg could cause a severe allergy.
The mothers-in-law from the village of Morane brought up an food taboo associated with infant nutrient. Fish is a food taboo before the child starts speaking otherwise it would be mute. Fish is an important source of good-quality protein and rich source of essential amino Acid.

Some of these beliefs and traditions are present in both communities, simply because their roots are pagan so, they have been preserved in both religions.
Discussion, Conclusions and Recommendations

1 Practices and perceptions regarding breast-feeding, the use of the bottle and complementary feeding

All mothers sampled in the study breast-fed their babies, however, the results show a clear difference regarding the duration of the breast-feeding between the two villages. The mothers in the village of Morane breast-feed their infants longer than the mothers from the village of Mlado Nagorichane which might be influenced by the more traditional way of life in the former village. Mothers’ perceptions of insufficient breast-milk and other reasons for stopping breast-feeding (see 4.3.2) seem unfounded in most cases, therefore support given to a mother in persisting with breast-feeding her infant is crucial to the mother’s confidence in her ability to continue.

Baronowski (1983) and Lizarraga (1992) stated that women’s infant feeding intentions may vary with ethnicity, marital status, and age. Furthermore, Giugliani (1994) stated that breast-feeding rates are also influenced by cultural attitudes which differ both between and within countries. A case study in the UK showed that the social as well as ethnic factors were important in the choice of feeding technique; mothers were more likely to continue breast-feeding if they had friends who had breast-fed. African and West Indian mothers more often had friends who breast-fed successfully than mothers in other ethnic groups, as did women in the upper socio-economic classes (Jones, R. & Belsey, E., 1998).

Bottle-feeding is a common practice in the two villages. The mothers’ perception is that it is a good way of saving time and the children consume much more milk from a bottle with a nipple than when breast-fed. Mothers think that bottle-feeding will reduce the frequency of infant crying, allowing them to get on with their work. Yet, bottle-feeding practices are not recommended by UNICEF/WHO, and infant’s crying is often as much a signal of the need for care and comfort, as one of hunger. None of the mothers in the both villages were informed about the negative aspects and risks associated with bottle-feeding. Bottle-feeding increases the risk of diarrhoea in settings where the hygiene is poor, dental carries and otitis media, and may alter the oral dynamics. Bottle feeding deprives the infant of body and eye contact as well as stimulation, and may lead to increased ear infections. Greiner (1995) observed infant feeding practices in resource poor settings in WHO European regions. His observation showed that older infants and young children who
carried a bottle around them make little effort to keep it free from dirt and flies.

Only one of the interviewed mothers in both villages was practising exclusive breast-feeding during the first six months due to the bad general practice of early introduction of liquids. Nine mothers from the village of Mlado Nagorichane and all the interviewed mothers from the village of Morane introduced water with lemon and herbal teas as early as the first week of the infants' life. None of them were informed that the introduction of liquids is disadvantaging successful breast-feeding and can lead to decreased production of breast-milk. On the contrary, the mothers' perceptions were that they should give water and tea (see 4.4.1). Even the nurse from the village post was not informed that breast-milk contains the necessary fluid, so she encourages the mothers to continue with this practice.

Introduction of fluids in the first week after the birth generally, demonstrates the challenge which the initiative “exclusive breast-feeding for the first 4-6” months faces. UNICEF states that exclusive breast-feeding provides milk of sufficient quantity and quality to meet the increasing needs of a growing child until at least the age of four months and usually until six months, even mothers of twins can exclusively breast-feed until around six months. Practices that interfere with an infant’s desire or ability to nurse effectively, such as the provision of supplementary fluids including plain water, glucose, sugar water, teas, herbal drinks, juices, gripe water, milks and other fluids (including infant formulas) are not necessary. They will displace the richer, more nutrient dense breast milk, and will interfere with infant suckling and thereby compromise the establishment and continuation of breast milk.

Except displacing the breast-milk, herbal teas, such as camomile and other green tea may have adverse effects on non-haem iron absorption (Ahmad & Mukhtar, 1999), and furthermore there is a lack of scientific data on the safety of various herbs and herbal teas for infants, which the mothers use.

Transitional foods such as home produced cow’s milk and infant formula were often introduced early in the two villages because of the perceived suitability of cow’s milk instead of mother’s milk and the great availability of cow’s milk. The early introduction of cow’s milk is a main reason for the high prevalence of anaemia among the infants in the country.

Although more children in the village of Mlado Nagorichane use cow’s milk as a breast milk
ubstitute, they on average started later using cow’s milk than mothers in the village of Morane, at 3.3 months in the former village against at 3.6 months in the second village (see 4.4.3). However, the same average is lower than recommended by UNICEF in the both of the villages. Cow’s milk should not be given before the age of nine months and there after, introduced gradually.

Although the cow’s milk is valuable source of nutrients, UNICEF/WHO stated that it should not be introduced into infant’s diet too early because:

- It may displace breast milk intake
- It has a low iron content
- It may cause micro-bleeding of the gastrointestinal tract
- It has a high protein content

The mothers’ general perception, however, is that the cow’s milk is healthy for the child and meets their infants’ nutritional needs. They tended to give it to their infants as much a possible. Although cow’s milk is diluted with water and sugar is added for infants under six months in both villages, none of the mothers used it together with an iron supplement. Infants who are neither breast-fed nor receiving a commercial iron fortified formula should receive a home-prepared formula together with an iron supplement.

Many studies have confirmed that feeding cow’s milk has a negative effect on the iron status, especially during the first six months of life (Cocevska, et al, 1997) and also during the last half of infancy (Sullivan, 1998). A decrease (from 21% to 10%) in the percentage of Italian infants with iron deficiency was observed during a 10-year period when the consumption of cow’s milk at six months decreased from 73% to 8% (Salvioli, 1999).

The findings show that all types of complementary food were introduction earlier in the village of Morane. Most of the complementary foods were introduced earlier than the recommendations given UNICEF in both villages. The only exception is the introduction of meat in the village of Mlado Nagorichane which is later than recommended. Although I have no data on the frequency of meat consumption, the latter introduction can be explained by the lower ability of the villagers from Mlado Nagorichane to buy meat products due to the high price (see 4.2.2). The UNICEF recommendations regarding the introduction of complementary foods are: fruits and vegetables at the age of six months, meat and fish one month latter, yolk should not be introduced before the
age of eight months and the infants should share completely in the family meals after the age of eleven months.

The mothers’ general perception in the both villages is that the early introduction of complementary foods contributes to infant growth. The emphasis is on the quantity instead of quality of the complementary food. The fact that most of the mothers can not recall what they gave to their infants progressively by months speaks for itself regarding their level of awareness for the importance of infant food quality.

What is most striking is the mothers’ perception that the babies do not need special food. This perception is most evident in the village of Morane where the average age at what children share completely in the family meals is 7.5 months. But, even in the village of Mlado Nagorichane where the children share the family meals at the average age of nine months, they start two months earlier than recommended.

Starting complementary feeding too soon has its dangerous side because:

- Breast-milk can be displaced by special transitional foods, leading to decreased breast milk production
- The risk of diarrhoeal and allergic diseases is increased because of intestinal immaturity and these increase the risk of malnutrition
- Infants are exposed to microbial pathogens present in foods and fluids that are potentially contaminated, thereby increasing the risk of illness and consequently malnutrition
- Mothers become fertile sooner if breast-feeding is reduced.

Good hygiene practices are time-consuming, especially in resource poor settings, and are often compromised as a time saving measure. As a consequence of resource constraints it may be impossible to follow the recommended hygiene practices in preparing complementary food (Greiner, 1999). According to Michaelsen (1999) the risk of such food in these settings can explain the evidence of increased morbidity (diarrhoea) when special transitional foods are introduced before six months. Complementary feeding before this time does not appear to benefit the rate of infant weight and height gain.

Two mothers from the village of Mlado Nagorichane and four from the village of Morane reported
diarrhoea in the last month before the interview. The risk of diarrhoeal morbidity is greater among the families with lower economic status and in conditions of poor personal and domestic hygiene. However my data is too limited to detect a relation between the occurrence of diarrhoea and economic status in the studied villages, although I observed twice the rate of diarrhoea in the village of Morane than in the village of Mlado Nagorichane. The explanation for this higher rate of childhood diarrhoea in the village of Morane than in Mlado Nagorichane may be the earlier introduction of cow’s milk, complementary foods and sharing of family meals earlier (see 4.5). This hypothesis needs a more detailed investigation on a larger scale.

5.2 Patterns of feeding sick children

Sick children tend to loose their appetite and consequently weight, therefore their feeding needs special attention during periods illness. Data collected from the in-depth interviews provides information on:

- Local perception of the causes of diarrhea and coughs.
- Feeding patterns during the illness.
- Basic information of the utilization, attitudes and approaches to the health care services in cases of childhood diarrhea and coughs.

In the both villages, a common feeding pattern for children with diarrhoea is that it should not be fed or receive extra fluids. The mothers are not informed that food can help to stop the diarrhoea. They usually give mint tea to the sick infant, the reason for this is not to supplement the lost fluids, but to calm child’s stomach.

The findings show that mothers generally do not connect diarrhoea with food hygiene. A comparison of practices between with families with high and low rates of diarrhoea can determinate the behaviour leading to childhood diarrhoea. Although the results show that all the interviewed families boil the water for drinking, improvement of the water supply and sanitation may contribute to a decreased prevalence of childhood diarrhoea among the rural Macedonian population in general.

It is a general practice to take the child with diarrhoea or cough to a doctor in the both villages, but usually, only in cases where the child has a higher than normal temperature. The sick child is
given any prescribed medicine, but mothers do not encourage the child to eat as frequently as possible. Additional research should be conducted as to whether doctors are making any real efforts to explain to mothers, the importance of extra food and extra liquids in the cases of diarrhoea.

3 Traditional beliefs relating to infant nutrition and infant care

The impact of the still preserved traditional way of life in both communities is very evident. Consciously or unconsciously old beliefs, some of which can be harmful, are still in practice among the population. Among the extended families this is more common, due to the authority older family members and the regard they are have generally.

The FGDs show that successful breast-feeding is associated with the mother’s diet, food taboos and prescribed behaviour - which have no justification under bio-medical science (see 4.7). It is interesting to note that some traditional beliefs relating to breast-feeding present in the study villages, can be found in other developing countries too. A study carried out in Cairo found a range of beliefs on whether a women could breast-feed or not. The women do not assume the ability to breast-feed is automatic. Successful breast-feeding is believed to require good luck and specific changes in diet and nutrition. Mothers believe that unhappiness turns the maternal body and its milk ‘hot’, and this ‘sadness milk’ or ‘grief milk’ could cause diarrhoea in infants. This belief is the reason for expressing and discarding breast milk (Harrison, et al, 1998).

The FGDs shows an association between successful breast-feeding and mothers diet. The same association is found in a study which assessed feeding patterns and growth rates of 20 London Chinese children. The study showed that the mothers believed breast milk quality was affected by the quality of the food eaten by them after the delivery. They believed their diet should be modified according to the general health of the infant receiving their breast milk. In some cases this led to a considerable restriction in the sources of nutrition available to the mother. (Taan and Wheeler, 1998).

The positive and neutral beliefs could be beneficial, especially where they are important to those who practice them. They could be used as a basis for appropriate information and messages on
infant care and nutrition. However, disadvantageous traditions and practices regarding breastfeeding and infant care, prevailing in both communities present opportunities for community health education. Since mothers may not be aware of the consequences, educating both the mothers and mothers-in-law may discourage harmful practices.

4.4 Factors influencing infant nutritional practices

4.4.1 Family composition

Extended families are prevalent in both the rural communities studied and this is an important factor in the maintenance of traditions. All the interviewed households are headed by men who have full responsibility for the family income. In both communities they buy food and necessities for the household. As the decision makers they have a large but often unrecognised role regarding the health and the nutrition of their children.

The fact that the fathers from the both villages were not willing to discuss infant nutrition speaks volumes in itself regarding the general perception that child nutrition and care are women tasks. Although the gender division of the responsibilities in general is more noticeable among the Albanian community, fathers from the Macedonian community also seem restricted, by cultural and personal attitudes, from greater responsibility in child-care.

Involving fathers could have a positive effect on child care by supporting mothers in breastfeeding, obtaining health care and providing special food that is beneficial to the infant. Therefore educational programmes on the promotion of breastfeeding, information on appropriate complementary feeding and childcare should target the male members of the families as well.

Furthermore, mothers’ decisions in matters of the child’s care and nutrition depend to a large extend on the advice received from their mothers-in-law. A survey carried out in Lithuania in 1991 indicates that the influence of other family members like mothers, grandmothers and elderly sisters is much stronger than that of the medical staff.

In both the subject areas the mothers-in-law’s authority was evident, this suggests that health educational programmes promoting the benefits of breastfeeding need to target at both mothers
and the older women.

\subsection*{5.4.2 The workload of the mothers}

Although none of the mothers in both villages, (except one from the village of Mlado Nagorichane) were employed, the pattern of daily household activities reveals that these women carry a great workload. It is obvious that the workload of the mothers limits their time available for childcare. The mothers in Morane follow the same patterns of daily household activities as the mothers in Mlado Nagorichane, but the latter seem less burdened because of the fact that they live in larger households with more women do the everyday housework than in Mlado Nagorichane. The lower prevalence of breast-feeding in children in the village of Mlado Nagorichane may have a correlation with this greater workload, although only further studies will reveal this.

A in-depth nutritional study, carried out in Benim identified the mothers’ available leisure time as a major factors in different nutritional status of children in the study area. The workload of the mother may limit the amount of care mothers can provide (Varkevisser, C. et al, 1993).

Although a mother’s employment can be an important constraint on childcare, it was not found in the case of the employed mother from the village of Mlado Nagoricane. She was practising exclusive breast-feeding till the age of six months, the reason for stopping breast-feeding was not related to her employment and she had information on appropriate complementary feeding. Leslie (1988) stated that the initiation of breast-feeding is little affected by employment and domestic chores. Working for income may even have indirect benefits on a women’s capacity to engage in good complementary feeding practices. Women who work outside the home may enjoy greater prestige and self-esteem than those who do not, although this will not be universal (Mubarak et al, 1990). Moreover, they may be exposed to new ideas and attitudes though these will not necessarily be conducive to good complementary feeding practices (Engl., 1992).

\subsection*{5.4.3 Mothers education}

The findings show a positive correlation between mothers’ educational level and infant nutritional practices. There is a large body of literature demonstrating a positive association between the caregivers educational level and their children’s health and nutritional status (WHO, 1998). The
educational level of the mothers in the village of Mlado Nagorichane was higher than that of Morane. Although the mothers in the village of Morane breast-feed longer, is it more likely that this is a result of the more traditional way of life than the mothers’ knowledge and awareness of breast-feeding benefits. The average age of children introduced of cow’s milk (although too early in both villages according to UNICEF recommendation, which is not earlier than the nine months) is lowest in the village of Morane, at an average age of 3.4 months against 6.3 months in the village of Mlado Nagorichane. The average age of introduction of all complementary food is lower in the same village. The mothers’ perception that babies do not need special food is more noticeable in the village of Morane than Mlado Nagoricbane. The average age at what children share completely in the family meals (no separate cooking) is lower in the same village, at the average age of 7.5 months against the average age of nine months in the village Mlado Nagoricbane. More mothers from the village of Morane can not recall what they were giving to their infants progressively in months. This information can be interpreted in correlation with the mothers’ lower education level in the village of Morane. Engle (1995) stated that more educated mothers tend to have greater nutritional knowledge, greater assertiveness and higher status within the household, better ability to use health care systems, and a better capacity to allocate resources on their own.

5.4.4 Access to information on breast-feeding and appropriate feeding practices

Considering the mothers’ positive attitude towards biomedicine in both villages, I found that educational messages provided by the health services might be of great importance. The in-depth interviews and observations showed that the information on breast-feeding and complementary feeding provided by the health services are insufficient.

All the babies were born in a maternity hospital which have the following characteristics in Macedonia: separation of mother and child, scheduled feeding, pre-lacteal feeding, absence of night feeding and delaying initiation of breast-feeding. In hospital, immediate mother-baby contact and feeding on demand is only possible with the first 24-hours “rooming-in”, which enables the mother to respond when her infant shows readiness to feed.

The results shows that the medical staff do not give enough support for breast-feeding at the time of delivery, as only a minority seems to be helping mothers to breast-feed. Very few mothers
started breast-feeding as early as possible. In the first couple of hours of life outside the womb, the baby is alert, active and ready to feed and ideally breast-feeding should begin within the first hour. To facilitate this process, mothers should be encouraged and helped to have skin-to-skin contact with their baby as much as possible during the first days after the delivery, and “rooming-in”, where mother and baby are accommodated together, should be practised (Michaelsen F. et al 1999).

Health staff do not inform the mothers about the negative aspects of bottle-feeding. Rather than discouraging mothers to introducing bottle-feeding, the information packages they received following delivery, amongst other things, contains a bottle with a nipple.

Although all the mothers have visited the Consulting Centre For Mothers, none is informed of the benefits of exclusive breast-feeding, the disadvantages of the bottle-feeding or the use of a dummy. Finding show that although mothers received information on appropriate complementary feeding practices most of them can not reproduce the recommendations. Two mothers from the study villages with a higher educational level state that the information they received regarding complementary feeding are applicable. This suggests that the level of explanation is inappropriate and the health workers are not motivated to co-operation and enlighten mothers who show no interest. Only the mothers who themselves express an interest, receive information. Mothers of neither village receive printed material about infant care and nutrition. This implies the need for applicable advises regarding the use of affordable and available food in an understandable way.

Although it is clear that caretakers need better information, many factors constraining appropriate infant feeding practices can not be addressed with educational messages alone. They involve economic issues as well as structural features in the organisation of the Macedonian society.
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Annex 1: Interview guide for interviews with mothers of children from 0 to 18 months old

Data of informant
- Age
- Marital status
- Ethnic background
- Education
- Occupation
- Number of children and their age
- Intervals between births

1. Perceptions, beliefs and practices regarding breastfeeding

When did she start with the breastfeeding and how long she intents to breastfeed the child? Why?
What was the time laps after the birth for breast-feeding?
Did anybody help her with the breast-feeding in the beginning?
Does she have problems with the breastfeeding? If yes, how does she deal with?
How often does she breastfeed the baby?
What was the reason for stopping breast-feeding?
Who teaches her about the frequency and duration (termination) of the breastfeeding?
Are there differences regarding the termination of the breastfeeding between the first and the last child? What are the differences and why does she change the practices?

2. Perceptions, beliefs and practices regarding bottle-feeding

Does she have experience with bottle-feeding?
If yes, how long did she bottle-feed the child?
What is her experience/problems with the bottle-feeding?

3. Perceptions, beliefs and practices regarding weaning practices

When did she start with giving something else except breast milk and why?
What was the age of start with additional soft food and what did she gave to her baby progressively?
What was the age of start with solid food and what did she give to her baby progressively?
What did she give to the baby in the last 24 hours? Is it “normal” scheme?
What is good for the baby at a specific age? (each month) Why?
Are there specific foods which are not good for the baby at a specific age and why not?
How does she prepare the baby porridges (what are the ingredients) and whom did she learn it from?
How frequently does she prepare this porridge?
What was the age at which child shared completely in the family meals?
Does she give supplemental vitamins (AD drops)? If yes, on who’s recommendation? If not, why? How does she use and store them? Are they expensive, can she always afford it?

4. Food Hygiene

How does she store leftover foods (porridge) and for what period of time?
Where do they get the water?
What water sources do they use for different aims, drinking, cooking, and washing?
How is the drinking water stored?

I will observe their habits of washing hands before preparing the meals. For children who have started to eat independently: Are the child’s hands washed before eating? Is soap used?

5. Patterns of feeding sick children (diarrhoea, cough)

Was the child sick during the last month? What was the child sick from?
What provoked the disease?
What did she do about it? What made her decide to do so?
Which kind of treatment has been given and what was recommended especially regarding food?
Did they visit a doctor? Who paid?
If not why? (distance, cost, disease was not serious) Who decided that?
Does she modify the baby’s diet when the baby is sick and how?
What is good and what is bad food for the sick child and why?
Does she force the child to eat if it refuses?

6. The composition of the family

How many family members live in the same household?
Who is taking care of the child in her absence?
How is the division of responsibilities regarding to the child’s care and feeding?
Is there husband-wife (mother/mother in law) division regarding infant care? Who does what?
How much her decisions, in matters of child nutrition, depend on the advises of her mother/mother in law?
Who buys the food? Do they buy special food for the baby? Are there discussions and contradictions on some points?
Who is cooking in the family?
How is the food distributed between the members of the family? Can she describe the general rules and then explains?
7. Socio-economic factors

What are the sources of the family income?
Is the family income enough to cover the expenses?
Does the mother work? If yes how long per day?
Who is taking care of the child in her absence?
Is the infant food affordable?

8. Access to the information on appropriate feeding

How often she is visiting mothers consultation centre and what for?
What information do they give on infant feeding?
Are the advises applicable? If not, why? (affordability, contradicting views on what is good for the baby).
Is the baby’s weight measured? If yes, how often? If the weight was too low what was done?